

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Amendment No. 2
FORM S-1
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

GT BIOPHARMA, INC.

(Exact name of registrant as specified in its charter)

Delaware
State or other jurisdiction
incorporation or organization

2834
(Primary Standard Industrial
Classification Code Number)

94-1620407
(I.R.S. Employer
Identification Number)

**9350 Wilshire Blvd. Suite 203
Beverly Hills, CA 90212
(800) 304-9888**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Anthony J. Cataldo
Chief Executive Officer
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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

<i>Title of Each Class of Securities To Be Registered</i>	Proposed Maximum Aggregate Offering Price ⁽¹⁾⁽²⁾ (3)	Amount of Registration Fee ⁽⁶⁾
Units consisting of:		
Shares of common stock, par value \$0.001 per share (the "Common Stock"), included in the Units	\$ 10,000,000	\$ 1,091.00
Warrants to purchase common stock included in the Units	— ⁽⁴⁾	—
Pre-Funded Units consisting of:		
Warrants to purchase common stock included in the Pre-Funded Units	\$ 10,000,000	\$ 1,091.00
Pre-funded warrants to purchase common stock included in the Pre-Funded Units	— ⁽⁴⁾	—
Underwriter's over-allotment option (5)	\$ 3,000,000	\$ 327.30
Underwriter's warrants (5)	\$ 1,250,000	\$ 136.39
Shares of common stock issuable upon exercise of the Underwriter's warrants	— ⁽⁴⁾	—
Shares of common stock issuable upon exercise of the warrants included in the Units and Pre-Funded Units	— ⁽⁴⁾	—
Shares of common stock issuable upon exercise of the pre-funded warrants included in the Pre-Funded Units	— ⁽⁴⁾	—
Shares of common stock issuable upon exercise of the warrants included in the Underwriter's over-allotment option	— ⁽⁴⁾	—
Total	\$ 24,250,000	\$ 2,645.68

- (1) Pursuant to Rule 416 promulgated under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement shall also cover any an indeterminate number of additional shares of the registrant's common stock as may be issuable because of any future stock dividends, stock distributions, stock splits, similar capital readjustments or other anti-dilution adjustments.
- (2) All amounts in this table are estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) under the Securities Act. The registrant may increase or decrease the size of the offering prior to effectiveness.
- (3) The proposed maximum aggregate offering price of the Units and Pre-Funded Units, if any, is \$24,250,000. This registration fee table shows a proposed maximum aggregate offering price of \$24,250,000 solely for purposes of complying with guidance of the Securities and Exchange Commission (the "SEC") relating to the payment of registration fees, as we are required by the SEC to register separately the Units, the Pre-Funded Units, the shares of common stock included in the Units, the warrants included in the Units and Pre-Funded Units, the pre-funded warrants included in the Pre-Funded Units, the shares of common stock issuable upon exercise of the warrants included in the Units and Pre-Funded Units, the shares of common stock issuable upon exercise of the pre-funded warrants included in the Pre-Funded Units. The aggregate offering price of the Units proposed to be sold in the offering will be reduced on a dollar-for-dollar basis based on the aggregate offering price of the Pre-Funded Units offered and sold in the offering (plus the aggregate exercise price of the shares of common stock issuable upon exercise of the pre-funded warrants included in the Pre-Funded Units).
- (4) No additional registration fee is payable pursuant to Rule 457(i) under the Securities Act.
- (5) Includes additional Units which may be issued upon the exercise of a 45-day option granted to the underwriters to cover over-allotments, if any, up to 15% of the total number of Units to be offered, which may be exercised for shares of common stock, warrants or both at the election of the underwriters. We have calculated the proposed maximum aggregate offering price of the common stock underlying the underwriter's warrants to purchase up to 5% of the securities sold in this offering by assuming that such warrants are exercisable at a price per share equal to 125% of the public offering price of the common stock in the units sold in this offering.
- (6) Previously paid.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission acting pursuant to said section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state or jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED February 8, 2021

PRELIMINARY PROSPECTUS



Up to 2,642,008 Units

(Each Unit Consisting of One Share of Common Stock and One Common Warrant to Purchase One Share of Common Stock)

We are offering up to 2,642,008 units (the “Units”), with each Unit consisting of (i) one share of common stock, par value \$0.001 per share (the “Common Stock”), of GT Biopharma, Inc., a Delaware corporation (the “Company”), and (ii) one warrant to purchase one share of common stock (a “Common Warrant”). The Common Warrants will have an exercise price equal to the public offering price of the Units, will be exercisable at any time after the date of issuance and will expire five years from the date of issuance. It is currently estimated that the public offering price will be \$7.57 per Unit, which is the last reported sale price of our shares of common stock on the OTCQB on February 5, 2021 after giving effect to the planned 1-for-17 reverse stock split described below.

We are also offering to those purchasers, if any, whose purchase of Units in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common stock immediately following the consummation of this offering, the opportunity to purchase, in lieu of Units that would otherwise result in ownership in excess of 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common stock, pre-funded units (the “Pre-Funded Units”), with each Pre-Funded Unit consisting of (i) a pre-funded warrant to purchase one share of Common Stock (the “Pre-Funded Warrant”), and (ii) one Common Warrant. Because we will issue a Common Warrant as part of each Unit or Pre-Funded Unit, the number of Common Warrants sold in this offering will not change as a result of a change in the mix of the Units and Pre-Funded Units sold. Each Pre-Funded Warrant contained in a Pre-Funded Unit will be exercisable for one share of Common Stock. The purchase price of each Pre-Funded Unit will equal the price per Unit being sold to the public in this offering, less \$0.001, and the exercise price of each Pre-Funded Warrant included in the Pre-Funded Unit will be \$0.001 per share. Each Pre-Funded Warrant is exercisable for one share of our Common Stock at any time at the option of the holder, provided that the holder will be prohibited from exercising Pre-Funded Warrants for shares of our Common Stock if, as a result of such exercise, the holder, together with its affiliates, would own more than 4.99% of the total number of shares of our Common Stock then issued and outstanding. However, any holder may increase such percentage to any other percentage not in excess of 9.99%, provided that any increase in such percentage shall not be effective until 61 days after such notice to us. Otherwise, the Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until exercised in full.

For each Pre-Funded Unit we sell, the number of Units we are offering will be decreased on a one-for-one basis. Units and the Pre-Funded Units will not be issued or certificated. The Common Stock or Pre-Funded Warrants, as the case may be, and the Common Warrants included in the Units or the Pre-Funded Units, can only be purchased together in this offering, but the securities contained in the Units or Pre-Funded Units will be issued separately and will be immediately separable upon issuance. The shares of Common Stock issuable from time to time upon exercise of the Common Warrants and the Pre-Funded Warrants are also being offered by this prospectus. We refer to the shares of Common Stock issued or issuable upon exercise of the Common Warrants and Pre-Funded Warrants, and the shares of Common Stock, the Common Warrants and Pre-Funded Warrants being offered hereby, collectively, as the “securities.”

Our Common Stock is presently quoted on the OTCQB, one of the OTC Markets Group over-the-counter markets, under the trading symbol “GTBP.” On February 5, 2021, the closing sale price for our Common Stock was \$0.445. We have applied to list our Common Stock on the Nasdaq Capital Market under the symbol “GTBP.” No assurance can be given that our application will be approved or that the trading prices of our Common Stock on the OTCQB market will be indicative of the prices of our Common Stock if our Common Stock were traded on the Nasdaq Capital Market.

There is no established public trading market for the Common Warrants or the Pre-Funded Warrants, and we do not expect such a market to develop. In addition, we do not intend to apply for a listing of the Common Warrants or the Pre-Funded Warrants on any national securities exchange or other nationally recognized trading system.

Unless otherwise noted and other than in our financial statements and the notes thereto, the share and per share information in this prospectus reflects an approved reverse stock split of the outstanding common stock and treasury stock of the Company at a 1-for-17 ratio to occur following the effective date but prior to the closing of the offering.

Investing in our securities involves a high degree of risk. You should carefully review and consider “Risk Factors” beginning on page 17 of this prospectus.

Neither the Securities and Exchange Commission (the “SEC”) nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Unit	Per Pre-Funded Unit	Total ⁽²⁾
Public offering price	\$	\$	\$
Underwriter discounts and commissions ⁽¹⁾	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$

- (1) The underwriters will receive compensation in addition to the underwriting discount and commissions. We have agreed to issue upon the closing of this offering common stock purchase warrants to the underwriters entitling them to purchase up to 5% of the aggregate securities sold in this offering. The exercise price of such warrants is equal to 125% of the public offering price of the securities offered hereby. The warrants will be exercisable commencing six months after the date of effectiveness of this Registration Statement and will terminate five years after the date of effectiveness of this Registration Statement. See “*Underwriting*” beginning on page 83 of this prospectus for additional information regarding underwriting compensation.
- (2) The public offering corresponds to an assumed public offering price per share of common stock and per pre-funded warrant of \$7.56 and an assumed public offering price per warrant of \$0.01.

We have granted the underwriters a 45-day option to purchase securities up to 15% of the total number of securities offered solely to cover over-allotments, if any, which may be exercised for shares of common stock, warrants or both at the election of the underwriters.

Delivery of the securities is expected to be made on or about _____, 2021, subject to customary closing conditions.

Roth Capital Partners Dawson James Securities, Inc.

The date of this prospectus is _____, 2021.

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CAUTIONARY NOTICE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements in this prospectus are “forward-looking statements” within the meaning of the safe harbor from liability established by the Private Securities Litigation Reform Act of 1995. Forward-looking statements include statements regarding our current beliefs, goals and expectations about matters such as our expected financial position and operating results, our business strategy and our financing plans. The forward-looking statements in this prospectus are not based on historical facts, but rather reflect the current expectations of our management concerning future results and events. The forward-looking statements generally can be identified by the use of terms such as “believe,” “expect,” “anticipate,” “intend,” “plan,” “foresee,” “may,” “guidance,” “estimate,” “potential,” “outlook,” “target,” “forecast,” “likely” or other similar words or phrases. Similarly, statements that describe our objectives, plans or goals are, or may be, forward-looking statements. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be different from any future results, performance and achievements expressed or implied by these statements. We cannot guarantee that our forward-looking statements will turn out to be correct or that our beliefs and goals will not change. Our actual results could be very different from and worse than our expectations for various reasons. You should review carefully all information, including the discussion under “*Risk Factors*” and “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*” in this prospectus or under similar headings in any accompanying prospectus supplement. Any forward-looking statements in this prospectus are made only as of the date hereof and, except as may be required by law, we do not have any obligation to publicly update any forward-looking statements contained in this prospectus to reflect subsequent events or circumstances.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-1 that we filed with the SEC under the Securities Act. This prospectus does not contain all of the information included in the registration statement. For further information, we refer you to the registration statement, including its exhibits, filed with the SEC. Statements contained in this prospectus about the contents of any document are not necessarily complete. If SEC rules require that a document be filed as an exhibit to the registration statement, please see such document for a complete description of these matters. You should carefully read this prospectus, together with the additional information described under the headings “*Where You Can Find More Information.*”

Neither we nor the underwriters have authorized anyone to provide you with any information or to make any representations other than that contained in this prospectus or in any free writing prospectus we may authorize to be delivered or made available to you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the underwriters are making an offer to sell securities in any jurisdiction in which the offer or sale is not permitted. The information in this prospectus is accurate only as of the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or of any sale of our shares of common stock and the information in any free writing prospectus that we may provide to you in connection with this offering is accurate only as of the date of that free writing prospectus. Our business, financial condition, results of operations and prospects may have changed since those dates.

For investors outside the United States: Neither we nor the underwriters have done anything that would permit this offering, or possession or distribution of this prospectus, in any jurisdiction where action for that purpose is required, other than in the United States. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to those jurisdictions.

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in “*Risk Factors.*” These and other factors could cause our future performance to differ materially from our assumptions and estimates. See “*Cautionary Notice Regarding Forward-Looking Statements.*”

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been, or will be, filed or incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “*Where You Can Find More Information.*”

All product and company names are trademarks of their respective owners. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies’ trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Throughout this prospectus, the terms “we,” “us,” “our,” and “our Company” and “the Company” refer to GT Biopharma, Inc., a Delaware corporation, and/or its related subsidiaries, as the context may require.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in this prospectus. Because this is only a summary, it does not contain all of the information that may be important to you or that you should consider before investing in our common stock. You should read the entire prospectus carefully, especially the information under "Risk Factors" set forth in this prospectus and the information included in any prospectus supplement or free writing prospectus that we have authorized for use in connection with this offering. This prospectus contains forward-looking statements, based on current expectations and related to future events and our future financial performance, that involve risks and uncertainties. Our actual results may vary materially from those discussed in the forward-looking statements as a result of various factors, including, without limitation, those set forth under "Risk Factors," as well as other matters described in this prospectus. See "Cautionary Notice Regarding Forward-Looking Statements."

Overview

We are a clinical stage biopharmaceutical company focused on the development and commercialization of novel immuno-therapeutic products based on our proprietary Tri-specific Killer Engager (TriKE™) and Tetra-specific Killer Engager (TetraKE™) platform technologies. Our TriKE and TetraKE platforms generate proprietary therapeutic candidates that are designed to harness and enhance the immune response of a patient's endogenous natural killer cells ("NK cells"). Once bound to an NK cell, our platform moieties are designed to enhance the activity of NK cells, with targeted direction to one or more proteins expressed on a specific type of cancer cell or virus infected cell, ultimately resulting in targeted cell death. We have constructed our TriKEs and TetraKEs of recombinant fusion proteins that can be designed to target a wide array of tumor antigen that may be located on hematologic malignancies, sarcomas or solid tumors. Our TriKEs and TetraKEs do not require patient-specific or autologous customization.

We are using our TriKE and TetraKE platforms with the intent to bring to market products that treat a range of hematologic malignancies, sarcomas, solid tumors and selected infectious diseases. Our platforms are scalable, and in addition to our first clinical indication of our TriKE platform in relapsed or refractory acute myelogenous leukemia ("AML"), we are preparing investigational new drug applications ("IND") based on a specific TriKE or TetraKE design. We intend to continue to advance into the clinic, on our own or through potential collaborations with larger companies, multiple TriKE or TetraKE product candidates. We believe our TriKEs and TetraKEs may have the ability, if approved for marketing, to be used as monotherapy, be dosed concomitantly with current monoclonal antibody therapeutics, be used in conjunction with more traditional cancer therapy, and potentially overcome certain limitations of current chimeric antigen receptor ("CAR-T") therapy.

We are also using our TriKE and TetraKE platforms to develop therapeutics for the treatment of infectious diseases such as human immunodeficiency virus ("HIV") and COVID-19 infection. For example, while the use of anti-retroviral drugs has substantially improved the morbidity and mortality of individuals infected with HIV, these drugs are designed to suppress virus replication and to help modulate progression to AIDS and to limit further transmission of the virus. Despite the use of anti-retroviral drugs, infected individuals retain reservoirs of latent HIV-infected cells that, upon cessation of anti-retroviral drug therapy, can reactivate and reestablish an active HIV infection. Destruction of these latent HIV infected cells is the primary objective of curative therapy. Our HIV-TriKE contains the antigen binding fragment (Fab) from a broadly-neutralizing antibody targeting the HIV-Env protein. The HIV-TriKE is designed to target HIV while redirecting NK cell killing specifically to actively replicating HIV infected cells. The HIV-TriKE induced NK cell proliferation and demonstrated the ability in vitro to reactivate and kill HIV-infected T-cells. These findings indicate a potential role for the HIV-TriKE in the reactivation and elimination of the latently infected HIV reservoir cells by harnessing the NK cell's ability to mediate the antibody-directed cellular cytotoxicity ("ADCC").

We have licensed the exclusive rights from the University of Minnesota to the TriKE and TetraKE platforms.

Immuno-Oncology Product Candidates

GTB-3550

GTB-3550 is our first TriKE product candidate. It is a tri-specific single-chain variable fragment (“scFV”) recombinant fusion protein conjugate composed of the variable regions of the heavy and light chains of anti-CD16 and anti-CD33 antibodies and a modified form of IL-15, in a novel conformational construct. We have commenced clinical trials of this anti-CD16-IL-15-anti-CD33 TriKE in CD33 positive leukemias, a marker expressed on tumor cells in AML, and we intend to study this TriKE in myelodysplastic syndrome (“MDS”) and other hematopoietic malignancies. CD33 is primarily a myeloid differentiation antigen with endocytic properties broadly expressed on AML blasts and, possibly, some leukemic stem cells. CD33 or Siglec-3 (sialic acid binding Ig-like lectin 3, SIGLEC3, SIGLEC3, gp67, p67) is a transmembrane receptor expressed on cells of myeloid lineage. It is usually considered myeloid-specific, but it can also be found on some lymphoid cells. The anti-CD33 antibody fragment was derived from the M195 humanized anti-CD33 scFV and has been used in human clinical studies. We believe the recent approval of the antibody-drug conjugate gemtuzumab validates this targeted approach.

Patients who are diagnosed with AML typically receive frontline therapy—usually chemotherapy—including cytarabine and an anthracycline, a therapy that has not changed in over 40 years. Approximately 50% of patients will relapse and require alternative therapies. In addition, MDS incidence rates in the U.S. have dramatically increased from 3.3 per 100,000 individuals from 2001-2004 to 70 per 100,000 annually. MDS is especially prevalent in elderly patients that have a median age of 76 years at diagnosis. The survival of patients with MDS is poor due to decreased eligibility, as a result of advanced age, for allogeneic hematopoietic cell transplantation (Allo-HSCT), the only curative MDS treatment (Cogle CR. Incidence and Burden of the Myelodysplastic Syndromes. *Curr Hematol Malig Rep.* 2015; 10(3):272-281). We believe GTB-3550 could serve as a relatively safe, cost-effective and easy-to-use therapy for resistant/relapsing AML and could also be combined with chemotherapy as frontline therapy thus targeting the larger market.

We filed an IND amendment in June 2018 and announced on November 1, 2018 that we received notification from the FDA that the IND was open and that the Company was authorized to initiate a first-in-human Phase I clinical trial with GTB-3550 in AML, MDS and severe mastocytosis. We began our Phase I clinical trial in January 2020.

GTB-C3550

GTB-C3550 is a next-generation, follow-on, to our lead TriKE, GTB-3550. GTB-C3550 contains a modified CD16 moiety which has improved binding characteristics and enhanced tumoricidal activity based on functional assays and animal models of AML. Using our platform technology, we substituted the anti-CD16 scFv arm in GTB-3550 with a novel humanized single-domain anti-CD16 antibody to create this second-generation molecule which may have improved functionality. Single-domain antibodies, such as GTB-C3550, typically have several advantages including better stability and solubility, more resistance to pH changes, can better recognize hidden antigenic sites, lack a VL portion thus preventing VH/VL mispairing and are suitable for construction of larger molecules. GTB-C3550 induced a potent increase in NK cell degranulation, measured by CD107a expression against HL-60 AML tumor targets when compared to our first-generation TriKE (70.75±3.65% vs. 30.75±5.05%). IFN production was similarly enhanced (29.2±1.8% vs. 6.55±1.07%). GTB-C3550 also exhibited a robust increase in NK cell proliferation (57.65±6.05% vs. 20.75±2.55%). GTB-3550 studies will help inform the development of GTB-C3550 which we expect will de-risk the GTB-C3550 program as data will be generated to make an informed decision on which, or both, will be brought into later phase clinical trials.

GTB-1615

GTB-1615 is an example of our first-generation TetraKEs designed for the treatment of solid tumors. It is a single-chain fusion protein composed of CD16-IL15-EpCAM-CD133. EpCAM is found on many solid tumor cells of epithelial origin and CD133 is a marker for cancer stem cells. This TetraKE is designed to target not only the heterogeneous population of cancer cells found in solid tumors but also the cancer stem cells that are typically responsible for recurrences. We intend to initiate human clinical trials for certain of our solid tumor product candidates later this year.

Recent Developments

Collaboration Agreement

On March 10, 2020, we entered into a collaboration agreement with Cytovance® Biologics, a USA-based contract development and manufacturing organization and a subsidiary of the Shenzhen Hepalink Pharmaceutical Group Co., Ltd. (“Hepalink”), to provide development services for a TriKE therapeutic for the treatment of the coronavirus infection. Under the terms of the collaboration agreement, the companies will focus on preparing sufficient quantities of our coronavirus TriKE drug product for preclinical evaluation using Cytovance’s E. coli-based *Keystone Expression System*™ and subsequently, will scale-up production using Cytovance’s GMP microbial manufacturing platform for evaluation of TriKE in humans to treat the coronavirus infection.

Financings

December 2020 / January 2021 Financing

In December 2020 and January 2021, we entered into a securities purchase agreement with sixty-five purchasers pursuant to which we issued convertible debentures in an aggregate principal amount of \$8,985,000 (the “December 2020 / January 2021 Notes”).

The December 2020 / January 2021 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The December 2020 / January 2021 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the December 2020 / January 2021 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The December 2020 / January 2021 Notes each have a term of six months and mature in June or July, 2021, as applicable, unless earlier converted or repurchased. The December 2020 / January 2021 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. We may not prepay the December 2020 / January 2021 Notes without the prior written consent of the applicable holder.

November 2020 Financing

In November, 2020, we entered into a securities purchase agreement with three purchasers pursuant to which we issued convertible debentures in an aggregate principal amount of \$350,000 (the “November 2020 Notes”).

The November 2020 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The November 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the November 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The November 2020 Notes each have a term of six months and mature in May, 2021, unless earlier converted or repurchased. The November 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. We may not prepay the November 2020 Notes without the prior written consent of the applicable holder.

September 2020 Financing

On September 16, 2020, we entered into a securities purchase agreement with two purchasers pursuant to which we issued convertible debentures in an aggregate principal amount of \$250,000 (the “September 2020 Notes”).

The September 2020 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The September 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the September 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The September 2020 Notes each have a term of six months and mature on March 16, 2021, unless earlier converted or repurchased. The September 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. We may not prepay the September 2020 Notes without the prior written consent of the applicable holder.

July 2020 Financing

On July 7, 2020, we entered into a securities purchase agreement with ten purchasers pursuant to which we issued convertible notes in an aggregate principal amount of approximately \$3.2 million (collectively, the “July 2020 Notes”).

The July 2020 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The July 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the July 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The July 2020 Notes each have a term of six months and mature on January 7, 2021, unless earlier converted or repurchased. The July 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. We may not prepay the July 2020 Notes without the prior written consent of the applicable holder.

May 2020 Financing

Between April 20, 2020 and May 7, 2020, we entered into securities purchase agreements with eight purchasers pursuant to which we issued convertible notes in an aggregate principal amount of approximately \$2.0 million (collectively, the “May 2020 Notes”).

The May 2020 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The May 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the May 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The May 2020 Notes each have a term of six months and mature between October 20, 2020 and November 7, 2020, unless earlier converted or repurchased. The May 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. We may not prepay the May 2020 Notes without the prior written consent of the applicable holder.

January 2020 Financing

On January 30, 2020, we entered into a securities purchase agreement with one purchaser pursuant to which we issued convertible notes in an aggregate principal amount of \$0.2 million (the “January 2020 Notes”).

The January 2020 Notes are convertible at any time, at the holder’s option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect.

The January 2020 Notes have a term of eight months and mature on September 30, 2020, unless earlier converted or repurchased. The January 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the January 2020 Notes without the prior written consent of the holder.

The January 2020 Notes, together with the December 2020 / January 2021 Notes, the November 2020 Notes, September 2020 Notes, July 2020 Notes, the May 2020 Notes and the \$0.2 million aggregate principal amount of convertible notes issued in December 2019 (the "December 2019 Notes") pursuant to a securities purchase agreement, dated December 19, 2019, between the Company and one purchaser, are referred to herein as the "Bridge Notes."

For additional information about our convertible notes and debentures, see Note 2 to our unaudited financial statements, *Debt*.

Forbearance Agreements

Effective as of June 23, 2020, we entered into Standstill and Forbearance Agreements (as amended, collectively, the "Forbearance Agreements") with the holders of approximately \$13.2 million aggregate principal amount of our outstanding convertible notes and debentures (including certain of the convertible notes issued pursuant to the Bridge Financing) (collectively, the "Default Notes"), which are currently in default. Pursuant to the Forbearance Agreements, the holders of the Default Notes have agreed to forbear from exercising their rights and remedies under the Default Notes (including declaring such Default Notes (together with default amounts and accrued and unpaid interest) immediately due and payable) until the earlier of (i) the date that we complete a future financing in the amount of at least \$15 million and, in connection therewith, commences listing on NASDAQ (collectively, the "New Financing") or (ii) February 15, 2021 (the "Termination Date").

Pursuant to the Forbearance Agreement, the holders of the Default Notes have also agreed that the Default Notes (together with default amounts and accrued and unpaid interest) will be converted into common stock upon the closing of a New Financing at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). Shares of our preferred stock, which will be convertible into the Company's common stock, will be issued in lieu of common stock to the extent that conversion of the Default Notes is prohibited by such beneficial ownership limitations.

For additional information regarding the terms of the Forbearance Agreements, see "*Indebtedness - Forbearance Agreements*" below.

Extensions of Certain Bridge Notes

Effective as of November 9, 2020, we entered into extensions with the holders of approximately \$1.2 million aggregate principal amount of our outstanding convertible notes and debentures to extend the maturity date thereof until the earlier of (i) the date that we complete a future financing in the amount of at least \$15 million and, in connection therewith, commences listing on NASDAQ (collectively, the "New Financing") or (ii) January 31, 2021 (the "Termination Date").

Settlement with Empery Funds

Settlement Agreement

On June 19, 2020, we entered into a settlement agreement (the “Empery Settlement Agreement”) with Empery Asset Master Ltd., Empery Tax Efficient, LP and Empery Tax Efficient II, LP (collectively, the “Empery Funds”), Anthony Cataldo and Paul Kessler resolving all remaining disputes between the parties pertaining to certain convertible notes (the “Original Notes”) and warrants to purchase common stock, par value \$0.001 per share, of the Company (the “common stock”) (the “Original Warrants” and, together with the Original Notes, the “Original Securities”) issued by the Company to the Empery Funds in January 2018 pursuant to a securities purchase agreement. As previously disclosed, the Empery Funds made various allegations regarding failures by the Company to take certain actions required by the terms of the Original Securities, all of which the Company denied. See “*Description of Business—Legal Proceedings.*”

As a result of the Empery Settlement Agreement, the Company paid the Empery Funds cash payments in an aggregate amount of \$0.2 million. In addition, pursuant to the Empery Settlement Agreement, the Company issued to the Empery Funds, solely in exchange for the outstanding Original Securities, (i) an aggregate of 3.5 million shares of common stock (the “Settlement Shares”), (ii) pre-funded warrants to purchase an aggregate of 5.5 million shares of common stock (the “Settlement Warrants”) and (iii) senior convertible notes in an aggregate principal amount of \$0.45 million (the “Empery Settlement Notes” and, together with the Settlement Shares and the Settlement Notes, the “Settlement Securities”).

Settlement Notes

The Empery Settlement Notes are convertible at any time, at the holder’s option, into shares of common stock at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 4.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect.

By way of an amendment to each Empery Settlement Note, effective as of December 22, 2020 (the “Empery Note Amendments”), the maturity date of each Empery Settlement Note was extended to March 19, 2021. The Empery Settlement Notes bear interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. As a result of the Empery Note Amendments, the principal amount of each of the Empery Settlement Notes was increased by fifteen percent (15%). The current principal amount of the Empery Settlement Notes, after giving effect to the Empery Note Amendments, is \$517,500. By entry into the Empery Note Amendments, the Empery Funds agreed to refrain from selling, assigning or otherwise transferring or agreeing to transfer any securities of the Company, until the earlier of January 31, 2021 and the date that the Company completes the New Financing.

Pursuant to the terms of the Empery Settlement Notes, the Company is required to make an offer to repurchase, at the holder’s option, the Empery Settlement Notes at price in cash equal to 100% of the aggregate principal amount of the Empery Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a capital raising transactions, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. The Company may not otherwise prepay the Empery Settlement Notes without the prior written consent of the applicable Empery Funds.

For additional information regarding the terms of the Settlement Notes and Settlement Agreement, see “*Indebtedness - Convertible Notes and Debentures*” below.

Settlement Warrants

The Settlement Warrants provide for the purchase of up to an aggregate of 5.5 million shares of common stock at an exercise price of \$0.20 per share, subject to adjustment in certain circumstances, and expire on June 19, 2025. Exercise of the warrant is subject to certain additional terms and conditions, including certain beneficial ownership limitations (with a maximum ownership limit of 4.99%).

Theorem Settlement

Settlement Agreement

On November 9, 2020, the Company, entered into a settlement agreement (the “Theorem Settlement Agreement”) with Adam Kasower (“Kasower”), East Ventures, Inc., A British Virgin Islands company (“East Ventures”), SV Booth Investments III, LLC, a Delaware limited liability company (“SV Booth”) and Theorem Group, LLC, a California limited liability company (“Theorem Group” and, collectively with Kasower, East Ventures and SV Booth, the “Claimants”) resolving all remaining disputes and claims between the parties pertaining to certain securities purchase agreements pursuant to which the Claimants purchased from the Company convertible warrants and preferred stock.

As a result of the Theorem Settlement Agreement, the Company has agreed to issue each Claimant a convertible note in the following amounts (the "Theorem Settlement Notes"):

Theorem Group	\$303,726.40
East Venture	\$112,788.48
Kasower	\$500,078.58
SV Booth	\$294,245.54

The Theorem Settlement Agreement also contains certain representations and warranties and covenants, including limitations on future variable rate transactions and "at-the-market offerings."

Settlement Notes

The Theorem Settlement Notes are convertible, at the option of the applicable Claimant, at any time into shares of common stock at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations. The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. By way of an amendment to each Theorem Settlement Note, effective as of January 31, 2021 (the "Theorem Note Amendments"), the Theorem Settlement Notes maturity date was extended to February 15, 2021. The Theorem Settlement Notes bear interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. The Company may not prepay the Theorem Settlement Notes without the prior written consent of the applicable Claimant.

The Theorem Settlement Notes contain a number of other affirmative and negative covenants and events of default (including events of default related to certain change of control and other fundamental change transactions). Following an event of default, the Theorem Settlement Notes will become immediately due and payable in cash at a mandatory default amount equal to 130% of the outstanding principal amount of the Theorem Settlement Notes plus all other amounts, costs and expenses due in respect of the Theorem Settlement Notes.

Alto B Settlement

Settlement Agreement

On December 22, 2020, the Company entered into a settlement agreement (the "Alto B Settlement Agreement") and, together with the Empery Settlement Agreement and the Theorem Settlement Agreement, the "Settlement Agreements" with Alto Opportunity Master Fund, SPC - Segregated Master Portfolio B ("Alto B"), Anthony Cataldo and Paul Kessler resolving all remaining disputes and claims between the parties pertaining to a certain note (the "Original Alto B Note") and warrants to purchase common stock, par value \$0.001 per share (together with the Alto B Original Note, the "Alto B Original Securities"), of the Company issued by the Company to Alto B in January 2018.

As a result of the Alto B Settlement Agreement, the Company has agreed to pay Alto B a cash payment in the amount of \$180,000. In addition, pursuant to the Alto B Settlement Agreement, the Company has agreed to issue Alto B, solely in exchange for the outstanding Alto B Original Securities, (i) 960,000 shares of common stock of the Company (the "Alto B Settlement Shares") and (ii) a senior convertible note in an aggregate principal amount of \$500,000 (the "Alto B Settlement Note" and together with the Alto B Settlement Shares, the "Alto B Settlement Securities"). In connection with the exchange, the Alto B Original Securities will be cancelled and extinguished.

The Alto B Settlement Agreement also contains certain representations and warranties and covenants, including limitations on future variable rate transactions and "at-the-market offerings."

Settlement Notes

The Alto B Settlement Note (referred to herein collectively with the Empery Settlement Notes and the Theorem Settlement Notes, as the "Settlement Notes") is convertible, at the option of Alto B, at any time into shares of common stock of the Company at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations. The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. By way of an amendment to the Alto B Settlement Note, effective as of January 31, 2021 (the "Alto B Note Amendment"), the Alto B Settlement Note maturity date was extended to February 15, 2021. The Alto B Settlement Note bears interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect.

Pursuant to the terms of the Alto B Settlement Note, the Company is required to make an offer to repurchase, at the option of Alto B, the Alto B Settlement Note at price in cash equal to 100% of the aggregate principal amount of the Alto B Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a capital raising transactions, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. The Company may not prepay the Alto B Settlement Note without the prior written consent of Alto B.

The Alto B Settlement Note contains a number of other affirmative and negative covenants and events of default (including events of default related to certain change of control and other fundamental change transactions). Following an event of default, the Alto B Settlement Note will become immediately due and payable in cash at a mandatory default amount equal to 130% of the outstanding principal amount of the Alto B Settlement Note plus all other amounts, costs and expenses due in respect of the Alto B Settlement Note.

Listing on the Nasdaq Capital Market

Our common stock is presently quoted on the OTCQB, one of the OTC Markets Group over-the-counter markets, under the trading symbol “GTBP.” In connection with this offering, we have applied to list our common stock on the Nasdaq Capital Market (“Nasdaq”) under the symbol “GTBP.” If our listing application is approved, we expect to list our common stock upon consummation of the offering, at which point our common stock will cease to be traded on the OTCQB. No assurance can be given that our listing application will be approved. This offering will occur only if Nasdaq approves the listing of our common stock. Nasdaq listing requirements include, among other things, a stock price threshold. As a result, prior to effectiveness, we will need to take the necessary steps to meet Nasdaq listing requirements, including but not limited to a reverse split of our outstanding common stock. If Nasdaq does not approve the listing of our common stock, we will not proceed with this offering. There can be no assurance that our common stock will be listed on the Nasdaq.

Reverse Stock Split

On January 14, 2021, our stockholders approved an amendment to our restated certificate of incorporation to effect a reverse stock split of our common stock at a ratio to be determined by our Board prior to the effective time of the amendment of not less than 1-for-5 and not more than 1-for-30. On February 5, 2021, our Board approved a reverse stock split ratio of 1-for-17. The reverse stock split will not impact the number of authorized shares of common stock, which will remain at 750,000,000 shares. Unless otherwise noted, the share and per share information in this prospectus reflects, other than in our financial statements and the notes thereto, a reverse stock split of the outstanding common stock and treasury stock of the Company at a 1-for-17 ratio to occur following the effective date, but prior to the closing of the offering.

Summary Risk Factors

Participating in this offering involves substantial risk. Our ability to execute our strategy is also subject to certain risks. You should carefully consider all of the information set forth in this prospectus and, in particular, should evaluate the specific factors set forth under the heading “*Risk Factors*” in deciding whether to invest in our securities. These risks include, but are not limited to, the following:

- Our business is at an early stage of development and we may not develop therapeutic products that can be commercialized.
- We have a history of operating losses and we expect to continue to incur losses for the foreseeable future. We may never generate revenue or achieve profitability.
- Our independent auditor’s report for the years ended December 31, 2019 and 2018 is qualified as to our ability to continue as a going concern.
- We will need additional capital to conduct our operations and develop our products, and our ability to obtain the necessary funding is uncertain.
- Our current and future indebtedness may impose significant operating and financial restrictions on us and affect our ability to access liquidity.
- The cost of our research and development programs may be significantly higher than expected, and there is no assurance that they will be successful in a timely manner, or at all.
- We have identified material weaknesses in our internal controls over financial reporting and have not yet remedied these weaknesses. If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.
- If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market and our business would be harmed.
- Claims that we infringe the intellectual property rights of others may prevent or delay our drug discovery and development efforts.
- We may desire, or be forced, to seek additional licenses to use intellectual property owned by third parties, and such licenses may not be available on commercially reasonable terms, or at all.
- If we are unsuccessful in obtaining or maintaining patent protection for intellectual property in development or licensed from third parties, our business and competitive position would be harmed.
- If we fail to meet our obligations under our license agreements, we may lose our rights to key technologies on which our business depends.
- Our reliance on the activities of our non-employee consultants, research institutions and scientific contractors, whose activities are not wholly within our control, may lead to delays in development of our proposed products.

- Clinical drug development is costly, time-consuming and uncertain, and we may suffer setbacks in our clinical development program that could harm our business.
- If we experience delays or difficulties in the enrollment of patients in clinical trials, those clinical trials could take longer than expected to complete and our receipt of necessary regulatory approvals could be delayed or prevented.
- Obtaining regulatory approval, even after clinical trials that are believed to be successful, is an uncertain process.
- We will continue to be subject to extensive FDA regulation following any product approvals, and if we fail to comply with these regulations, we may suffer a significant setback in our business.
- Many of our business practices are subject to scrutiny and potential investigation by regulatory and government enforcement authorities, as well as to lawsuits brought by private citizens under federal and state laws. We could become subject to investigations, and our failure to comply with applicable law or an adverse decision in lawsuits may result in adverse consequences to us. If we fail to comply with U.S. healthcare laws, we could face substantial penalties and financial exposure, and our business, operations and financial condition could be adversely affected.
- Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.
- We may expend our limited resources to pursue a particular product candidate or indication that does not produce any commercially viable products and may fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.
- Our products may be expensive to manufacture, and they may not be profitable if we are unable to control the costs to manufacture them.
- We currently lack manufacturing capabilities to produce our therapeutic product candidates at commercial-scale quantities and do not have an alternate manufacturing supply, which would negatively impact our ability to meet any demand for the product.
- Our business is based on novel technologies that are inherently expensive and risky and may not be understood by or accepted in the marketplace, which could adversely affect our future value.
- We could be subject to product liability lawsuits based on the use of our product candidates in clinical testing or, if obtained, following marketing approval and commercialization. If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to cease clinical testing or limit commercialization of our product candidates.
- We rely on third parties to supply candidates for clinical testing and to conduct preclinical and clinical trials of our product candidates. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates. As a result, our business could be substantially harmed.

Corporate Information

Our principal executive offices are located at 9350 Wilshire Blvd. Suite 203, Beverly Hills, CA 90212, and our telephone number is (800) 304-9888. We maintain a website at www.gtbiopharma.com. Information contained on or accessible through our website is not, and should not be considered, part of, or incorporated by reference into, this prospectus.

The Offering

Units offered by us

Up to 2,642,008 Units, each consisting of (i) one share of common stock and (ii) one Common Warrant to purchase one share of common stock. The Units will not be certificated, and the share of common stock and Common Warrant comprising each Unit are immediately separable and will be issued separately in this offering.

This prospectus also relates to the offering of shares of common stock issuable upon the exercise of the Common Warrants included in the Units.

Pre-Funded Units offered by us

We are also offering to those purchasers whose purchase of Units in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common stock immediately following the consummation of this offering, the opportunity to purchase, in lieu of Units that would otherwise result in ownership in excess of 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common stock, Pre-Funded Units. The purchase price of each Pre-Funded Unit will equal the public offering price at which the Units are being sold to the public in this offering, minus \$0.001, and the exercise price of each Pre-Funded Warrant included in each Pre-Funded Unit will be \$0.001 per Common Share.

Each Pre-Funded Unit will consist of (i) one Pre-Funded Warrant to purchase one share of common stock and (ii) one Common Warrant to purchase one share of common stock. The Pre-Funded Units will not be certificated and the Pre-Funded Warrants and the Common Warrants comprising each Pre-Funded Unit are immediately separable and will be issued separately in this offering.

This prospectus also relates to the offering of shares of common stock issuable upon exercise of the Pre-Funded Warrants and the Common Warrants included in the Pre-Funded Units.

Common Warrants offered by us

Each Common Warrant will have an exercise price equal to the public offering price of the Units, will be exercisable at any time after the date of issuance and will expire on the fifth anniversary of the date of issuance. To better understand the terms of the Common Warrants, you should carefully read the “Description of Securities We are Offering” section of this prospectus.

Pre-Funded Warrants offered by us

Each Pre-Funded Warrant will have an exercise price of \$0.001 per share of common stock and will be exercisable any time after the date of issuance and may be exercised at any time until exercised in full. To better understand the terms of the Pre-Funded Warrants, you should carefully read the “Description of Securities We are Offering” section of this prospectus.

Offering Price

The offering price is \$ per Unit and \$ per Pre-Funded Unit.

Total shares of common stock outstanding immediately after this offering	8,039,000 shares of common stock, assuming that the number of Units offered by this prospectus is sold in this offering and no sale of any Pre-Funded Units and assuming none of the Common Warrants or, the over-allotment options granted to the underwriters or the Underwriter Warrants (as defined below) issued in this offering are exercised.
Over-Allotment Option	Pursuant to the underwriting agreement, we granted to the underwriters an option, exercisable within 45 days after the closing of this offering to acquire up to an additional 15% of the total Units to be offered, solely for the purpose of covering over-allotments, if any, which may be exercised for shares of common stock, warrants or both at the election of the underwriters.
Use of Proceeds	We intend to use the net proceeds of this offering for general corporate purposes, which includes among other purposes, the funding and expansion of our ongoing clinical trials and the continued development of our pipeline of candidate products. See “ <i>Use of Proceeds.</i> ”
Existing Trading Market	Our common stock is currently quoted on the OTCQB, one of the OTC Markets Group over-the-counter markets, under the trading symbol “GTBP.” In connection with this offering, we have applied to have our shares of common stock listed for trading on the Nasdaq Capital Market under the symbol “GTBP.” We do not intend to list the Common Warrants or the Pre-Funded Warrants on any securities exchange or nationally recognized trading system.
Reverse Stock Split	On January 14, 2021 our stockholders approved an amendment to our restated certificate of incorporation to effect a reverse stock split of our common stock at a ratio to be determined by our Board prior to the effective time of the amendment of not less than 1-for-5 and not more than 1-for-30. On February 5, 2021, our Board approved a reverse stock split ratio of 1-for 17. Unless otherwise stated and other than in our financial statements and the notes thereto, all share and per share information in this prospectus reflects an approved reverse stock split of the outstanding common stock and treasury stock of the Company at a 1-for-17 ratio to occur following the effective date but prior to the closing of the offering.
Risk Factors	Investing in our securities involves a high degree of risk. You should carefully review and consider “ <i>Risk Factors</i> ” beginning on page 17 of this prospectus and any risks described in any accompanying prospectus supplement.
Dividend Policy	We have never declared or paid any cash dividends on our common stock. We do not anticipate paying any cash dividends in the foreseeable future.

Assumptions Used Throughout This Prospectus

Unless otherwise stated in this prospectus, the number of shares of our common stock to be outstanding after this offering is based on 85,012,832 shares of our common stock outstanding as of December 31, 2020, as adjusted to give effect to the following:

- The approved reverse stock split of the outstanding shares of common stock of the Company at a 1-for-17 ratio to occur following the effective date but prior to the closing of this offering.
- The conversion of the approximately \$692,000 of Bridge Notes (plus approximately \$0.7 million in accrued and unpaid interest) into 4,350,000 shares of our common stock immediately prior to the completion of this offering (based on the assumed public offering price of \$7.57 per Unit). The number of shares of our common stock actually issued upon the conversion of our outstanding Bridge Notes depends on the actual public offering price of our Units in this offering. The Bridge Notes are subject to mandatory conversion in the event of the completion of a financing in the amount of at least \$15 million (for which we expect this offering to qualify) at a conversion price equal to the lesser of (i) the conversion price in effect for the Bridge Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above. In the event the actual initial public offering price is lower than \$3.40 per share, the Bridge Notes will convert into a larger number of shares of common stock. A \$0.25 decrease in the public offering price below \$3.40 would increase by 345,000, the number of shares of common stock issuable upon conversion of the Bridge Notes.
- The conversion of the approximately \$13.2 million of Default Notes (plus approximately \$3.7 million aggregate principal amount of default amounts and accrued and unpaid interest) into 4,970,000 shares of our common stock immediately prior to the completion of this offering (based on the assumed public offering price of \$7.57 per Unit). The number of shares of our common stock actually issued upon the conversion of our outstanding Default Notes depends on the actual public offering price of our Units in this offering. Pursuant to the Forbearance Agreement, the Default Notes (together with default amounts and accrued and unpaid interest) will be converted into common stock upon the closing of a New Financing (of which we expect this offering to qualify) at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). In the event the actual initial public offering price is lower than \$3.40 per share, the Default will convert into a larger number of shares of common stock. A \$0.25 decrease in the public offering price below \$3.40 would increase by 394,000, the number of shares of common stock issuable upon conversion of the Default Notes.

- The conversion of 692,000 shares of Series J-1 Preferred Stock into 692,000 shares of our common stock immediately prior to the completion of this offering (based on the assumed public offering price of \$7.57 per Unit). The number of shares of our common stock actually issued upon the conversion of our outstanding Series J-1 Preferred Stock depends on the actual public offering price of our Units in this offering. Pursuant to the Forbearance Agreement, the Series J-1 Preferred Stock will be converted into common stock upon the closing of a New Financing (of which we expect this offering to qualify) at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). In the event the actual initial public offering price is lower than \$3.40 per share, the Series J-1 Preferred Stock will convert into a larger number of shares of common stock. A \$0.25 decrease in the public offering price below \$3.40 would increase by 55,000, the number of shares of common stock issuable upon conversion of the Series J-1 Preferred Stock.

Unless otherwise stated in this prospectus, the number of shares of our common stock to be outstanding after this offering excludes the following other securities that may be issuable in the future:

- 221,000 shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$3.40 per share;
- any shares of common stock issuable upon the exercise of warrants (other than Pre-Funded Warrants) to be issued in this offering;
- 2 shares of common stock issuable upon the exercise of outstanding stock options;
- 5 shares of common stock reserved for future issuance under our 2014 Stock Incentive Plan;
- 2,642,008 shares of common stock issuable upon the exercise of Common Warrants to be issued to investors in this offering;
- 11.4 shares of common stock issuable upon conversion of outstanding convertible notes and debentures at a conversion price of \$3.40 per share that by their terms are not mandatorily converted upon completion of this offering; and
- 132,000 shares of common stock, equal to 5% of the aggregate number of Units sold pursuant to this offering (the “Underwriter Warrants”).

Except as otherwise indicated, all information in this prospectus assume that the assumed public offering price is \$7.57 per Unit, which is the last reported sale price of our shares of common stock on the OTCQB on February 5, 2021 after giving effect to the planned 1-for-17 reverse stock split described above and assumes the immediate exercise in full of any Pre-Funded Warrants sold in this offering.

Summary Financial Information

The tables and information below are derived from the Company's unaudited consolidated financial statements as of September 30, 2020, and for the nine months ended September 30, 2020 and 2019, and also as of December 31, 2019.

Balance Sheet Summary (in thousands)	September 30, 2020	December 31, 2019
Cash and cash equivalents	\$ 350	\$ 28
Total assets	\$ 917	\$ 396
Total current liabilities	\$ 30,694	\$ 19,706
Total (deficit) equity	\$ (29,777)	\$ (19,310)
Statement of Operations Summary (in thousands except per share data)		
Revenue	\$ -	\$ -
Selling, general and administrative expenses	\$ 4,321	\$ 8,932
Research and development	\$ 252	\$ 1,659
Loss from operations	\$ (4,573)	\$ (15,190)
Net loss	\$ (13,363)	\$ (31,177)
Net loss per share – basic and diluted	\$ (0.18)	\$ (0.69)

The tables and information below are derived from the Company's audited consolidated financial statements for the years ended December 31, 2019 and 2018.

Balance Sheet Summary (in thousands)	December 31, 2019	December 31, 2018
Cash and cash equivalents	\$ 28	\$ 60
Total assets	\$ 396	\$ 25,399
Total current liabilities	\$ 19,706	\$ 14,029
Total (deficit) equity	\$ (19,310)	\$ 11,370
Statement of Operations Summary (in thousands except per share data)		
Revenue	\$ —	\$ —
Selling, general and administrative expenses	\$ 9,790	\$ 12,487
Research and development	\$ 1,667	\$ 9,067
Loss from operations	\$ (16,056)	\$ (250,069)
Net loss	\$ (38,674)	\$ (259,186)
Net loss per share – basic and diluted	\$ (0.67)	\$ (5.16)

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below in addition to the other information contained in this prospectus and any prospectus supplement before deciding whether to invest in shares of our common stock. If any of the following risks occur, our business, financial condition or operating results could be harmed. In that case, the trading price of our common stock could decline and you may lose part or all of your investment. In the opinion of management, the risks discussed below represent the material risks known to us. Additional risks and uncertainties not currently known to us or that we currently deem immaterial may also impair our business, financial condition and operating results and adversely affect the market price of our common stock.

Risks Related to Our Business

Our business is at an early stage of development and we may not develop therapeutic products that can be commercialized.

Our business is at an early stage of development. We do not have immune-oncology products in late stage clinical trials. We are still in the early stages of identifying and conducting research on potential therapeutic products. Our potential therapeutic products will require significant research and development and pre-clinical and clinical testing prior to regulatory approval in the United States and other countries. We may not be able to obtain regulatory approvals, enter clinical trials for any of our product candidates or commercialize any products. Our product candidates may prove to have undesirable and unintended side effects or other characteristics adversely affecting their safety, efficacy or cost effectiveness that could prevent or limit their use. Any product using any of our technology may fail to provide the intended therapeutic benefits or achieve therapeutic benefits equal to or better than the standard of treatment at the time of testing or production.

We have a history of operating losses and we expect to continue to incur losses for the foreseeable future and we may never generate revenue or achieve profitability.

As of September 30, 2020, we had an accumulated deficit of approximately \$581 million. We have not generated any significant revenue to date, are not profitable and have incurred losses in each year since our inception. We do not expect to generate any product sales or royalty revenues for at least four years. We expect to incur significant additional operating losses for the foreseeable future as we expand research and development and clinical trial efforts.

Our ability to achieve long-term profitability is dependent upon obtaining regulatory approvals for our products and successfully commercializing our products alone or with third parties, of which there can be no assurances. However, our operations may not be profitable even if any of our products under development are successfully developed and produced and thereafter commercialized. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods.

Even if we succeed in commercializing one or more of our product candidates, we expect to continue to incur substantial research and development and other expenditures to develop and market additional product candidates. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

Our independent auditor's report for the years ended December 31, 2019 and 2018 is qualified as to our ability to continue as a going concern.

Due to the uncertainty of our ability to meet our current operating and capital expenses, in our audited consolidated financial statements for the years ended December 31, 2019 and 2018, our independent auditors included a note to the consolidated financial statements regarding our ability to continue as a going concern. Recurring losses from operations and the dependence upon our ability to meet future financing needs and succeed in our future operations in order to realize a major portion of our assets have raised a substantial doubt about our ability to continue as a going concern. The presence of the going concern note to our consolidated financial statements may have an adverse impact on the relationships we are developing and plan to develop with third parties as we continue the commercialization of our products. It could make it challenging and difficult for us to raise additional financing, all of which could have a material adverse impact on our business and prospects.

We will need additional capital to conduct our operations and develop our products, and our ability to obtain the necessary funding is uncertain.

We have used a significant amount of cash since inception to finance the continued development and testing of our product candidates, and we expect to need substantial additional capital resources in order to develop our product candidates going forward and to launch and commercialize any product candidates for which we receive regulatory approval.

We may not be successful in generating and/or maintaining operating cash flow, and the timing of our capital expenditures and other expenditures may not result in cash sufficient to sustain our operations through the next 12 months. If financing is not sufficient and additional financing is not available, or available only on terms that are detrimental to our long-term survival, it could have a material adverse effect on our ability to continue as a going concern. The timing and degree of any future capital requirements will depend on many factors, including:

- the accuracy of the assumptions underlying our estimates for capital needs in 2020 and beyond;
- scientific and clinical progress in our research and development programs;
- the magnitude and scope of our research and development programs and our ability to establish, enforce and maintain strategic arrangements for research, development, clinical testing, manufacturing and marketing;
- our progress with pre-clinical development and clinical trials;
- the time and costs involved in obtaining regulatory approvals;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims; and
- the number and type of product candidates that we pursue.

Additional financing through strategic collaborations, public or private equity or debt financings or other financing sources may not be available on acceptable terms, or at all. The completion of financings involving the issuance of additional common stock or other securities convertible into, or exchangeable for, common stock (such as warrants or additional convertible notes) could also result in significant dilution to our stockholders.

Further, if we obtain additional funds through arrangements with collaborative partners, these arrangements may require us to relinquish rights to some of our technologies, product candidates or products that we would otherwise seek to develop and commercialize on our own.

If sufficient capital is not available, we may be required to delay, reduce the scope of or eliminate one or more of our research or product development initiatives, any of which could have a material adverse effect on our financial condition or business prospects.

Our current and future indebtedness may impose significant operating and financial restrictions on us and affect our ability to access liquidity.

As of the date of this prospectus, after giving effect to (i) the issuance of the July 2020 Notes and the May 2020 Notes and (ii) the issuance of the Settlement Notes pursuant to the Settlement Agreement, we had approximately \$23.3 million aggregate principal amount of convertible notes and debentures outstanding, a portion of which are secured by a first priority security interest in substantially all of the assets of the Company and its subsidiaries. Our existing convertible notes and debentures do, and any future instruments governing our indebtedness may, contain a number of restrictive covenants that impose significant operating and financial restrictions on us. For example, our existing convertible notes and debentures include restrictions on our ability to, among other things:

- incur additional indebtedness;
- place liens on our or our subsidiaries' assets;
- repurchase shares of our common stock or repay existing indebtedness;
- pay cash dividends or distributions on our equity securities;
- engage in certain fundamental change transactions; and
- engage in transactions with affiliates.

A failure by us or our subsidiaries to comply with the covenants and restrictions contained in the agreements governing our indebtedness could result in an event of default under such indebtedness, which could adversely affect our ability to respond to changes in our business and manage our operations. Upon the occurrence of an event of default under any of the agreements governing our indebtedness, the holders could elect to declare all amounts outstanding to be due and payable and exercise other remedies as set forth in the agreements. Further, an event of default or acceleration of indebtedness under one instrument may constitute an event of default—or cross-default—under another instrument. For example, in June 2020, we entered into the Forbearance Agreements with holders of the Default Notes pursuant to which such holders have agreed to forbear from exercising their rights and remedies under the Default Notes (including declaring such Default Notes (together with default amounts and accrued and unpaid interest) immediately due and payable) for a specified period of time.

If any of our indebtedness (including the Default Notes) were to be accelerated, there can be no assurance that our assets would be sufficient to repay this indebtedness in full, which could have a material adverse effect on our ability to continue to operate as a going concern.

The cost of our research and development programs may be significantly higher than expected and there is no assurance that they will be successful in a timely manner, or at all.

Our currently projected expenditures for 2021 include approximately \$12 million to \$15 million for research and development. The actual cost of our programs could differ significantly from our current projections if we change our planned development process. In the event that actual costs of our clinical program, or any of our other ongoing research activities, are significantly higher than our current estimates, we may be required to significantly modify our planned level of operations.

The successful development of any product candidate is highly uncertain. It is difficult to reasonably estimate or know the nature, timing and costs of the efforts necessary to complete the development of, or the period in which material net cash inflows are expected to commence from any product candidate, due to the numerous risks and uncertainties associated with developing and commercializing drugs. Any failure to complete any stage of the development of products in a timely manner could have a material adverse effect on our operations, financial position and liquidity.

We have identified material weaknesses in our internal controls over financial reporting and have not yet remedied these weaknesses. If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.

Effective internal control over financial reporting is necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation, could cause us to fail to meet our reporting obligations. Ineffective internal control could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our common stock.

We have identified material weaknesses in our internal control over financial reporting as a company. As defined in Regulation 12b-2 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), a “material weakness” is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented, or detected on a timely basis. Specifically, we determined that we had the following material weaknesses in our internal control over financial reporting as of December 31, 2019: (i) inadequate segregation of duties; (ii) risks of executive override; and (iii) insufficient written policies and procedures for accounting and financial reporting with respect to the requirements and application of both generally accepted accounting principles in the United States of America (“GAAP”) and SEC regulations.

As of the date of this prospectus, we have not remediated these material weaknesses. We are taking steps, and intend to take additional steps, to mitigate the issues identified and implement a functional system of internal controls over financial reporting. Such measures will include, but not be limited to: (i) hiring of additional employees in our finance and accounting department, although the timing of such hires is largely dependent on our securing additional financing to cover such costs; (ii) preparation of risk-control matrices to identify key risks and develop and document policies to mitigate those risks; (iii) and identification and documentation of standard operating procedures for key financial and SEC reporting activities. The implementation of these initiatives may not fully address any material weakness or other deficiencies that we may have in our internal control over financial reporting.

Even if we develop effective internal controls over financial reporting, such controls may become inadequate due to changes in conditions, or the degree of compliance with such policies or procedures may deteriorate, which could result in the discovery of additional material weaknesses and deficiencies. In any event, the process of determining whether our existing internal control over financial reporting is compliant with Section 404 of the Sarbanes-Oxley Act (“Section 404”) and sufficiently effective requires the investment of substantial time and resources, including by certain members of our senior management. As a result, this process may divert internal resources and take a significant amount of time and effort to complete. In addition, we cannot predict the outcome of this process and whether we will need to implement remedial actions in order to establish effective controls over financial reporting. The determination of whether or not our internal controls are sufficient and any remedial actions required could result in us incurring additional costs that we did not anticipate, including the hiring of outside consultants. We may also fail to timely complete our evaluation, testing and any remediation required to comply with Section 404.

We are required, pursuant to Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. However, for as long as we are a “smaller reporting company,” our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting pursuant to Section 404. While we could be a smaller reporting company for an indefinite amount of time, and thus relieved of the above-mentioned attestation requirement, an independent assessment of the effectiveness of our internal control over financial reporting could detect problems that our management’s assessment might not. Such undetected material weaknesses in our internal control over financial reporting could lead to financial statement restatements and require us to incur the expense of remediation.

If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market and our business would be harmed.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our technologies. Any disclosure to, or misappropriation by, third parties of our trade secret or other confidential information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding any competitive advantage we may derive from this intellectual property.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications we own or license may fail to result in issued patents in the United States or in foreign countries. Third parties may challenge the validity, enforceability or scope of any issued patents we own or license or any applications that may issue as patents in the future, which may result in those patents being narrowed, invalidated or held unenforceable. Even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from developing similar products that do not fall within the scope of our patents. If the breadth or strength of protection provided by the patents we hold or pursue is threatened, our ability to commercialize any product candidates with technology protected by those patents could be threatened. Further, if we encounter delays in our clinical trials, the period of time during which we would have patent protection for any covered product candidates that obtain regulatory approval would be reduced.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our discovery platform and drug development processes that involve proprietary know-how, information or technology that is not covered by patents or not amenable to patent protection. Although we require all of our employees and certain consultants and advisors to enter into intellectual property assignment agreements, and all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, our trade secrets and other proprietary information may be disclosed or competitors may otherwise gain access to such information or independently develop substantially equivalent information. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant difficulty in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent material disclosure of the trade secret intellectual property related to our technologies to third parties, we may not be able to establish or maintain the competitive advantage that we believe is provided by such intellectual property, which could materially adversely affect our market position and business and operational results.

Claims that we infringe the intellectual property rights of others may prevent or delay our drug discovery and development efforts.

Our research, development and commercialization activities, as well as any product candidates or products resulting from those activities, may infringe or be accused of infringing a patent or other form of intellectual property under which we do not hold a license or other rights. Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents of which we are currently unaware, with claims that cover the use or manufacture of our product candidates or the practice of our related methods. Because patent applications can take many years to issue and remain confidential for a period of time after filing, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes one or more claims of these patents. If our activities or product candidates infringe the patents or other intellectual property rights of third parties, the holders of such intellectual property rights may be able to block our ability to commercialize such product candidates or practice our methods unless we obtain a license under the intellectual property rights or until any applicable patents expire or are determined to be invalid or unenforceable.

Defense of any intellectual property infringement claims against us, regardless of their merit, would involve substantial litigation expense and would be a significant diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, obtain one or more licenses from third parties, limit our business to avoid the infringing activities, pay royalties and/or redesign our infringing product candidates or methods, any or all of which may be impossible or require substantial time and monetary expenditure. Further, if we were to seek a license from the third party holder of any applicable intellectual property rights, we may not be able to obtain the applicable license rights when needed or on commercially reasonable terms, or at all. The occurrence of any of the above events could prevent us from continuing to develop and commercialize one or more of our product candidates and our business could materially suffer.

We may desire, or be forced, to seek additional licenses to use intellectual property owned by third parties, and such licenses may not be available on commercially reasonable terms, or at all.

A third party may hold intellectual property, including patent rights, that are important or necessary to the development of our product candidates, in which case we would need to obtain a license from that third party or develop a different formulation of the product that does not infringe upon the applicable intellectual property, which may not be possible. Additionally, we may identify product candidates that we believe are promising and whose development and other intellectual property rights are held by third parties. In such a case, we may desire to seek a license to pursue the development of those product candidates. Any license that we may desire to obtain or that we may be forced to pursue may not be available when needed on commercially reasonable terms, or at all. Any inability to secure a license that we need or desire could have a material adverse effect on our business, financial condition and prospects.

The patent protection covering some of our product candidates may be dependent on third parties, who may not effectively maintain that protection.

While we expect that we will generally seek to gain the right to fully prosecute any patents covering product candidates we may in-license from third-party owners, there may be instances when platform technology patents that cover our product candidates remain controlled by our licensors. If any of our current or future licensing partners that retain the right to prosecute patents covering the product candidates we license from them fail to appropriately maintain that patent protection, we may not be able to prevent competitors from developing and selling competing products or practicing competing methods and our ability to generate revenue from any commercialization of the affected product candidates may suffer.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our current or potential licensors. To attempt to stop infringement or unauthorized use, we may need to enforce one or more of our patents, which can be expensive and time-consuming and distract management. If we pursue any litigation, a court may decide that a patent of ours or our licensor's is not valid or is unenforceable, or may refuse to stop the other party from using the relevant technology on the grounds that our patents do not cover the technology in question. Further, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, which could reduce the likelihood of success of any infringement proceeding we pursue in any such jurisdiction. An adverse result in any infringement litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing, which could limit our ability to exclude competitors from directly competing with us in the applicable jurisdictions.

Interference proceedings provoked by third parties or brought by the U.S. PTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to use it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, or at all. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees.

If we are unsuccessful in obtaining or maintaining patent protection for intellectual property in development, our business and competitive position would be harmed.

We are seeking patent protection for some of our technology and product candidates. Patent prosecution is a challenging process and is not assured of success. If we are unable to secure patent protection for our technology and product candidates, our business may be adversely impacted.

In addition, issued patents and pending international applications require regular maintenance. Failure to maintain our portfolio may result in loss of rights that may adversely impact our intellectual property rights, for example by rendering issued patents unenforceable or by prematurely terminating pending international applications.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patents for some of our technology and product candidates, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. We currently, and expect in the future to continue to, seek to protect these trade secrets, in part, by entering into confidentiality agreements with parties who have access to them, such as our employees, consultants, advisors and other third parties. We also require all of our employees and certain consultants and advisors to enter into intellectual property assignment agreements. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for any such disclosure. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they disclose the trade secrets, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

If we fail to meet our obligations under our license agreements, we may lose our rights to key technologies on which our business depends.

Our business depends in part on licenses from third parties. These third-party license agreements impose obligations on us, such as payment obligations and obligations to diligently pursue development of commercial products under the licensed patents. If a licensor believes that we have failed to meet our obligations under a license agreement, the licensor could seek to limit or terminate our license rights, which could lead to costly and time-consuming litigation and, potentially, a loss of the licensed rights. During the period of any such litigation, our ability to carry out the development and commercialization of potential products could be significantly and negatively affected. If our license rights were restricted or ultimately lost, our ability to continue our business based on the affected technology platform could be severely adversely affected.

We will have to hire additional executive officers and employees to operate our business. If we are unable to hire qualified personnel, we may not be able to implement our business strategy.

We currently have only two full-time employees. The loss of the services of any one of our employees could delay our product development programs and our research and development efforts. We do not maintain key person life insurance on any of our officers, employees, consultants or advisors. In order to develop our business in accordance with our business strategy, we will have to hire additional qualified personnel, including in the areas of manufacturing, clinical trials management, regulatory affairs, finance and business development. We will need to raise sufficient funds to hire the necessary employees and have commenced our search for additional key employees.

Moreover, there is intense competition for a limited number of qualified personnel among biopharmaceutical, biotechnology, pharmaceutical and other businesses. Many of the other pharmaceutical companies against which we compete for qualified personnel have greater financial and other resources, different risk profiles, longer histories in the industry and greater ability to provide valuable cash or stock incentives to potential recruits than we do. They also may provide more diverse opportunities and better chances for career advancement. Some of these characteristics may be more appealing to high quality candidates than what we are able to offer as an early-stage company. If we are unable to continue to attract and retain high quality personnel, the rate and success at which we can develop and commercialize product candidates will be limited.

We depend on key personnel for our continued operations and future success, and a loss of certain key personnel could significantly hinder our ability to move forward with our business plan.

Because of the specialized nature of our business, we are highly dependent on our ability to identify, hire, train and retain highly qualified scientific and technical personnel for the research and development activities we conduct or sponsor. The loss of one or more key executive officers, or scientific officers, would be significantly detrimental to us. In addition, recruiting and retaining qualified scientific personnel to perform research and development work is critical to our success. Our anticipated growth and expansion into areas and activities requiring additional expertise, such as clinical testing, regulatory compliance, manufacturing and marketing, will require the addition of new management personnel and the development of additional expertise by existing management personnel. There is intense competition for qualified personnel in the areas of our present and planned activities. Accordingly, we may not be able to continue to attract and retain the qualified personnel, which would adversely affect the development of our business.

We may be subject to claims by third parties asserting that our employees or we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.

Many of our employees, consultants and advisors were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, with contractual provisions and other procedures, we may be subject to claims that these employees, consultants or advisors have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's, consultant's or advisor's former employers. Litigation may be necessary to defend against any such claims.

In addition, while it is our policy to require our employees, consultants and advisors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact contributes to the development of intellectual property that we regard as our own. Further, the terms of such assignment agreements may be breached and we may not be able to successfully enforce their terms, which may force us to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of intellectual property rights we may regard and treat as our own.

Our employees, consultants and advisors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could cause our business to suffer.

We are exposed to the risk of fraud or other misconduct by our employees, consultants or advisors. Misconduct by employees, consultants or advisors could include intentional failures to comply with regulations of governmental authorities, such as the FDA or the European Medicines Agency (the "EMA"), to provide accurate information to the FDA or EMA, to comply with manufacturing standards we have established, to comply with federal, state and international healthcare fraud and abuse laws and regulations as they may become applicable to our operations, to report financial information or data accurately or to disclose unauthorized activities to us. Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter such misconduct, and the precautions we currently take and the procedures we may establish in the future as our operations and employee base expand to detect and prevent this type of activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure by our employees, consultants or advisors to comply with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

Our reliance on the activities of our non-employee consultants, research institutions and scientific contractors, whose activities are not wholly within our control, may lead to delays in development of our proposed products.

We rely extensively upon and have relationships with scientific consultants at academic and other institutions, some of whom conduct research at our request, and other consultants with expertise in clinical development strategy or other matters. These consultants are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us. We have limited control over the activities of these consultants and, except as otherwise required by our collaboration and consulting agreements to the extent they exist, can expect only limited amounts of their time to be dedicated to our activities. These research facilities may have commitments to other commercial and non-commercial entities. We have limited control over the operations of these laboratories and can expect only limited amounts of time to be dedicated to our research goals.

It may take longer to complete our clinical trials than we project, or we may not be able to complete them at all.

For budgeting and planning purposes, we have projected the date for the commencement, continuation and completion of our various clinical trials. However, a number of factors, including scheduling conflicts with participating clinicians and clinical institutions, complications attributable to COVID-19 pandemic, and difficulties in identifying and enrolling patients who meet trial eligibility criteria, may cause significant delays. We may not commence or complete clinical trials involving any of our products as projected or may not conduct them successfully.

We expect to rely on medical institutions, academic institutions or clinical research organizations to conduct, supervise or monitor some or all aspects of clinical trials involving our products. We will have less control over the timing and other aspects of these clinical trials than if we conducted them entirely on our own. If we fail to commence or complete, or experience delays in, any of our planned clinical trials, our stock price and our ability to conduct our business as currently planned could be harmed.

Clinical drug development is costly, time-consuming and uncertain, and we may suffer setbacks in our clinical development program that could harm our business.

Clinical drug development for our product candidates is costly, time-consuming and uncertain. Our product candidates are in various stages of development and while we expect that clinical trials for these product candidates will continue for several years, such trials may take significantly longer than expected to complete. In addition, we, the FDA, an institutional review board (“IRB”) or other regulatory authorities, including state and local agencies and counterpart agencies in foreign countries, may suspend, delay, require modifications to or terminate our clinical trials at any time, for various reasons, including:

- discovery of safety or tolerability concerns, such as serious or unexpected toxicities or side effects or exposure to otherwise unacceptable health risks, with respect to study participants;
- lack of effectiveness of any product candidate during clinical trials or the failure of our product candidates to meet specified endpoints;
- delays in subject recruitment and enrollment in clinical trials or inability to enroll a sufficient number of patients in clinical trials to ensure adequate statistical ability to detect statistically significant treatment effects;
- difficulty in retaining subjects and volunteers in clinical trials;
- difficulty in obtaining IRB approval for studies to be conducted at each clinical trial site;
- delays in manufacturing or obtaining, or inability to manufacture or obtain, sufficient quantities of materials for use in clinical trials;
- inadequacy of or changes in our manufacturing process or the product formulation or method of delivery;
- delays or failure in reaching agreement on acceptable terms in clinical trial contracts or protocols with prospective contract research organizations (“CROs”), clinical trial sites and other third-party contractors;
- inability to add a sufficient number of clinical trial sites;
- uncertainty regarding proper formulation and dosing;
- failure by us, our employees, our consultants or advisors, our CROs or their employees or other third-party contractors to comply with contractual and applicable regulatory requirements or to perform their services in a timely or acceptable manner;
- scheduling conflicts with participating clinicians and clinical institutions;
- failure to design appropriate clinical trial protocols;
- inability or unwillingness of medical investigators to follow our clinical protocols;
- difficulty in maintaining contact with subjects during or after treatment, which may result in incomplete data;
- or
- changes in applicable laws, regulations and regulatory policies.

If we experience delays or difficulties in the enrollment of patients in clinical trials, those clinical trials could take longer than expected to complete and our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. In particular, because we are focused on patients with molecularly defined cancers, our pool of suitable patients may be smaller and more selective and our ability to enroll a sufficient number of suitable patients may be limited or take longer than anticipated. In addition, some of our competitors have ongoing clinical trials for product candidates that treat the same indications as our product candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Patient enrollment for any of our clinical trials may also be affected by other factors, including without limitation:

- the severity of the disease under investigation;
- the frequency of the molecular alteration we are seeking to target in the applicable trial;
- the eligibility criteria for the study in question;
- the perceived risks and benefits of the product candidate under study;
- the extent of the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment;
- the proximity and availability of clinical trial sites for prospective patients;
- unforeseen safety issues;
- determination of dosing issues;
- inability to demonstrate effectiveness during clinical trials;
- slower than expected rates of patient recruitment;
- inability to monitor patients adequately during or after treatment; and
- inability or unwillingness of medical investigators to follow our clinical protocols.

In addition, we or the FDA, may suspend our clinical trials at any time if it appears that we are exposing participants to unacceptable health risks or if the FDA finds deficiencies in our IND submissions or the conduct of these trials.

We are subject to extensive regulation, which can be costly and time consuming and can subject us to unanticipated delays, even if we obtain regulatory approval for some of our products, those products may still face regulatory difficulties.

All of our potential products, processing and manufacturing activities, are subject to comprehensive regulation by the FDA in the United States and by comparable authorities in other countries. The process of obtaining FDA and other required regulatory approvals, including foreign approvals, is expensive and often takes many years and can vary substantially based upon the type, complexity and novelty of the products involved. In addition, regulatory agencies may lack experience with our technologies and products, which may lengthen the regulatory review process, increase our development costs and delay or prevent their commercialization.

If we violate regulatory requirements at any stage, whether before or after we obtain marketing approval, the FDA may take enforcement action(s) against us, which could include issuing a warning or untitled letter, placing a clinical hold on an ongoing clinical trial, product seizure, enjoining our operations, refusal to consider our applications for pre-market approval, refusal of an investigational new drug application, fines, or even civil or criminal liability, any of which could materially harm our reputation and financial results. Additionally, we may not be able to obtain the labeling claims necessary or desirable for the promotion of our products. We may also be required to undertake post-marketing trials to provide additional evidence of safety and effectiveness. In addition, if we or others identify side effects after any of our adoptive therapies are on the market, or if manufacturing problems occur, regulators may withdraw their approval and reformulations, additional clinical trials, changes in labeling of our products, and additional marketing applications may be required.

Any of the following factors, among others, could cause regulatory approval for our product candidates to be delayed, limited or denied:

- the product candidates require significant clinical testing to demonstrate safety and effectiveness before applications for marketing approval can be filed with the FDA and other regulatory authorities;
- data obtained from pre-clinical and nonclinical animal testing and clinical trials can be interpreted in different ways, and regulatory authorities may not agree with our respective interpretations or may require us to conduct additional testing;
- negative or inconclusive results or the occurrence of serious or unexpected adverse events during a clinical trial could cause us to delay or terminate development efforts for a product candidate; and/or
- FDA and other regulatory authorities may require expansion of the size and scope of the clinical trials.

Any difficulties or failures that we encounter in securing regulatory approval for our product candidates would likely have a substantial adverse impact on our ability to generate product sales and could make any search for a collaborative partner more difficult.

Obtaining regulatory approval even after clinical trials that are believed to be successful is an uncertain process.

Even if we complete our planned clinical trials and believe the results were successful, obtaining regulatory approval is a lengthy, expensive and uncertain process, and the FDA or other regulatory agencies may delay, limit or deny approval of any of our applications for pre-market approval for many reasons, including:

- we may not be able to demonstrate to the FDA's satisfaction that our product candidates are safe and effective for any indication;
- the results of clinical trials may not meet the level of statistical significance or clinical significance required by the FDA for approval;
- the FDA may disagree with the number, design, size, conduct or implementation of our clinical trials;
- the FDA may not find the data from pre-clinical studies and clinical trials sufficient to demonstrate that the clinical and other benefits of our product candidates outweigh their safety risks;
- the FDA may disagree with our interpretation of data from pre-clinical studies or clinical trials, or may not accept data generated at our clinical trial sites;
- the data collected from pre-clinical studies and clinical trials of our product candidates may not be sufficient to support the submission of applications for regulatory approval;
- the FDA may have difficulties scheduling an advisory committee meeting in a timely manner, or the advisory committee may recommend against approval of our application or may recommend that the FDA require, as a condition of approval, additional pre-clinical studies or clinical trials, limitations on approved labeling, or distribution and use restrictions;
- the FDA may require development of a risk evaluation and mitigation strategy as a condition of approval;
- the FDA may identify deficiencies in the manufacturing processes or facilities of third-party manufacturers with which we enter into agreements for clinical and commercial supplies;
- the FDA may change their approval policies or adopt new regulations that adversely affect our applications for pre-market approval; and
- the FDA may require simultaneous approval for both adults and for children and adolescents delaying needed approvals, or we may have successful clinical trial results for adults but not children and adolescents, or vice versa.

Before we can submit an application for regulatory approval in the United States, we must conduct a pivotal, Phase III trial. We will also need to agree on a protocol with the FDA for a clinical trial before commencing the trial. Phase III clinical trials frequently produce unsatisfactory results even though prior clinical trials were successful. Therefore, even if the results of our Phase II trials are successful, the results of the additional trials that we conduct may or may not be successful. Further, our product candidates may not be approved even if they achieve their primary endpoints in Phase III clinical trials. The FDA or other foreign regulatory authorities may disagree with our trial design and our interpretation of data from preclinical studies and clinical trials. Any of these regulatory authorities may change requirements for the approval of a product candidate even after reviewing and providing comments or advice on a protocol for a clinical trial. The FDA or other regulatory agencies may require that we conduct additional clinical, nonclinical, manufacturing validation or drug product quality studies and submit those data before considering or reconsidering the application. Depending on the extent of these or any other studies, approval of any applications that we submit may be delayed by several years, or may require us to expend more resources than we have available. It is also possible that additional studies, if performed and completed, may not be considered sufficient by the FDA or other regulatory agencies.

In addition, the FDA or other regulatory agencies may also approve a product candidate for fewer or more limited indications than we request, may impose significant limitations related to use restrictions for certain age groups, warnings, precautions or contraindications or may grant approval contingent on the performance of costly post-marketing clinical trials or risk mitigation requirements.

We will continue to be subject to extensive FDA regulation following any product approvals, and if we fail to comply with these regulations, we may suffer a significant setback in our business.

Even if we are successful in obtaining regulatory approval of our product candidates, we will continue to be subject to the requirements of and review by, the FDA and comparable regulatory authorities in the areas of manufacturing processes, post-approval clinical data, adverse event reporting, labeling, advertising and promotional activities, among other things. In addition, any marketing approval we receive may be limited in terms of the approved product indication or require costly post-marketing testing and surveillance. Discovery after approval of previously unknown problems with a product, manufacturer or manufacturing process, or a failure to comply with regulatory requirements, may result in enforcement actions such as:

- warning letters or other actions requiring changes in product manufacturing processes or restrictions on product marketing or distribution;
- product recalls or seizures or the temporary or permanent withdrawal of a product from the market;
- suspending any ongoing clinical trials;
- temporary or permanent injunctions against our production operations;
- refusal of our applications for pre-market approval or an investigational new drug application; and
- fines, restitution or disgorgement of profits or revenue, the imposition of civil penalties or criminal prosecution.

The occurrence of any of these actions would likely cause a material adverse effect on our business, financial condition and results of operations.

Many of our business practices are subject to scrutiny and potential investigation by regulatory and government enforcement authorities, as well as to lawsuits brought by private citizens under federal and state laws. We could become subject to investigations, and our failure to comply with applicable law or an adverse decision in lawsuits may result in adverse consequences to us. If we fail to comply with U.S. healthcare laws, we could face substantial penalties and financial exposure, and our business, operations and financial condition could be adversely affected.

While payment is not yet available from third-party payors (government or commercial) for our products, our goal is to obtain such coverage as soon as possible after product approval and commercial launch in the U.S. If this occurs, the availability of such payment would mean that many healthcare laws would place limitations and requirements on the manner in which we conduct our business (including our sales and promotional activities and interactions with healthcare professionals and facilities) and could result in liability and exposure to us. In some instances, our interactions with healthcare professionals and facilities that occurred prior to commercialization could have implications at a later date. The laws that may affect our ability to operate include, among others: (i) the federal healthcare programs Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs such as Medicare or Medicaid, (ii) federal false claims laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent, and which may apply to entities like us under theories of “implied certification” where the government and qui tam relators may allege that device companies are liable where a product that was paid for by the government in whole or in part was promoted “off-label,” lacked necessary approval, or failed to comply with good manufacturing practices or other laws; (iii) transparency laws and related reporting and/or disclosures such as the Sunshine Act; and/or (iv) state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers, many of which differ from their federal counterparts in significant ways, thus complicating compliance efforts.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, exclusion from participation in government healthcare programs, damages, fines and the curtailment or restructuring of our operations. Any penalties, damages, fines, curtailment or restructuring of our operations could adversely affect our ability to operate our business and our financial results. The risk of our being found in violation of these laws is increased by the fact that their provisions are open to a variety of evolving interpretations and enforcement discretion. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business.

Both federal and state government agencies have heightened civil and criminal enforcement efforts. There are numerous ongoing investigations of healthcare pharmaceutical companies and others in the healthcare space, as well as their executives and managers. In addition, amendments to the Federal False Claims Act, have made it easier for private parties to bring qui tam (whistleblower) lawsuits against companies under which the whistleblower may be entitled to receive a percentage of any money paid to the government. In addition, the Patient Protection and Affordable Care and Health Care and Education Affordability Reconciliation Act of 2010 (collectively, the "Affordable Care Act") amended the federal civil False Claims Act to provide that a claim that includes items or services resulting from a violation of the federal anti-kickback statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act. Penalties include substantial fines for each false claim, plus three times the amount of damages that the federal government sustained because of the act of that person or entity and/or exclusion from the Medicare program. In addition, a majority of states have adopted similar state whistleblower and false-claims provision. There can be no assurance that our activities will not come under the scrutiny of regulators and other government authorities or that our practices will not be found to violate applicable laws, rules and regulations or prompt lawsuits by private citizen "relators" under federal or state false claims laws. Any future investigations of our business or executives, or enforcement action or prosecution, could cause us to incur substantial costs and result in significant liabilities or penalties, as well as damage to our reputation.

Laws impacting the U.S. healthcare system are subject to a great deal of uncertainty, which may result in adverse consequences to our business.

There have been a number of legislative and regulatory proposals to change the healthcare system, reduce the costs of healthcare and change medical reimbursement policies. Doctors, clinics, hospitals and other users of our products may decline to purchase our products to the extent there is uncertainty regarding coverage from government or commercial payors. Further proposed legislation, regulation and policy changes affecting third-party reimbursement are likely. Among other things, Congress has in the past proposed changes to and the repeal of the Affordable Care Act, and lawsuits have been brought challenging aspects of the law at various points. There have been repeated recent attempts by Congress to repeal or replace the Affordable Care Act. At this time, it remains unclear whether there will be any changes made to or any repeal or replacement of the Affordable Care Act, with respect to certain of its provisions or in its entirety. We are unable to predict what legislation or regulation, if any, relating to the health care industry or third-party coverage and reimbursement may be enacted in the future at the state or federal level, or what effect such legislation or regulation may have on us. Denial of coverage and reimbursement of our products, or the revocation or changes to coverage and reimbursement policies, could have a material adverse effect on our business, results of operations and financial condition.

We may not be successful in our efforts to build a pipeline of product candidates.

A key element of our strategy is to use and expand our product platform to build a pipeline of product candidates and progress those product candidates through clinical development for the treatment of a variety of different types of cancer. Even if we are successful in building a product pipeline, the potential product candidates that we identify may not be suitable for clinical development for a number of reasons, including causing harmful side effects or demonstrating other characteristics that indicate a low likelihood of receiving marketing approval or achieving market acceptance. If our methods of identifying potential product candidates fail to produce a pipeline of potentially viable product candidates, then our success as a business will be dependent on the success of fewer potential product candidates, which introduces risks to our business model and potential limitations to any success we may achieve.

Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.

Additionally, if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approvals of such product;
- regulatory authorities may require additional warnings on the product's label;
- we may be required to create a medication guide for distribution to patients that outlines the risks of such side effects;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

We may expend our limited resources to pursue a particular product candidate or indication that does not produce any commercially viable products and may fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we must focus our efforts on particular research programs and product candidates for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Further, our resource allocation decisions may result in our use of funds for research and development programs and product candidates for specific indications that may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. Any such failure to improperly assess potential product candidates could result in missed opportunities and/or our focus on product candidates with low market potential, which would harm our business and financial condition.

Our products may be expensive to manufacture, and they may not be profitable if we are unable to control the costs to manufacture them.

Our products may be significantly more expensive to manufacture than we expect or than other therapeutic products currently on the market today. We hope to substantially reduce manufacturing costs through process improvements, development of new methods, increases in manufacturing scale and outsourcing to experienced manufacturers. If we are not able to make these, or other improvements, and depending on the pricing of the product, our profit margins may be significantly less than that of other therapeutic products on the market today. In addition, we may not be able to charge a high enough price for any product we develop, even if they are safe and effective, to make a profit. If we are unable to realize significant profits from our potential product candidates, our business would be materially harmed.

We currently lack manufacturing capabilities to produce our therapeutic product candidates at commercial-scale quantities and do not have an alternate manufacturing supply, which could negatively impact our ability to meet any demand for the product.

We expect that we would need to significantly expand our manufacturing capabilities to meet potential demand for our therapeutic product candidates, if approved. Such expansion would require additional regulatory approvals. Even if we increase our manufacturing capabilities, it is possible that we may still lack sufficient capacity to meet demand.

We do not currently have any alternate supply for our products. If the facilities where our products are currently being manufactured or equipment were significantly damaged or destroyed, or if there were other disruptions, delays or difficulties affecting manufacturing capacity or availability of drug supply, including, but not limited to, if such facilities are deemed not in compliance with current Good Manufacturing Practice (“cGMP”) requirements, future clinical studies and commercial production for our products could be significantly disrupted and delayed. It would be both time-consuming and expensive to replace this capacity with third parties, particularly since any new facility would need to comply with the regulatory requirements.

Ultimately, if we are unable to supply our products to meet commercial demand, whether because of processing constraints or other disruptions, delays or difficulties that we experience, our production costs could dramatically increase and sales of our products and their long-term commercial prospects could be significantly damaged.

To be successful, our proposed products must be accepted by the healthcare community, which can be very slow to adopt or unreceptive to new technologies and products.

Our proposed products and those developed by our collaborative partners, if approved for marketing, may not achieve market acceptance since hospitals, physicians, patients or the medical community in general may decide not to accept and use these products. The products that we are attempting to develop represent substantial departures from established treatment methods and will compete with a number of more conventional therapies manufactured and marketed by major pharmaceutical companies. The degree of market acceptance of any of our developed products will depend on a number of factors, including:

- our establishment and demonstration to the medical community of the clinical efficacy and safety of our proposed products;
- our ability to create products that are superior to alternatives currently on the market;
- our ability to establish in the medical community the potential advantage of our treatments over alternative treatment methods; and
- reimbursement policies of government and third-party payers.

If the healthcare community does not accept our products for any of these reasons, or for any other reason, our business would be materially harmed.

Our business is based on novel technologies that are inherently expensive and risky and may not be understood by or accepted in the marketplace, which could adversely affect our future value.

The clinical development, commercialization and marketing of immuno-oncology therapies are at an early-stage, substantially research-oriented and financially speculative. To date, very few companies have been successful in their efforts to develop and commercialize an immuno-oncology therapeutic product. In general, such products may be susceptible to various risks, including undesirable and unintended side effects, unintended immune system responses, inadequate therapeutic efficacy, or other characteristics that may prevent or limit their approval or commercial use. Furthermore, the number of people who may use such therapies is difficult to forecast with accuracy. Our future success is dependent on the establishment of a significant market for such therapies and our ability to capture a share of this market with our product candidates.

Our development efforts with our therapeutic product candidates are susceptible to the same risks of failure inherent in the development and commercialization of therapeutic products based on new technologies. The novel nature of immuno-oncology therapeutics creates significant challenges in the areas of product development and optimization, manufacturing, government regulation, third-party reimbursement and market acceptance. For example, the FDA has relatively limited experience regulating such therapies, and there are few approved treatments using such therapy.

Our competition includes fully integrated biotechnology and pharmaceutical companies that have significant advantages over us.

The market for therapeutic immuno-oncology products is highly competitive. We expect that our most significant competitors will be fully integrated and more established pharmaceutical and biotechnology companies or institutions, including major multinational pharmaceutical companies, biotechnology companies and universities and other research institutions. These companies are developing similar products, and they have significantly greater capital resources and research and development, manufacturing, testing, regulatory compliance and marketing capabilities. Many of these potential competitors may be further along in the process of product development and also operate large, company-funded research and development programs. As a result, our competitors may develop more competitive or affordable products, or achieve earlier patent protection or product commercialization than we are able to achieve. Competitive products may render any products or product candidates that we develop obsolete.

Many of our competitors have substantially greater financial, technical and other resources than we do, such as larger research and development staff and experienced marketing and manufacturing organizations. Additional mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in certain of our competitors. As a result, these companies may be able to obtain regulatory approval more rapidly than we can and may be more effective in selling and marketing their products. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing drug products that are more effective or less costly to produce or purchase on the market than any product candidate we are currently developing or that we may seek to develop in the future. If approved, our product candidates will face competition from commercially available drugs as well as drugs that are in the development pipelines of our competitors.

Established pharmaceutical companies may invest heavily to accelerate discovery and development of or in-license novel compounds that could make our product candidates less competitive. In addition, any new product that competes with an approved product must demonstrate compelling advantages in efficacy, convenience, tolerability and safety in order to overcome price competition and to be commercially successful. Accordingly, our competitors may succeed in obtaining patent protection, receiving FDA, EMA or other regulatory approval, or discovering, developing and commercializing medicines before we do, which could have a material adverse impact on our business and ability to achieve profitability from future sales of our approved product candidates, if any.

If competitors develop and market products that are more effective, safer or less expensive than our product candidates or offer other advantages, our commercial prospects will be limited.

Our therapeutic immuno-oncology development programs face, and will continue to face, intense competition from pharmaceutical, biopharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies engaged in drug discovery activities or funding, both in the United States and abroad. Some of these competitors are pursuing the development of drugs and other therapies that target the same diseases and conditions that we are targeting with our product candidates. According to a recent analysis by InVentiv Health, there are over 800 companies developing approximately 1,500 cancer immunotherapies via 4,000 development projects across 535 targets. According to the Pharmaceutical Manufacturers Research Association Medicines in Development for Cancer 2018 Report, there were 135 drugs in development for the treatment of lymphoma, including non-Hodgkin lymphoma, which accounts for nearly five percent of all new cancer diagnoses.

As a general matter, we also face competition from many companies that are researching and developing cell therapies. Many of these companies have financial and other resources substantially greater than ours. In addition, many of these competitors have significantly greater experience in testing pharmaceutical and other therapeutic products, obtaining FDA and other regulatory approvals, and marketing and selling. If we ultimately obtain regulatory approval for any of our product candidates, we also will be competing with respect to manufacturing efficiency and marketing capabilities, areas in which we have limited or no commercial-scale experience. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources' being concentrated by our competitors. Competition may increase further as a result of advances made in the commercial applicability of our technologies and greater availability of capital for investment in these fields.

If we are unable to keep up with rapid technological changes in our field or compete effectively, we will be unable to operate profitably.

We are engaged in activities in the biotechnology field, which is characterized by extensive research efforts and rapid technological progress. If we fail to anticipate or respond adequately to technological developments, our ability to operate profitably could suffer. Research and discoveries by other biotechnology, agricultural, pharmaceutical or other companies may render our technologies or potential products or services uneconomical or result in products superior to those we develop. Similarly, any technologies, products or services we develop may not be preferred to any existing or newly developed technologies, products or services.

We may not be able to obtain third-party patient reimbursement or favorable product pricing, which would reduce our ability to operate profitably.

Our ability to successfully commercialize certain of our proposed products in the human therapeutic field may depend to a significant degree on patient reimbursement of the costs of such products and related treatments at acceptable levels from government authorities, private health insurers and other organizations, such as health maintenance organizations. Reimbursement in the United States or foreign countries may not be available for any products we may develop, and, if available, may be decreased in the future. Also, reimbursement amounts may reduce the demand for, or the price of, our products with a consequent harm to our business. We cannot predict what additional regulation or legislation relating to the healthcare industry or third-party coverage and reimbursement may be enacted in the future or what effect such regulation or legislation may have on our business. If additional regulations are overly onerous or expensive, or if healthcare-related legislation makes our business more expensive or burdensome than originally anticipated, we may be forced to significantly downsize our business plans or completely abandon our business model.

We may be subject to business litigation that will be costly to defend or pursue and uncertain in its outcome.

Our business may bring us into conflict with our licensees, licensors or others with whom we have contractual or other business relationships, or with our competitors or others whose interests differ from ours. If we are unable to resolve those conflicts on terms that are satisfactory to all parties, we may become involved in litigation brought by or against us. That litigation is likely to be expensive and may require a significant amount of management's time and attention, at the expense of other aspects of our business. The outcome of litigation is always uncertain, and in some cases could include judgments against us that require us to pay damages, enjoin us from certain activities, or otherwise affect our legal or contractual rights, which could have a significant adverse effect on our business.

We are exposed to the risk of liability claims, for which we may not have adequate insurance.

Since we participate in the pharmaceutical industry, we may be subject to liability claims by employees, customers, end users and third parties. We intend to obtain proper insurance, however, there can be no assurance that any liability insurance we purchase will be adequate to cover claims asserted against us or that we will be able to maintain such insurance in the future. We intend to adopt prudent risk-management programs to reduce these risks and potential liabilities, however, we have not taken any steps to create these programs and have no estimate as to the cost or time required to do so and there can be no assurance that such programs, if and when adopted, will fully protect us. We may not be able to put risk management programs in place, or obtain insurance, if we are unable to retain the necessary expertise and/or are unsuccessful in raising necessary capital in the future. Our failure to obtain appropriate insurance, or to adopt and implement effective risk-management programs, as well as any adverse rulings in any legal matters, proceedings and other matters could have a material adverse effect on our business.

Preclinical and clinical trials are conducted during the development of potential products and other treatments to determine their safety and efficacy for use by humans. Notwithstanding these efforts, when our treatments are introduced into the marketplace, unanticipated side effects may become evident. Manufacturing, marketing, selling and testing our product candidates under development or to be acquired or licensed, entails a risk of product liability claims. We could be subject to product liability claims in the event that our product candidates, processes, or products under development fail to perform as intended. Even unsuccessful claims could result in the expenditure of funds in litigation and the diversion of management time and resources, and could damage our reputation and impair the marketability of our product candidates and processes. While we plan to maintain liability insurance for product liability claims, we may not be able to obtain or maintain such insurance at a commercially reasonable cost. If a successful claim were made against us, and we lacked insurance or the amount of insurance were inadequate to cover the costs of defending against or paying such a claim or the damages payable by us, we would experience a material adverse effect on our business, financial condition and results of operations.

We could be subject to product liability lawsuits based on the use of our product candidates in clinical testing or, if obtained, following marketing approval and commercialization. If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to cease clinical testing or limit commercialization of our product candidates.

We could be subject to product liability lawsuits if any product candidate we develop allegedly causes injury or is found to be otherwise unsuitable for human use during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability and a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates, if approved. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenues from product sales; and
- the inability to commercialize our product candidates.

Our inability to retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the clinical testing and commercialization of products we develop. We may wish to obtain additional such insurance covering studies or trials in other countries should we seek to expand those clinical trials or commence new clinical trials in other jurisdictions or increase the number of patients in any clinical trials we may pursue. We also may determine that additional types and amounts of coverage would be desirable at later stages of clinical development of our product candidates or upon commencing commercialization of any product candidate that obtains required approvals. However, we may not be able to obtain any such additional insurance coverage when needed on acceptable terms or at all. If we do not obtain or retain sufficient product liability insurance, we could be responsible for some or all of the financial costs associated with a product liability claim relating to our preclinical and clinical development activities, in the event that any such claim results in a court judgment or settlement in an amount or of a type that is not covered, in whole or in part, by any insurance policies we may have or that is in excess of the limits of our insurance coverage. We may not have, or be able to obtain, sufficient capital to pay any such amounts that may not be covered by our insurance policies.

We rely on third parties to conduct preclinical and clinical trials of our product candidates. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business could be substantially harmed.

We rely, and expect to continue to rely, upon third-party CROs to execute our preclinical and clinical trials and to monitor and manage data produced by and relating to those trials. However, we may not be able to establish arrangements with CROs when needed or on terms that are acceptable to us, or at all, which could negatively affect our development efforts with respect to our drug product candidates and materially harm our business, operations and prospects.

We will have only limited control over the activities of the CRO we will engage to conduct our clinical trials including the University of Minnesota for our Phase II clinical trial for GTB-1550 and Phase I clinical trial for GTB-3550. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on any CRO does not relieve us of our regulatory responsibilities. Based on our present expectations, we, our CROs and our clinical trial sites are required to comply with good clinical practices (“GCPs”) for all of our product candidates in clinical development. Regulatory authorities enforce GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCPs, the clinical data generated in the applicable trial may be deemed unreliable and the FDA, EMA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving a product candidate for marketing, which we may not have sufficient cash or other resources to support and which would delay our ability to generate revenue from any sales of such product candidate. In addition, our clinical trials are required to be conducted with product produced in compliance with cGMPs. Our or our CROs’ failure to comply with those regulations may require us to repeat clinical trials, which would also require significant cash expenditures and delay the regulatory approval process.

Agreements governing relationships with CROs generally provide those CROs with certain rights to terminate a clinical trial under specified circumstances. If a CRO that we have engaged terminates its relationship with us during the performance of a clinical trial, we would be forced to seek an engagement with a substitute CRO, which we may not be able to do on a timely basis or on commercially reasonable terms, if at all, and the applicable trial would experience delays or may not be completed. In addition, our CROs are not our employees, and except for remedies available to us under any agreements we enter with them, we are unable to control whether or not they devote sufficient time and resources to our clinical, nonclinical and preclinical programs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to a failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for, or successfully commercialize, the affected product candidates. As a result, our operations and the commercial prospects for the affected product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed.

We contract with third parties for the supply of product candidates for clinical testing and expect to contract with third parties for the manufacturing of our product candidates for large-scale testing and commercial supply. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We anticipate continuing our engagement of third parties to provide our clinical supply as we advance our product candidates into and through clinical development, and we depend on third parties to produce and maintain sufficient quantities of material to supply our clinical trials. If these third parties do not produce and maintain adequate supplies of clinical material, our development efforts could be significantly delayed, or could incur substantially higher costs. We expect in the future to use third parties for the manufacture of our product candidates for clinical testing, as well as for commercial manufacture. We plan to enter into long-term supply agreements with several manufacturers for commercial supplies. We may be unable to reach agreement on satisfactory terms with contract manufacturers to manufacture our product candidates. Additionally, the facilities to manufacture our product candidates must be the subject of a satisfactory inspection before the FDA or other regulatory authorities approve a marketing authorization for the product candidate manufactured at that facility. We will depend on these third-party manufacturers for compliance with the FDA’s and international regulatory authority requirements for the manufacture of our finished products. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturers for compliance with cGMPs. If our manufacturers cannot successfully manufacture material that conforms to our specifications and the FDA and other regulatory authorities’ cGMP requirements, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved, and may subject us to recalls or enforcement action for products already on the market.

If any of our product candidates are approved and contract manufacturers fail to deliver the required commercial quantities of finished product on a timely basis and at commercially reasonable prices, and we are unable to find one or more replacement manufacturers capable of production at a substantially equivalent cost, in substantially equivalent volumes and quality and on a timely basis, we would likely be unable to meet demand for our products and could lose potential revenue. It may take several years to establish an alternative source of supply for our product candidates and to have any such new source approved by the FDA or any other relevant regulatory authorities.

We currently have no marketing and sales force. If we are unable to establish effective marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, we may not be able to effectively market and sell our product candidates, if approved, or generate product revenues.

We currently do not have a marketing or sales team for the marketing, sales and distribution of any of our product candidates that are able to obtain regulatory approval. In order to commercialize any product candidates, we must build on a territory-by-territory basis marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services, and we may not be successful in doing so. If our product candidates receive regulatory approval, we intend to establish an internal sales and marketing team with technical expertise and supporting distribution capabilities to commercialize our product candidates, which will be expensive and time consuming and will require significant attention of our executive officers to manage. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of any of our products that we obtain approval to market. With respect to the commercialization of all or certain of our product candidates, we may choose to collaborate, either globally or on a territory-by-territory basis, with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. If we are unable to enter into such arrangements when needed on acceptable terms or at all, we may not be able to successfully commercialize any of our product candidates that receive regulatory approval or any such commercialization may experience delays or limitations. If we are not successful in commercializing our product candidates, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

Our business and operations would suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we have not experienced any such system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our drug development programs. For example, the loss of clinical trial data from completed or ongoing or planned clinical trials could result in delays in our regulatory approval efforts and we may incur substantial costs to attempt to recover or reproduce the data. If any disruption or security breach resulted in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and/or the further development of our product candidates could be delayed.

Our operations are vulnerable to interruption by natural disasters, power loss, terrorist activity and other events beyond our control, the occurrence of which could materially harm our business.

Businesses located in California have, in the past, been subject to electrical blackouts as a result of a shortage of available electrical power, and any future blackouts could disrupt our operations. We are vulnerable to a major earthquake, wildfire and other natural disasters, and we have not undertaken a systematic analysis of the potential consequences to our business as a result of any such natural disaster and do not have an applicable recovery plan in place. We do not carry any business interruption insurance that would compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could cause our business to materially suffer.

Epidemic or pandemic outbreaks such as COVID-19 (coronavirus), natural disasters, whether or not caused by climate change, unusual weather conditions, terrorist acts and political events, could disrupt business and result in halting our clinical trials and otherwise adversely affect our financial performance.

The occurrence of one or more natural disasters, such as tornadoes, hurricanes, fires, floods and earthquakes, unusual weather conditions, epidemic outbreaks, terrorist attacks or disruptive political events in certain regions where our operations are located could adversely affect our business. Epidemic or pandemic outbreaks, such as COVID-19 (coronavirus) could impact our management and our ability to conduct clinical trials. For example, we were required to temporarily halt our Phase I clinical trial with GTB-3550 for 30 days in March 2020 as result of restrictions on hospital operation implemented in reaction to the coronavirus pandemic. This also may affect the market conditions that would limit our ability to raise additional capital. This could have a sustained material adverse effect on our business, financial condition and results of operations.

We have not held regular annual meetings in the past, and if we are required by the Delaware Court of Chancery to hold an annual meeting pursuant to Section 211(c) of the Delaware General Corporation Law (the “DGCL”) it could result in the unanticipated expenditure of funds, time and other Company resources.

Section 2.2 of our bylaws provides that an annual meeting shall be held each year on a date and at a time designated by our Board of Directors (the “Board”), and Section 211(b) of the DGCL provides for an annual meeting of stockholders to be held for the election of directors. Section 211(c) of the DGCL provides that if there is a failure to hold the annual meeting for a period of 13 months after the latest to occur of the organization of the corporation, its last annual meeting or last action by written consent to elect directors in lieu of an annual meeting, the Delaware Court of Chancery may order a meeting to be held upon the application of any stockholder or director. Section 211(c) also provides that the failure to hold an annual meeting shall not affect otherwise valid corporate acts or result in a forfeiture or dissolution of the corporation.

We have not held regular annual meetings in the past because a substantial majority of our stock is owned by a small number of stockholders, making it easy to obtain written consent in lieu of a meeting when necessary. In light of our historical liquidity constraints, handling matters by written consent has allowed our Company to save on the financial and administrative resources required to prepare for and hold such annual meetings. To our knowledge, no stockholder or director has requested our Company’s management to hold such an annual meeting and no stockholder or director has applied to the Delaware Court of Chancery seeking an order directing our company to hold a meeting. However, if one or more stockholders or directors were to apply to the Delaware Court of Chancery seeking such an order, and if the Delaware Court of Chancery were to order an annual meeting before we are prepared to hold one, the preparation for the annual meeting and the meeting itself could result in the unanticipated expenditure of funds, time and other Company resources.

Risks Related to this Offering and Our Common Stock

There has been a limited public market for our common stock, and we do not know whether one will develop to provide you adequate liquidity. Furthermore, the trading price for our common stock, should an active trading market develop, may be volatile and could be subject to wide fluctuations in per-share price.

Our common stock is quoted on the OTCQB under the trading symbol “GTBP”; historically, however, there has been a limited public market for our common stock. We cannot assure you that an active trading market for our common stock will develop or be sustained. The liquidity of any market for the shares of our common stock will depend on a number of factors, including:

- the number of stockholders;
- our operating performance and financial condition;
- the market for similar securities;
- the extent of coverage of us by securities or industry analysts; and
- the interest of securities dealers in making a market in the shares of our common stock.

Even if an active trading market develops, the market price for our common stock may be highly volatile and could be subject to wide fluctuations. In addition, the price of shares of our common stock could decline significantly if our future operating results fail to meet or exceed the expectations of market analysts and investors and actual or anticipated variations in our quarterly operating results could negatively affect our share price.

The volatility of the price of our common stock may also be impacted by the risks discussed under this “Risk Factors” section, in addition to other factors, including:

- developments in the financial markets and worldwide or regional economies;
- announcements of innovations or new products or services by us or our competitors;
- announcements by the government relating to regulations that govern our industry;
- significant sales of our common stock or other securities in the open market;
- variations in interest rates;
- changes in the market valuations of other comparable companies; and
- changes in accounting principles.

Our outstanding warrants and preferred stock may affect the market price and liquidity of the common stock.

As of December 31, 2020, after giving effect to the issuance of the Settlement Shares and the Settlement Warrants pursuant to the Settlement Agreement and before giving effect to the 1-for-17 reserve stock split described in this prospectus, we had approximately 77.5 million shares of common stock outstanding and had outstanding warrants for the purchase of up to approximately 7.8 million additional shares of common stock at an exercise price of \$0.20 per share, all of which are exercisable as of the date of this prospectus (subject to certain beneficial ownership limitations). We also had outstanding 96,230 shares of Series C preferred stock (the “Series C Preferred Stock”) and 2,353,548 shares of Series J-1 Preferred Stock as of the date of this prospectus, which preferred stock is convertible into up to approximately 11.8 million additional shares of common stock at any time (subject to certain beneficial ownership limitations). In addition, as described more fully below, holders of our convertible notes and debentures may elect to receive a substantial number of shares of common stock upon conversion of the notes and, at each holder’s option, we will pay accrued interest on such notes in shares of our common stock. The amount of common stock reserved for issuance may have an adverse impact on our ability to raise capital and may affect the price and liquidity of our common stock in the public market. In addition, the issuance of these shares of common stock will have a dilutive effect on current stockholders’ ownership.

The conversion of outstanding convertible notes and debentures into shares of common stock, and the issuance of common stock by us as payment of accrued interest upon our convertible notes and debentures, could materially dilute our current stockholders.

As of January 31, 2021, after giving effect to (i) the issuance of the December 2020/ January 2021 Notes, the November 2020 Notes, the September 2020 Notes, the July 2020 Notes and the May 2020 Notes and (ii) the issuance of the Settlement Notes pursuant to the Settlement Agreement, we had approximately \$38.8 million aggregate principal amount of convertible notes and debentures outstanding. The convertible notes and debentures are convertible into shares of our common stock at fixed conversion prices, which may be less than the market price of our common stock at the time of conversion, and which may be subject to future adjustment due to certain events, including the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. If the entire principal is converted into shares of common stock (including approximately \$3.9 million in default amounts accrued with respect to the Default Notes), we would be required to issue an aggregate of no less than 84.5 million shares of common stock. If we issue all of these shares, the ownership of our current stockholders will be diluted.

Further, at each holder's option, we will pay interest on the convertible notes and debentures in shares of common stock based on the then current conversion price. Such interest could further dilute our current stockholders.

Because our common stock may be deemed a low-priced "penny" stock, an investment in our common stock should be considered high-risk and subject to marketability restrictions.

Historically, the trading price of our common stock has been \$5.00 per share or lower, and deemed a penny stock, as defined in Rule 3a51-1 under the Exchange Act, and subject to the penny stock rules of the Exchange Act specified in rules 15g-1 through 15g-100. Those rules require broker-dealers, before effecting transactions in any penny stock, to:

- deliver to the customer, and obtain a written receipt for, a disclosure document;
- disclose certain price information about the stock;
- disclose the amount of compensation received by the broker-dealer or any associated person of the broker-dealer;
- send monthly statements to customers with market and price information about the penny stock; and
- in some circumstances, approve the purchaser's account under certain standards and deliver written statements to the customer with information specified in the rules.

Consequently, the penny stock rules may restrict the ability or willingness of broker-dealers to sell the common stock and may affect the ability of holders to sell their common stock in the secondary market and the price at which such holders can sell any such securities. These additional procedures could also limit our ability to raise additional capital in the future.

Financial Industry Regulatory Authority ("FINRA") sales practice requirements may also limit a stockholder's ability to buy and sell our common stock, which could depress the price of our common stock.

In addition to the "penny stock" rules described above, FINRA has adopted rules that require a broker-dealer to have reasonable grounds for believing that the investment is suitable for that customer before recommending an investment to a customer. Prior to recommending speculative low-priced securities to their non-institutional customers, broker-dealers must make reasonable efforts to obtain information about the customer's financial status, tax status, investment objectives and other information. Under interpretations of these rules, FINRA believes that there is a high probability that speculative low-priced securities will not be suitable for at least some customers. Thus, the FINRA requirements make it more difficult for broker-dealers to recommend that their customers buy our common stock, which may limit your ability to buy and sell our shares of common stock, have an adverse effect on the market for our shares of common stock, and thereby depress our price per share of common stock.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock may be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have, and may never obtain, research coverage by securities and industry analysts. If no or few securities or industry analysts commence coverage of us, the trading price for our common stock may be negatively affected. In the event that we receive securities or industry analyst coverage, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

Anti-takeover provisions may limit the ability of another party to acquire us, which could cause our stock price to decline.

Delaware law and our restated certificate of incorporation (“certificate of incorporation”), our restated bylaws (“bylaws”) and other governing documents contain provisions that could discourage, delay or prevent a third party from acquiring us, even if doing so may be beneficial to our stockholders, which could cause our stock price to decline. In addition, these provisions could limit the price investors would be willing to pay in the future for shares of our common stock.

We do not currently or for the foreseeable future intend to pay dividends on our common stock.

We have never declared or paid any cash dividends on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. As a result, any return on your investment in our common stock will be limited to the appreciation in the price of our common stock, if any.

An investment in this offering may result in uncertain U.S. federal income tax consequences.

An investment in this offering may result in uncertain U.S. federal income tax consequences. For instance, because there are no authorities that directly address instruments similar to the Units part of this offering, the allocation an investor makes with respect to the purchase price of a Unit between the common stock and Common Warrant included in each Unit (or between the Pre-Funded Warrant and Common Warrant included in each Pre-Funded Unit) could be challenged by the Internal Revenue Service or courts. See “*Material United States Federal Income Tax Considerations*” for a summary of the U.S. federal income tax considerations of an investment in our securities. Prospective investors are urged to consult their own tax advisors with respect to these and other tax consequences when acquiring, owning or disposing of our securities.

Risks Relating to this Offering and our Reverse Stock-Split

Our Bridge Notes automatically convert at the closing of this offering at the lower of \$4.00 per Unit or a 30% discount to the offering price of the Units, and our Settlement Warrants will be cancelled and shares issued as a result, all of which could negatively impact trading in our securities. On March 6, 2020, we completed the offering of \$1,992,000 of the Bridge Notes that provided for the automatic conversion into shares of our common stock at the closing of this offering at the lower of \$4.00 per share or a 30% discount to the offering price of the Units. Purchasers of the Bridge Notes also received warrants (the “Settlement Warrants”) in the private placement. On June 15, 2020, we entered into agreements with the holders of the Bridge Notes to provide that the Bridge Notes will automatically convert upon the closing of this offering into shares of our common stock and warrants underlying the Units at the lower of \$4.00 per Unit or a 30% discount to the public offering price of the Units. As of June 15, 2020, two holders representing \$200,000 in the aggregate of the outstanding Bridge Notes have not yet signed the agreement. The agreements further provide that, immediately upon the closing of this offering, the Settlement Warrants will be cancelled and in lieu thereof each holder will receive 0.4 of a share of common stock for each share formerly underlying such cancelled 2020 Warrant. As a result, the investors in this offering will experience immediate dilution when the Bridge Notes are automatically converted into shares of our common stock and warrants and the Settlement Warrants are cancelled and shares in lieu thereof are issued at the closing of this offering. We estimate that approximately 517,403 shares and warrants to purchase 517,403 shares will be issuable upon conversion of the Bridge Notes, assuming a \$3.85 conversion price and not taking into account interest earned, and 199,200 shares will be issued to holders upon cancellation of the Settlement Warrants. We have agreed to register the shares and warrants underlying the Bridge Notes, as well as the shares underlying the warrants issued upon automatic conversion of the Bridge Notes, and the shares issued upon cancellation of the Settlement Warrants for resale under the Securities Act. The holders of the Bridge Notes and Settlement Warrants have agreed to certain lock-up provisions with respect to the securities received upon conversion of the Bridge Notes and Settlement Warrants as described below under “Underwriting—Lock-up Agreements.” The automatic conversion of the Bridge Notes into shares of our common stock and warrants and issuance of shares upon cancellation of the Settlement Warrants will be dilutive to our holders and could negatively impact the trading market and price of our common stock following the offering.

Our management team will have immediate and broad discretion over the use of net proceeds from this offering and may not use them effectively.

We intend to use the net proceeds of this offering for general corporate purposes, which includes, among other purposes, the funding and expansion of our ongoing clinical trials and the continued development of our pipeline of candidate products. See “*Use of Proceeds*.” However, our management will still have broad discretion in the application of such proceeds. Our shareholders may not agree with the manner in which our management chooses to allocate the net proceeds from this offering. The failure by our management to apply these funds effectively could have a material adverse effect on our business, financial condition and results of operation. Pending their use, management may invest the net proceeds from this offering in a manner that does not produce income. The decisions made by our management may not result in positive returns on your investment, and you will not have an opportunity to evaluate the economic, financial or other information upon which our management bases its decisions.

You may experience immediate and substantial dilution in the net tangible book value of the common shares you purchase.

The offering price of the common shares underlying the Units and the Pre-Funded Units offered pursuant to this prospectus is substantially higher than the net tangible book value per share. Therefore, if you purchase Units or Pre-Funded Units, you will incur immediate and substantial dilution in the pro forma net tangible book value per common share from the price per unit that you pay for the underlying share. If the holders of outstanding options or warrants exercise those options or warrants at prices below the offering price, you will incur even further dilution. See “*Dilution*.”

There is no public market for the Common Warrants or Pre-Funded Warrants being offered.

There is no established public trading market for the Common Warrants or Pre-Funded Warrants being offered pursuant to this offering, nor do we expect such a market to develop. We do not intend to apply to list any Common Warrants or Pre-Funded Warrants on any securities exchange or other nationally recognized trading system, including NASDAQ. Without an active market, the liquidity of such Common Warrants and Pre-Funded Warrants will be limited.

Holders of the Common Warrants and Pre-Funded Warrants purchased pursuant to this offering will have no rights as common shareholders until such holders exercise the Common Warrants and Pre-Funded Warrants and acquire our common shares.

Holders of Common Warrants and Pre-Funded Warrants purchased in this offering only acquire our common shares upon exercise thereof, meaning holders will have no rights with respect to the shares of our common shares underlying such warrants. Upon the exercise of any of the warrants purchased, such holders will be entitled to exercise the rights of a shareholder only as to matters for which the record date occurs after the exercise date. The Common Warrants and the Underwriter Warrants are speculative in nature. The Common Warrants being sold in this offering have an exercise price equal to the public offering price of the Units, the Pre-Funded Warrants \$0.001 per share, and the Underwriter Warrants have an exercise price equal to 125% of the public offering price of the Units. The Common Warrants will expire on the fifth anniversary from the issuance date, and the Underwriter Warrants will expire on the fifth anniversary from the effective date of this offering. In the event our common share price does not exceed the per share exercise price of the Common Warrants or the Underwriter Warrants during the period when such warrants are exercisable, such warrants will not have any value.

USE OF PROCEEDS

We estimate that our net proceeds from this offering will be approximately \$18,165,000million, based on an assumed public offering price of \$7.57 per Unit after deducting the underwriters' fees and estimated offering expenses payable by us. If the underwriters exercise their option to purchase additional Units in full, we estimate that the net proceeds to be received by us will be approximately \$20,925,000, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

If a holder of Common Warrants elects to exercise the Common Warrants issued in this offering, we may also receive proceeds from the exercise of the Common Warrants. We cannot predict when or if the Common Warrants will be exercised. It is possible that the Common Warrants may expire and may never be exercised.

Each \$0.05 increase or decrease in the assumed public offering price of \$7.57 per Unit would increase or decrease, respectively, our net proceeds by approximately \$140,000, assuming the maximum number of Units offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting underwriter fees and estimated offering expenses payable by us. We may also increase or decrease the number of Units we are offering. An increase or decrease of 100,000 in the number of Units we are offering would increase or decrease, respectively, the net proceeds from this offering, after deducting underwriter fees and estimated offering expenses payable by us, by approximately \$696,000, assuming the assumed public offering price stays the same.

We intend to use the net proceeds of this offering for general corporate purposes, which includes, among other purposes, the funding and expansion of our ongoing clinical trials and the continued development of our pipeline of candidate products.

Our expected use of net proceeds from the offering represents our current intentions based upon our present plans and business condition. Investors are cautioned, however, that expenditures may vary substantially from these uses. Investors will be relying on the judgment of our management, who will have broad discretion regarding the application of the proceeds of this offering. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount of cash generated by our operations, the amount of competition and other operational factors. We may find it necessary or advisable to use portions of the proceeds from this offering for other purposes.

MARKET INFORMATION

Our common stock is quoted on the OTCQB under the symbol “GTBP.” Our common stock is also quoted on several European based exchanges, including Berlin (GTBP.BE), Frankfurt (GTBP.DE), the Euronext (GTBP.NX) and Paris (GTBP.PA).

Stockholders

As of January 31, 2021, there were 52 stockholders of record. This total does not include stockholders who hold their shares in “street name.” The transfer agent for our common stock is Computershare, whose address is 8742 Lucent Blvd., Suite 225, Highland Ranch, CO 80129.

Dividends

We have not paid any dividends on our common stock to date and do not anticipate that we will pay dividends in the foreseeable future. Any payment of cash dividends on our common stock in the future will be dependent upon the amount of funds legally available, our earnings, if any, our financial condition, our anticipated capital requirements and other factors that the Board may think are relevant. However, we currently intend for the foreseeable future to follow a policy of retaining all of our earnings, if any, to finance the development and expansion of our business and, therefore, do not expect to pay any dividends on our common stock during such time.

CONSOLIDATED CAPITALIZATION

The following table presents the number of our issued and outstanding shares of common stock and our consolidated cash and cash equivalents and capitalization as at September 30, 2020: (i) on an actual basis; and (ii) on an as adjusted basis to give effect to the approved reverse stock split of the outstanding shares of our common stock at a 1-for-17 ratio to occur following the effective date but prior to the closing of this offering, the sale by us of 2,642,008 Units in this offering at the assumed public offering price of \$7.57 per Unit, and no sale of Pre-Funded Units after deducting estimated underwriter fees and estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of over-allotment option of the exercise of the Common Warrants and Underwriter Warrants issued pursuant to this offering.

The information below has been derived from and should be read in conjunction with, and is qualified in its entirety by, our unaudited consolidated financial statements as at September 30, 2020; and for the nine-month periods ended September 30, 2020 and 2019, and the Management's Discussion and Analysis thereon, incorporated by reference into this prospectus supplement. Figures are in thousands of U.S. dollars except share data.

(in thousands except per share data)	September 30, 2020	
	Actual	As Adjusted
Number of Common Shares issued and outstanding	77,518	7,202
Cash and cash equivalents	350	18,515
Shareholders' equity	(29,777)	(11,612)
Share capital	103	105
Other capital	550,984	550,984
Deficit	(580,695)	(580,695)
Accumulated other comprehensive income	-	-
Total shareholders' equity and total capitalization	(29,777)	(11,612)

The number of shares of common stock that will be outstanding both before and immediately after this offering is based on 77,518,614 shares outstanding as of September 30, 2020, and excludes as of such date before giving effect to the 1-for-17 reverse stock split:

- 3.8 million shares of common stock issuable upon the exercise of outstanding warrants at a weighted average exercise price of \$0.20 per share;
- 40 shares of common stock issuable upon the exercise of outstanding stock;
- 87 shares of common stock reserved for future issuance under our 2014 Stock Incentive Plan;
- shares of common stock issuable upon the exercise of warrants to be issued to investors in this offering; and
- shares of common stock issuable upon the exercise of the Underwriter Warrants to be issued to the underwriters.

DILUTION

If you invest in our common stock and warrants, your interest will be diluted immediately to the extent of the difference between the public offering price per unit and the as-adjusted net tangible book value per share after this offering.

The net tangible book value (deficit) of our common stock as of September 30, 2020 was approximately (\$29,777,000), or approximately (\$6.53) per share. Net tangible book value per share represents the amount of our total tangible assets less total liabilities divided by the total number of our shares of common stock outstanding as of September 30, 2020 as adjusted to give effect to the approved reverse stock split of the outstanding shares of common stock of the Company at a 1-for-17 ratio to occur following the effective date but prior to the closing of this offering.

After giving effect to the sale of 2,642,008 Units in this offering at the assumed public offering price of \$7.57 per Unit, and no sale of Pre-Funded Units, after deducting estimated underwriter fees and estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of the Common Warrants and Underwriter Warrants issued pursuant to this offering, our as adjusted net tangible book value as of September 30, 2020 would have been approximately (\$11,612,000), or approximately (\$1.61) per share. This represents an immediate increase in net tangible book value of approximately \$4.92 per share to our existing security holders and an immediate dilution in as-adjusted net tangible book value of approximately \$9.18 per share to purchasers of units in this offering, as illustrated by the following table:

Public offering price per Unit	\$	7.57
Consolidated net tangible book value per Common Share	\$	(6.53)
Increase in consolidated net tangible book value per Common Share	\$	4.92
As adjusted consolidated net tangible book value per Common Share	\$	(1.61)
Dilution per Common Share to new investors participating in this offering	\$	9.18

If the underwriters exercise their option to purchase 396,301 additional Units in full, the as adjusted net tangible book value of our common stock after this offering would be (\$8,852,000) per share, representing an immediate increase in net tangible book value of approximately \$5.37 per share to existing stockholders and an immediate dilution of \$8.74 per share to the investors in this offering, after deducting the underwriting discount and estimated offering expenses payable by us.

To the extent that outstanding options or warrants outstanding as of September 30, 2020, have been or may be exercised or other shares issued, investors participating in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS**

Overview

We are a clinical stage biopharmaceutical company focused on the development and commercialization of novel immuno-oncology products based off our proprietary Tri-specific Killer Engager (TriKE™) and Tetra-specific Killer Engager (TetraKE™). Our TriKE and TetraKE platforms generate proprietary therapeutics designed to harness and enhance the cancer killing abilities of a patient's own NK cells. Once bound to an NK cell, our moieties are designed to enhance the NK cell and precisely direct it to one or more specifically-targeted proteins expressed on a specific type of cancer cell or virus infected cell, ultimately resulting in the targeted cell's death. TriKEs and TetraKEs are made up of recombinant fusion proteins, can be designed to target any number of tumor antigens on hematologic malignancies, sarcomas or solid tumors and do not require patient-specific customization.

Recent Developments

Financings

In December 2020 and January 2021, we entered into a securities purchase agreement with sixty-five purchasers pursuant to which we issued the December 2020 / January 2021 Notes.

The December 2020 / January 2021 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The December 2020 / January 2021 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the December 2020 / January 2021 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The December 2020 / January 2021 Notes each have a term of six months and mature in June or July, 2021, as applicable, unless earlier converted or repurchased. The December 2020 / January 2021 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the December 2020 / January 2021 Notes without the prior written consent of the applicable holder.

November 2020 Financing

In November, 2020, we entered into a securities purchase agreement with three purchasers pursuant to which we issued the November 2020 Notes.

The November 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The November 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the November 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The November 2020 Notes each have a term of six months and mature in May, 2021, unless earlier converted or repurchased. The November 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the November 2020 Notes without the prior written consent of the applicable holder.

September 2020 Financing

On September 16, 2020, we entered into a securities purchase agreement with two purchasers pursuant to which we issued the September 2020 Notes in an aggregate principal amount of \$250,000.

The September 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The September 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the September 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The September 2020 Notes each have a term of six months and mature on March 16, 2021, unless earlier converted or repurchased. The September 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the September 2020 Notes without the prior written consent of the applicable holder.

July 2020 Financing

On July 7, 2020, we entered into a securities purchase agreement with ten purchasers pursuant to which we issued the July 2020 Notes in an aggregate principal amount of approximately \$3.2 million.

The July 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The July 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the July 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The July 2020 Notes each have a term of six months and mature on January 7, 2021, unless earlier converted or repurchased. The July 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the July 2020 Notes without the prior written consent of the applicable holder.

May 2020 Financing

Between April 20, 2020 and May 7, 2020, we entered into securities purchase agreements with eight purchasers pursuant to which we issued convertible notes in an aggregate principal amount of approximately \$2.0 million.

The May 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The May 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the May 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above.

The May 2020 Notes each have a term of six months and mature between October 20, 2020 and November 7, 2020, unless earlier converted or repurchased. The May 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the May 2020 Notes without the prior written consent of the applicable holder.

January 2020 Financing

On January 30, 2020, we entered into a securities purchase agreement with one purchaser pursuant to which we issued the January 2020 Notes in an aggregate principal amount of \$0.2 million.

The January 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect.

The January 2020 Notes have a term of eight months and mature on September 30, 2020, unless earlier converted or repurchased. The January 2020 Notes accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder's option, in shares of common stock based on the conversion price then in effect. We may not prepay the January 2020 Notes without the prior written consent of the holder.

For additional information regarding the terms of our convertible notes and debentures, including the Bridge Notes, and the securities purchase agreements pursuant to which they were issued, see "*Indebtedness—Convertible Notes/Debentures*" below.

Manufacturing Agreement

Effective October 5, 2020, the Company entered into a Master Services Agreement (the "MSA"), with Cytovance Biologics, Inc., ("Cytovance"), a subsidiary of Shenzhen Hepalink Pharmaceutical Group Co., Ltd. Cytovance is headquartered in Oklahoma City, Oklahoma.

Under the MSA, the Company will engage Cytovance as the exclusive manufacturer for three of the Company's TriKE™ therapeutic product candidates. Cytovance will manufacture TriKE™ using Cytovance's proprietary Keystone® bacterial or mammalian expression systems. Subject to the completion of certain milestones by Cytovance, GT Biopharma has the option to pay Cytovance up to \$6 million for its manufacturing services in either cash or in shares of the Company's common stock valued at the time Cytovance achieves each of several milestones over the next 12 months.

Forbearance Agreements

Effective as of June 23, 2020, we entered into the Forbearance Agreements with the holders of approximately \$13.2 million aggregate principal amount of the Default Notes, which are currently in default. Pursuant to the Forbearance Agreements, the holders of the Default Notes have agreed to forbear from exercising their rights and remedies under the Default Notes (including declaring such Default Notes (together with default amounts and accrued and unpaid interest) immediately due and payable) until the earlier of (i) the date that we complete a New Financing or (ii) the Termination Date.

Pursuant to the Forbearance Agreement, the holders of the Default Notes have also agreed that the Default Notes (together with default amounts and accrued and unpaid interest) will be converted into common stock upon the closing of a New Financing at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). Shares of our Series J-1 Preferred Stock, which are convertible into the Company's common stock, will be issued in lieu of common stock to the extent that conversion of the Default Notes is prohibited by such beneficial ownership limitations.

For additional information regarding the terms of the Forbearance Agreements, see "*Indebtedness—Forbearance Agreements*" below.

Extension Agreements

Effective as of November 9, 2020, we entered into the New Financing with the holders of approximately \$[●] million aggregate principal amount of our outstanding convertible notes and debentures to extend the maturity date thereof until the earlier of (i) the date that we complete a future financing in the amount of at least \$15 million and, in connection therewith, commences listing on NASDAQ or (ii) the Termination Date.

Settlement with Empery Funds

Settlement Agreement

On June 19, 2020, we entered into the Empery Settlement Agreement with the Empery Funds, Anthony Cataldo and Paul Kessler resolving all remaining disputes between the parties pertaining to the Original Securities issued by the Company to the Empery Funds in January 2018 pursuant to a securities purchase agreement. See “*Description of Business—Legal Proceedings*.”

As a result of the Empery Settlement Agreement, the Company paid the Empery Funds cash payments in an aggregate amount of \$0.2 million. In addition, pursuant to the Empery Settlement Agreement, the Company issued to the Empery Funds, solely in exchange for the outstanding Original Securities, (i) an aggregate of 3.5 million shares of common stock, (ii) pre-funded warrants to purchase an aggregate of 5.5 million shares of common stock and (iii) senior convertible notes in an aggregate principal amount of \$0.45 million.

Settlement Notes

The Empery Settlement Notes are convertible at any time, at the holder’s option, into shares of common stock at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 4.99%). The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect.

By way of the Empery Note Amendments, the maturity date of each Empery Settlement Note was extended to March 19, 2021. The Empery Settlement Notes bear interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. As a result of the Empery Note Amendments, the principal amount of each of the Empery Settlement Notes was increased by fifteen percent (15%). The current principal amount of the Empery Settlement Notes, after giving effect to the Empery Note Amendments, is \$517,500. By entry into the Empery Note Amendments, the Empery Funds agreed to refrain from selling, assigning or otherwise transferring or agreeing to transfer any securities of the Company, until the earlier of January 31, 2021 and the date that the Company completes the New Financing.

Pursuant to the terms of the Empery Settlement Notes, the Company is required to make an offer to repurchase, at the holder’s option, the Empery Settlement Notes at price in cash equal to 100% of the aggregate principal amount of the Empery Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a capital raising transactions, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. The Company may not otherwise prepay the Empery Settlement Notes without the prior written consent of the applicable Empery Funds.

For additional information regarding the terms of the Settlement Notes and Settlement Agreement, see “*Indebtedness—Convertible Notes/Debentures*” below.

Settlement Warrants

The Settlement Warrants provide for the purchase of up to an aggregate of 5.5 million shares of common stock at an exercise price of \$0.20 per share, subject to adjustment in certain circumstances, and expire on June 19, 2025. Exercise of the warrant is subject to certain additional terms and conditions, including certain beneficial ownership limitations (with a maximum ownership limit of 4.99%).

Theorem Settlement

Settlement Agreement

On November 9, 2020, the Company, entered into the Theorem Settlement Agreement with the Claimants resolving all remaining disputes and claims between the parties pertaining to certain securities purchase agreements pursuant to which the Claimants purchased from the Company convertible warrants and preferred stock. As a result of the Theorem Settlement Agreement, the Company has agreed to issue the Theorem Settlement Notes. The Theorem Settlement Agreement also contains certain representations and warranties and covenants, including limitations on future variable rate transactions and “at-the-market offerings.”

Settlement Notes

The Theorem Settlement Notes are convertible, at the option of the applicable Claimant, at any time into shares of common stock at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations. The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. By way of the Theorem Note Amendments, the Theorem Settlement Notes maturity date was extended to February 15, 2021. The Theorem Settlement Notes bear interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. The Company may not prepay the Theorem Settlement Notes without the prior written consent of the applicable Claimant.

The Theorem Settlement Notes contain a number of other affirmative and negative covenants and events of default (including events of default related to certain change of control and other fundamental change transactions). Following an event of default, the Theorem Settlement Notes will become immediately due and payable in cash at a mandatory default amount equal to 130% of the outstanding principal amount of the Theorem Settlement Notes plus all other amounts, costs and expenses due in respect of the Theorem Settlement Notes.

Alto B Settlement

Settlement Agreement

On December 22, 2020, the Company entered into the Alto B Settlement Agreement with Alto B, Anthony Cataldo and Paul Kessler resolving all remaining disputes and claims between the parties pertaining to the Alto B Original Securities issued by the Company to Alto B in January 2018.

As a result of the Alto B Settlement Agreement, the Company has agreed to pay Alto B a cash payment in the amount of \$180,000. In addition, pursuant to the Alto B Settlement Agreement, the Company has agreed to issue Alto B, solely in exchange for the outstanding Alto B Original Securities, the Alto B Settlement Securities. In connection with the exchange, the Alto B Original Securities will be cancelled and extinguished.

The Alto B Settlement Agreement also contains certain representations and warranties and covenants, including limitations on future variable rate transactions and “at-the-market offerings.”

Settlement Notes

The Alto B Settlement Note is convertible, at the option of Alto B, at any time into shares of common stock of the Company at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations. The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. By way of the Alto B Note Amendment, the Alto B Settlement Note maturity date was extended to February 15, 2021. The Alto B Settlement Note bears interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect.

Pursuant to the terms of the Alto B Settlement Note, the Company is required to make an offer to repurchase, at the option of Alto B, the Alto B Settlement Note at price in cash equal to 100% of the aggregate principal amount of the Alto B Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a capital raising transactions, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. The Company may not prepay the Alto B Settlement Note without the prior written consent of Alto B.

The Alto B Settlement Note contains a number of other affirmative and negative covenants and events of default (including events of default related to certain change of control and other fundamental change transactions). Following an event of default, the Alto B Settlement Note will become immediately due and payable in cash at a mandatory default amount equal to 130% of the outstanding principal amount of the Alto B Settlement Note plus all other amounts, costs and expenses due in respect of the Alto B Settlement Note.

Collaboration Agreement

On March 10, 2020, we entered into a collaboration agreement with Cytovance® Biologics, a USA-based contract development and manufacturing organization and a subsidiary of Hepalink, to provide development services for a TriKE therapeutic for the treatment of the coronavirus infection. Under the terms of the collaboration agreement, the companies will focus on preparing sufficient quantities of our coronavirus TriKE drug product for preclinical evaluation using Cytovance’s E. coli-based *Keystone Expression System*™ and subsequently, will scale-up production using Cytovance’s GMP microbial manufacturing platform for evaluation of TriKE in humans to treat the coronavirus infection.

Results of Operations

Comparison of the Three Months Ended September 30, 2020 and 2019

Research and Development Expenses

During the three months ended September 30, 2020 and 2019, we incurred \$0.0 and \$0.6 thousand of research and development expenses, respectively. Research and development costs decreased, less clinical expenses. We anticipate our direct clinical costs will increase in the last quarter of 2020 with the continuation of our Phase I clinical trial of our most advanced TriKe product candidate, GTB-3550.

Selling, general and administrative expenses

During the three months ended September 30, 2020 and 2019, we incurred \$2 million and \$3.6 million of selling, general and administrative expenses, respectively. The decrease in selling, general and administrative expenses is primarily attributable the reduction of payroll and stock compensation expenses.

Loss on impairment

For the three months ended September 30, 2019, the Company recorded an intangible asset impairment charge of \$4.6 million related to the portfolio of CNS IPR&D assets, which represents the excess carrying value compared to fair value. The impairment charge was the result the sale of certain assets and prioritization for immuno-oncology development candidates.

Interest Expense

Interest expenses were \$0.9 million and \$0.6 million for the three months ended September 30, 2020 and 2019, respectively. The increase is primarily due to the accrual of default interest under the Default Notes.

Comparison of the Nine Months Ended September 30, 2020 and 2019

Research and Development Expenses

During the nine months ended September 30, 2020 and 2019, we incurred \$252 thousand and \$1.7 million of research and development expenses, respectively. Research and development costs decreased due primarily to the reduction of employee, consultant and preclinical expenses. We anticipate our direct clinical costs will increase in the 4th quarter of 2020 upon the continuation of our Phase I clinical trial of our most advancedTriKE product candidate, GTB-3550.

Selling, general and administrative expenses

During the nine months ended September 30, 2020 and 2019, we incurred \$4.3 million and \$8.9 million of selling, general and administrative expenses, respectively. The decrease in selling, general and administrative expenses is primarily attributable the reduction of payroll and stock compensation expenses.

Loss on impairment

For the three months ended September 30, 2019, the Company recorded an intangible asset impairment charge of \$4.6 million related to the portfolio of CNS IPR&D assets, which represents the excess carrying value compared to the fair value. The impairment charge was the result of the sale of certain assets and prioritization for immuno-oncology development candidates.

Interest Expense

Interest expenses were \$6.2 million and \$1.5 million for the nine months ended September 30, 2020 and 2019, respectively. The increase is primarily due to the accrual of default interest under the Default Notes.

Liquidity and Capital Resources

The Company's current operations have focused on business planning, raising capital, establishing an intellectual property portfolio, hiring and conducting preclinical studies and clinical trials. The Company does not have any product candidates approved for sale and has not generated any revenue from product sales. The Company has sustained operating losses since inception and expects such losses to continue over the foreseeable future. During the nine months ended September 30, 2020, the Company raised \$5.7 million through a series of issuances of Convertible Notes. We anticipate that cash utilized for selling, general and administrative expenses will range between \$1 and \$2 million in the coming quarters, while research and development expenses will vary depending on clinical activities. The Company is pursuing several alternatives to address this situation, including the raising of additional funding through equity or debt financings. In order to finance existing operations and pay current liabilities over the next 12 months, the Company will need to raise an additional \$18 million of capital.

The financial statements of the Company have been prepared on a going-concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Accordingly, the financial statements do not include any adjustments that might be necessary should the Company be unable to continue in existence.

The Company has incurred substantial losses and negative cash flows from operations since its inception and has an accumulated deficit of \$580 million and cash of \$350 thousand as of September 30, 2020. The Company anticipates incurring additional losses until such time, if ever, that it can generate significant sales or revenue from out-licensing of its products currently in development. Substantial additional financing will be needed by the Company to fund its operations and to commercially develop its product candidates. These factors raise substantial doubt about the Company's ability to continue as a going concern.

Management is currently evaluating different strategies to obtain the required funding for future operations. These strategies may include but are not limited to: public offerings of equity and/or debt securities, payments from potential strategic research and development, licensing and/or marketing arrangements with pharmaceutical companies. Management has also implemented cost saving efforts, including reduction in executive salaries and reduced travel. Management believes that these ongoing and planned financing endeavors, if successful, will provide adequate financial resources to continue as a going concern for at least the next nine months from the date the financial statements are issued; however, there can be no assurance in this regard. If the Company is unable to secure adequate additional funding, its business, operating results, financial condition and cash flows may be materially and adversely affected.

Indebtedness

Convertible Notes/Debentures

As of the date of this prospectus, after giving effect to (i) the issuance of the December 2020/January 2021 Notes, the November 2020 Notes, the September 2020 Notes, the July 2020 Notes and the May 2020 Notes and (ii) the issuance of the Settlement Notes, we had approximately \$38.8 million aggregate principal amount of convertible notes and debentures outstanding that were issued pursuant to securities purchase agreements (or, in the case of the Settlement Notes, the applicable Settlement Agreement) entered into with numerous investors.

The convertible notes and debentures are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion rate, subject to certain beneficial ownership limitations (which vary between maximum ownership of between 4.99% and 9.99%). The conversion price is also generally subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The conversion price for each of our outstanding convertible notes and debentures is currently \$0.20 per share. In addition, the July 2020 Notes and the May 2020 Notes will be subject to mandatory conversion in connection with the completion of a future financing in the amount of at least \$15 million, subject to the beneficial ownership limitations described above.

The convertible notes and debentures generally have terms of six months to one year. The convertible notes and debentures each accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default with respect to certain of our convertible notes and debentures. Interest is payable in cash or, with respect to certain of our convertible notes and debentures, and at the holder's option, in shares of common stock based on the conversion price then in effect.

Pursuant to the terms of the Settlement Notes, the Company is required to make an offer to repurchase, at the holder's option, the Settlement Notes at price in cash equal to 100% of the aggregate principal amount of the Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a capital raising transactions, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. Generally, we otherwise do not have the right to prepay any of the convertible notes and debentures without the prior written consent of the holders of such securities.

The convertible notes and debentures contain a number of affirmative and negative covenants and customary events of default. See *"Risk Factors—Risks Related to Our Business—Our current and future indebtedness may impose significant operating and financial restrictions on us and affect our ability to access liquidity."*

The securities purchase agreements and Settlement Agreement, as applicable, also generally contain certain ongoing covenants of the Company, including rights of participation in certain future financing transactions, limitations on future variable rate transactions at "at-the-market" offerings and "most favored nation" provisions giving holders of certain of the convertible notes and debentures the benefit of any terms or conditions under which the Company agrees to issue or sell any common stock or common stock equivalents that are more favorable to an investor than the terms and conditions granted to such holder under the applicable securities purchase agreement and the transactions contemplated thereby.

The convertible notes and debentures are senior obligations of the Company. In addition, approximately \$1.4 million aggregate principal amount of the convertible note and debenture are secured by a first priority security interest in substantially all of the assets of the Company and its subsidiaries. Certain convertible note and debentures are also secured by individual pledges by certain of our current and former officers and directors of our common stock owned by such officer and directors.

For additional information about our convertible notes and debentures, see Note 2 to our unaudited financial statements, *Debt*.

Forbearance Agreements

Effective as of June 23, 2020, we entered into the Forbearance Agreements with the holders of \$13.2 million aggregate principal amount of the Default Notes, which are currently in default. Pursuant to the Forbearance Agreements, the holders of the Default Notes have agreed to forbear from exercising their rights and remedies under the Default Notes (including declaring such Default Notes (together with default amounts and accrued and unpaid interest) immediately due and payable) until the earlier of (i) the date that we complete a New Financing or (ii) the Termination Date. As a result of the ongoing default, the Default Notes are currently accruing interest at the default rate of 18% per annum and have also accrued defaults in an aggregate amount of \$3.9 million.

The obligations of the holders to forbear from exercising their rights and remedies under the Default Notes pursuant to the Forbearance Agreements will terminate on the earliest of (i) the Termination Date, (ii) the date of any bankruptcy filing by the Company or its subsidiaries, (iii) the date on which the Company defaults on any of the terms and conditions of the Forbearance Agreements or (iv) the date the Forbearance Agreements are otherwise terminated or expire.

The Forbearance Agreements contain various customary and other representations, warranties and covenants of the Company and the holders of the Default Notes, including an agreement that the Default Notes (together with default amounts and accrued and unpaid interest) will be converted into common stock upon the closing of a New Financing at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). Shares of our Series J-1 Preferred Stock, which are convertible into the Company's common stock, will be issued in lieu of common stock to the extent that conversion of the Default Notes is prohibited by such beneficial ownership limitations.

Gemini Financing Agreement

On November 8, 2010, the Company entered into a financing arrangement with Gemini Pharmaceuticals, Inc., a product development and manufacturing partner of the Company, pursuant to which Gemini Pharmaceuticals made a \$250,000 strategic equity investment in the Company and agreed to make a \$750,000 purchase order line of credit facility available to the Company. The outstanding principal of all advances under the line of credit bear interest at the rate of interest of prime plus 2% per annum. There is \$31,000 due on this credit line at September 30, 2020.

Critical Accounting Policies

We consider the following accounting policies to be critical given they involve estimates and judgments made by management and are important for our investors' understanding of our operating results and financial condition.

Basis of Consolidation

The consolidated financial statements contained in this report include the accounts of GT Biopharma, Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated.

Long-Lived Assets

Our long-lived assets include property, plant and equipment, capitalized costs of filing patent applications and goodwill and other assets. We evaluate our long-lived assets for impairment in accordance with Accounting Standards Codification ("ASC") 360, whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Estimates of future cash flows and timing of events for evaluating long-lived assets for impairment are based upon management's judgment. If any of our intangible or long-lived assets are considered to be impaired, the amount of impairment to be recognized is the excess of the carrying amount of the assets over its fair value.

Applicable long-lived assets are amortized or depreciated over the shorter of their estimated useful lives, the estimated period that the assets will generate revenue, or the statutory or contractual term in the case of patents. Estimates of useful lives and periods of expected revenue generation are reviewed periodically for appropriateness and are based upon management's judgment. Goodwill and other assets are not amortized.

Certain Expenses and Liabilities

On an ongoing basis, management evaluates its estimates related to certain expenses and accrued liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of liabilities that are not readily apparent from other sources. Actual results may differ materially from these estimates under different assumptions or conditions.

Inflation

We believe that inflation has not had a material adverse impact on our business or operating results during the periods presented.

Off-balance Sheet Arrangements

We have no off-balance sheet arrangements as of December 31, 2020.

DESCRIPTION OF BUSINESS

We are a clinical stage biopharmaceutical company focused on the development and commercialization of novel immuno-oncology products based off our proprietary Tri-specific Killer Engager (TriKE™) and Tetra-specific Killer Engager (TetraKE™). Our TriKE and TetraKE platforms generate proprietary therapeutics designed to harness and enhance the cancer killing abilities of a patient's own NK cells. Once bound to an NK cell, our moieties are designed to enhance the NK cell and precisely direct it to one or more specifically-targeted proteins expressed on a specific type of cancer cell or virus infected cell, ultimately resulting in the targeted cell's death. TriKEs and TetraKEs are made up of recombinant fusion proteins, can be designed to target any number of tumor antigens on hematologic malignancies, sarcomas or solid tumors and do not require patient-specific customization.

We are using our TriKE and TetraKE platforms with the intent to bring to market immuno-oncology products that can treat a range of hematologic malignancies, sarcoma and solid tumors. The platforms are scalable, and we are putting processes in place to be able to produce IND-ready moieties in a timely manner after a specific TriKE or TetraKE conceptual design. After conducting market and competitive research, specific moieties can then be advanced into the clinic on our own or through potential collaborations with larger companies. We are also evaluating, in conjunction with our Scientific Advisory Board, additional moieties designed to target different tumor antigens. We believe our TriKEs and TetraKEs may have the ability, if approved for marketing, to be used on a stand-alone basis, augment the current monoclonal antibody therapeutics, be used in conjunction with more traditional cancer therapy and potentially overcome certain limitations of current CAR-T therapy.

We are also using our TriKE and TetraKE platforms to develop therapeutics useful for the treatment of infectious disease such as for the treatment of patients infected by HIV. While the use of anti-retroviral drugs has substantially improved the health and increased the longevity of individuals infected with HIV, these drugs are designed to suppress virus replication to help modulate progression to AIDS and to limit further transmission of the virus. Despite the use of anti-retroviral drugs, infected individuals retain reservoirs of latent HIV-infected cells that, upon cessation of anti-retroviral drug therapy, can reactivate and reestablish an active HIV infection. For a curative therapy, destruction of these latent HIV infected cells must take place. The HIV-TriKE contains the antigen binding fragment (Fab) from a broadly-neutralizing antibody targeting the HIV-Env protein. The HIV-TriKE is designed to target HIV while redirecting NK cell killing specifically to actively replicating HIV infected cells. The HIV-TriKE induced NK cell proliferation and demonstrated the ability in vitro to reactivate and kill HIV-infected T-cells. These findings indicate a potential role for the HIV-TriKE in the reactivation and elimination of the latently infected HIV reservoir cells by harnessing the NK cell's ability to mediate the ADCC.

Our initial work has been conducted in collaboration with the Masonic Cancer Center at the University of Minnesota under a program led by Dr. Jeffrey Miller, the Deputy Director. Dr. Miller is a recognized leader in the field of NK cell and IL-15 biology and their therapeutic potential. We have exclusive rights to the TriKE and TetraKE platforms and are generating additional intellectual property around specific moieties.

Immuno-Oncology Platform

Tri-specific Killer Engagers (TriKEs) and Tetra-specific Killer Engagers (TetraKEs)

The generation of chimeric antigen receptor ("CAR") expressing T cells from monoclonal antibodies has represented an important step forward in cancer therapy. These therapies involve the genetic engineering of T cells to express either CARs, or T cell receptors, ("TCRs"), and are designed such that the modified T cells can recognize and destroy cancer cells. While a great deal of interest has recently been placed upon CAR-T therapy, it has certain limitations for broad potential applicability because it can require an individual approach that is expensive and time consuming, and may be difficult to apply on a large scale. NK cells represent an important immunotherapeutic target as they are involved in tumor immune-surveillance, can mediate ADCC, contain pre-made granules with perforin and granzyme B and can quickly secrete inflammatory cytokines, and unlike T cells they do not require antigen priming and can kill cells in the absence of major histocompatibility complex ("MHC") presentation of antigens. We believe there is a continued unmet medical need for targeted immuno-oncology therapies that can have the potential to be dosed in a patient-friendly outpatient setting, can be used on a stand-alone basis, augment the current monoclonal antibody therapeutics or be used in conjunction with more traditional cancer therapy. We believe our TriKE and TetraKE constructs have this potential and therefore we have generated, and intend to continue to generate, a pipeline of product candidates to be advanced into the clinic on our own or through potential collaborations with larger companies.

GTB-3550 TriKE™ and GTB-3550 TriKE™ Phase I/II Clinical Trial

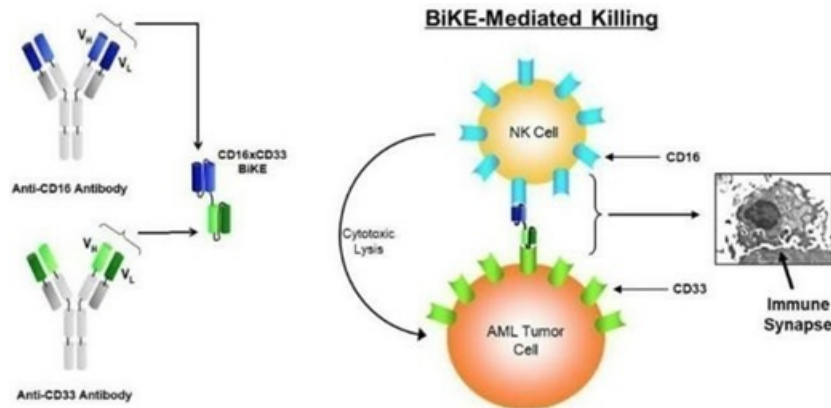
GTB-3550 is the Company's first TriKE™ product candidate which is a single-chain, tri-specific recombinant fusion protein construct composed of the variable regions of the heavy and light chains of anti-CD16 and anti-CD33 antibodies and a modified form of IL-15. The GTB-3550 Phase I/II clinical trial for treatment of patients with CD33-expressing, high risk MDSs, refractory/relapsed acute myeloid leukemia or advanced systemic mastocytosis opened for patient enrollment September 2019. The clinical trial is being conducted at the University of Minnesota's Masonic Cancer Center in Minneapolis, Minnesota under the direction of Dr. Erica Warlick.

NK cells represent an important immunotherapeutic target as they are involved in tumor immune-surveillance, can mediate ADCC, contain pre-made granules with perforin and granzyme B and can quickly secrete inflammatory cytokines, and unlike T cells they do not require antigen priming and can kill cells in the absence of MHC presentation.

Unlike full-length antibodies, TriKEs and TetraKEs are small single-chain fusion proteins that bind the CD16 receptor of NK cells directly producing a potent and lasting response, as demonstrated by preclinical studies. An additional benefit they may have is attractive biodistribution, as a consequence of their smaller size, which we expect to be important in the treatment of solid tumors. In addition to these advantages, TriKEs and TetraKEs are designed to be non-immunogenic, have appropriate clearance properties and can be engineered quickly to target a variety of tumor antigens.

Background and Select Non-Clinical Data

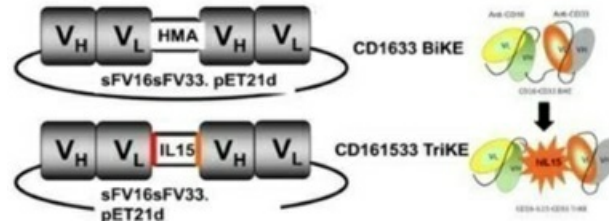
In conjunction with our research agreement with the Masonic Cancer Center at the University of Minnesota, the exploration of targeting NK cells to a variety of tumors initially focused on novel bi-specific killer engagers ("BiKEs") composed of the variable portions of antibodies targeting the CD16 activating receptor on NK cells and CD33 (AML and MDS; see figure below), CD19/CD22 (B cell lymphomas), or EpCAM (epithelial tumors (breast, colon and lung)) on the tumor cells.



Subsequently, a tri-specific (TriKE) construct that replaced the linker molecule between the CD16 scFv and the CD33 scFv with a modified IL-15 molecule, containing flanking sequences, was generated and tested. Data indicate that the CD16 x IL-15 x CD33 and CD16 x IL-15 x EpCAM TriKEs potentially induce proliferation of healthy donor NK cells, possibly greater than that induced by exogenous IL-15, which is absent in the BiKE platform. Targeted delivery of the IL-15 through the TriKE also resulted in specific expansion of the NK cells without inducing T cell expansion on post-transplant patient samples.

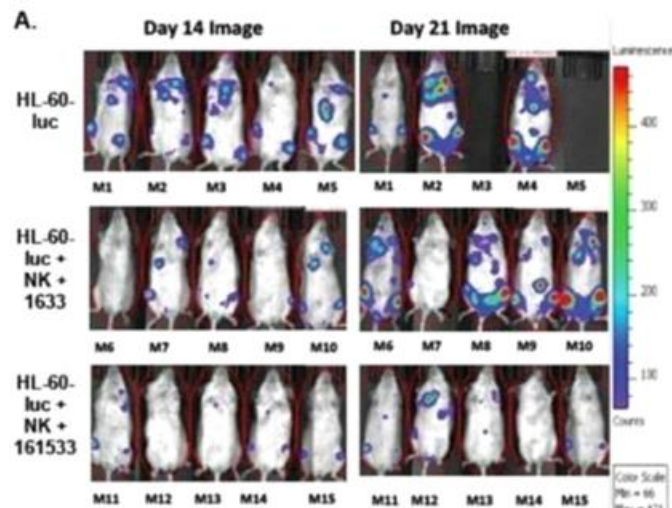
When compared to the CD16 x CD33 BiKE, the CD16 x IL-15 x CD33 TriKE is also capable of potentially restoring killing capacity of post-transplant NK cells against CD33-expressing HL-60 targets and primary AML blasts. These results demonstrated the ability to functionally incorporate an IL-5 cytokine into the BiKE platform and also demonstrated the possibility of targeting a variety of cytokines directly to NK cells while reducing off-target effects and the amount of cytokines needed to obtain biologically relevant function.

The figure below is a schematic of a BiKE construct (top) and a TriKE construct (bottom), which has the modified IL-15 linker between the CD16 scFv and the CD33 scFv components.



The TriKE constructs were also tested against three separate human tumor cell lines: HL-60 (promyelocytic leukemia), Raji (Burkitt's lymphoma) and HT29 (colorectal adenocarcinoma), in addition to a model for ovarian cancer. All cell lines contained the Luc reporter to allow for in vivo imaging of the tumors. These systems were used to show in vivo efficacy of BiKEs (1633) and TriKEs (GTB-3550) against relevant human tumor targets (HL-60-luc) over an extended period of time. The system consisted of initial conditioning of mice using radiation (250-275 cGy), followed by injection of the tumor cells (I.V. for HL-60-luc and Raji-luc, intra-splenic for HT29-luc and IP for ovarian for MA-148-luc), a three-day growth phase, injection of human NK cells and repeated injection of the drugs of interest, BiKE and TriKE (three to five times a week). Imaging was carried out at day 7, 14 and 21, and extended as needed.

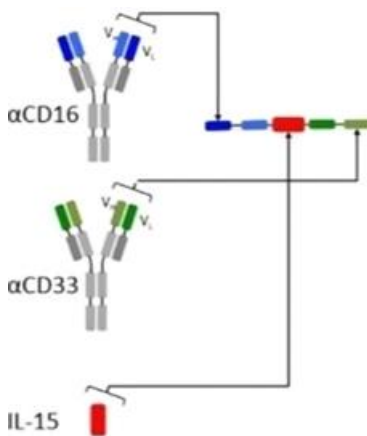
Figure A below shows the results (tumor burden and mortality) when dosing NK cells alone (top panel), the BiKE version (lacking IL-15) of GTB-3550 (middle panel; called 1633) and the TriKE, GTB-3550 (bottom panel; then called 161533) in the above described human tumor model, HL-60-luc. In the NK-cell-only arm, two out of the five mice were dead by day 21 with two of the surviving mice having extensive tumor burden as depicted by the colored images. In contrast, all five mice in each of the BiKE and TriKE arms survived. In addition, the tumor burden in the TriKE-treated mice was significantly less than in the BiKE-treated mice, demonstrating the improved efficacy from NK cells in the TriKE-treated mice.



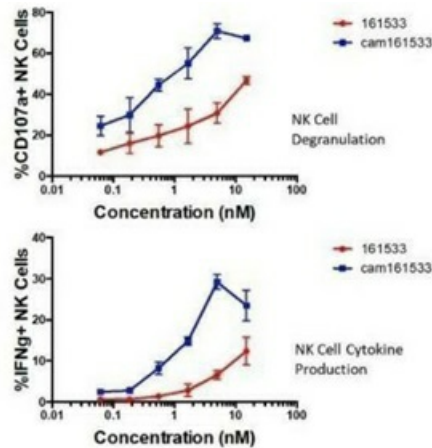
Based on these results, and others, the IND for GTB-3550 was filed in June 2017 by the University of Minnesota. The FDA requested that additional preclinical toxicology be conducted prior to initiating clinical trials. The FDA also requested some additional information and clarifications on the manufacturing and clinical packages. The requested additional information and clarifications were completed and incorporated by us into the IND in eCTD format. We filed the IND amendment in June 2018 and announced on November 1, 2018 that we had received notification from the FDA that the IND was open and the Company was authorized to initiate a first-in-human Phase I study with GTB-3550 in AML, MDS and severe mastocytosis. We began the Phase I clinical trial in January 2020.

Generation of humanized single-domain antibody targeting CD16 for incorporation into the TriKE platform

To develop second generation TriKEs, we designed a new humanized CD16 engager derived from a single-domain antibody. While scFvs consist of a heavy and a light variable chain joined by a linker, single-domain antibodies consist of a single variable heavy chain capable of engaging without the need of a light chain counterpart (see figure below).



These single-domain antibodies are thought to have certain attractive features for antibody engineering, including physical stability, ability to bind deep grooves and increased production yields, amongst others. Pre-clinical studies demonstrated increased activity (NK Cell Degranulation) and functionality (NK Cell Cytokine Production) of the single-domain CD16 TriKE (GTB-C3550) compared to the original TriKE (GTB-3550) (see figure below). This data was presented at the 2017 American Society of Hematology Conference.



Targeting Solid Tumors and Other Potentially Attractive Characteristics

Unlike full-length antibodies, TriKEs and TetraKEs are small single-chain fusion proteins that bind the CD16 receptor of NK cells directly producing a potentially more potent and lasting response as demonstrated by preclinical studies. An additional benefit that they may have is an attractive biodistribution, because of their smaller size, which we expect to be important in the treatment of solid tumors. In addition to these potential advantages, TriKEs and TetraKEs are designed to be non-immunogenic, have appropriate clearance properties and can be engineered quickly to target a variety of tumor antigens. We believe these attributes make them an ideal pharmaceutical platform for potentiated NK cell-based immunotherapies and have the potential to overcome some of the limitations of CAR-T therapy and other antibody therapies.

Examples of our earlier stage solid tumor targeting product candidates are focused on EpCAM, Her2, Mesothelin (mesothelioma and lung adenocarcinoma) and CD133 alone and in combination. We believe certain of these constructs have the potential to target prostate, breast, colon, ovarian, liver, and head and neck cancers. Depending on the availability of drug supply, we hope to initiate human clinical testing for certain of our solid tumor product candidates later this year.

Efficient Advancement of Potential Future Product Candidates - Production and Scale Up

We are using our TriKE and TetraKE platforms with the intent to bring to market multiple immuno-oncology products that can treat a range of hematologic malignancies, sarcomas and solid tumors. The platforms are scalable and we are currently working with several third parties investigating the optimal expression system of the TriKEs and TetraKE constructs which we expect to be part of a process in which we are able to produce IND-ready moieties in approximately 90-120 days after the construct conceptual design.

After conducting market and competitive research, specific moieties can then be rapidly advanced into the clinic on our own or through potential collaborations with larger companies. We are currently evaluating over a dozen moieties and intend to announce additional clinical product candidates.

We believe our TriKEs and TetraKEs will have the ability, if approved for marketing, to be used on a stand-alone basis, augment the current monoclonal antibody therapeutics, or be used in conjunction with more traditional cancer therapy and potentially overcome certain limitations of current CAR-T therapy.

Immuno-Oncology Product Candidates

Our TriKE product candidates, GTB-3550 and GTB-C3550, are single-chain, tri-specific scFv recombinant fusion proteins composed of the variable regions of the heavy and light chains (or heavy chain only) of anti-CD16 antibodies, wild-type or a modified form of IL-15 and the variable regions of the heavy and light chains of an antibody designed to precisely target a specific tumor antigen. We utilize the NK stimulating cytokine human IL-15 as a crosslinker between the two scFvs which is designed to provide a self-sustaining signal leading to the proliferation and activation of NK cells thus enhancing their ability to kill cancer cells mediated by ADCC.

Our TetraKE product candidates are single-chain fusion proteins composed of human single-domain anti-CD16 antibody, wild-type IL-15 and the variable regions of the heavy and light chains of two antibodies that are designed to target two specific tumor antigens expressed on specific types of cancer cells. An example of a TetraKE product candidate is GTB-1615 which is designed to target EpCAM and CD133 positive solid tumors. EpCAM is found on many solid tumor cells of epithelial origin and CD133 is a marker for cancer stem cells. GTB-1615 is designed to enable a patient's NK cells to kill not only the heterogeneous population of cancer cells found in many solid tumors but also kill the cancer stem cells that can be responsible for recurrences.

In addition, we have recently terminated further development of GTB-1550, which targets CD19+ and/or CD22+ hematological malignancies following completion of the Phase II component of a Phase I/II NHL/ALL trial.

GTB-3550

GTB-3550 is our first TriKE product candidate. It is a single-chain, tri-specific scFv recombinant fusion protein conjugate composed of the variable regions of the heavy and light chains of anti-CD16 and anti-CD33 antibodies and a modified form of IL-15. We intend to study this anti-CD16-IL-15-anti-CD33 TriKE in CD33 positive leukemias, a marker expressed on tumor cells in AML, MDS, and other hematopoietic malignancies. CD33 is primarily a myeloid differentiation antigen with endocytic properties broadly expressed on AML blasts and, possibly, some leukemic stem cells. CD33 or Siglec-3 (sialic acid binding Ig-like lectin 3, SIGLEC3, SIGLEC3, gp67, p67) is a transmembrane receptor expressed on cells of myeloid lineage. It is usually considered myeloid-specific, but it can also be found on some lymphoid cells. The anti-CD33 antibody fragment that will be used for these studies was derived from the M195 humanized anti-CD33 scFv and has been used in multiple human clinical studies. It has been exploited as target for therapeutic antibodies for many years. We believe the recent approval of the antibody-drug conjugate gemtuzumab validates this targeted approach.

The GTB-3550 IND will focus on AML. These patients typically receive frontline therapy, usually chemotherapy, including cytarabine and an anthracycline, a therapy that has not changed in over 40 years. About half will have relapses and require alternative therapies. In addition, MDS incidence rates have dramatically increased in the population of the United States from 3.3 per 100,000 individuals from 2001-2004 to 70 per 100,000 annually, MDS is especially prevalent in elderly patients that have a median age of 76 years at diagnosis. The survival of patients with MDS is poor due to decreased eligibility, as a result of advanced age, for allogeneic hematopoietic cell transplantation (Allo-HSCT), the only curative MDS treatment (Cogle CR. Incidence and Burden of the Myelodysplastic Syndromes. *Curr Hematol Malig Rep.* 2015; 10(3):272-281). We believe GTB-3550 could serve as a relatively safe, cost-effective and easy-to-use therapy for resistant/relapsing AML and could also be combined with chemotherapy as frontline therapy thus targeting the larger market.

The IND for GTB-3550 was filed in June 2017 by the University of Minnesota. The FDA requested that additional preclinical toxicology be conducted prior to initiating clinical trials. The FDA also requested some additional information and clarifications on the manufacturing and clinical packages. The requested additional information and clarifications were completed and incorporated by us into the IND in eCTD format. We filed the IND amendment in June 2018 and announced on November 1, 2018 that we had received notification from the FDA that the IND was open and the Company was authorized to initiate a first-in-human Phase I study with GTB-3550 in AML, MDS and severe mastocytosis. We began the Phase I clinical trial in January 2020.

GTB-C3550

GTB-C3550 is a next-generation, follow-on, to our lead TriKE, GTB-3550. GTB-C3550 contains a modified CD16 moiety which has improved binding characteristics and enhanced tumor cell killing based on functional assays and animal models of AML. Using our platform technology, we substituted the anti-CD16 scFv arm in GTB-3550 with a novel humanized single-domain anti-CD16 antibody to create this second-generation molecule which may have improved functionality. Single-domain antibodies, such as GTB-C3550, typically have several advantages, including better stability and solubility, more resistance to pH changes, can better recognize hidden antigenic sites, lack of a VL portion thus preventing VH/VL mispairing and are suitable for construction of larger molecules. GTB-C3550 induced a potent increase in NK cell degranulation, measured by CD107a expression against HL-60 AML tumor targets when compared to our first-generation TriKE (70.75±3.65% vs. 30.75±5.05%). IFN production was similarly enhanced (29.2±1.8% vs. 6.55±1.07%). GTB-C3550 also exhibited a robust increase in NK cell proliferation (57.65±6.05% vs. 20.75±2.55%). GTB-3550 studies will help inform the development of GTB-C3550 which we expect will de-risk the GTB-C3550 program as data will be generated to make an informed decision on which, or both, will be brought into later phase studies.

GTB-1615

GTB-1615 is an example of our first-generation TetraKEs designed for the treatment of solid tumors. It is a single-chain fusion protein composed of CD16-IL15-EpCAM-CD133. EpCAM is found on many solid tumor cells of epithelial origin and CD133 is a marker for cancer stem cells. This TetraKE is designed to target not only the heterogeneous population of cancer cells found in solid tumors but also the cancer stem cells that are typically responsible for recurrences. Depending on the availability of drug supply, we hope to initiate human clinical testing for certain of our solid tumor product candidates later this year.

Our Strategy

Our goal is to be a leader in immuno-oncology therapies targeting a broad range of indications including hematological malignancies, sarcoma and solid tumors. Key elements of our strategy are to:

Rapidly advanced our Tri-specific Killer Engagers (TriKEs), GTB-3550 and GTB-C3550

Our TriKE and TetraKE product candidates have the potential to be groundbreaking therapies targeting a broad range of hematologic malignancies, sarcomas and solid tumors. We are preparing to study GTB-3550, an anti-CD16-IL-15-anti-CD33 TriKE in CD33 positive leukemias, a marker expressed on tumor cells in AML, MDS and other myeloid malignancies. We began a Phase I clinical trial in the fourth quarter of 2019 in patients with relapsed/refractory AML. The Phase I trial will be a dose finding study. We expect this will be closely followed by Phase II trials to determine the most efficacious dosing and cycles with the aim to maximize efficacy while minimizing on-target, off-disease adverse events.

GTB-C3550 contains a humanized single-domain anti-CD16 moiety which demonstrated improved binding characteristics and enhanced tumor cell killing based on functional assays and animal models of AML.

We have designed GTB-3550 and GTB-C3550, if approved for marketing, to serve as a relatively safe, cost-effective and easy-to-use therapies for resistant/relapsing AML or MDS which could also be combined with chemotherapy as frontline therapy thus targeting a broad AML/MDS market.

GTB-C3550 is a next-generation, follow-on, to our lead TriKE, GTB-3550. GTB-3550 studies will help inform the development of GTB-C3550. We believe this will de-risk the GTB-C3550 program as the data being generated will help to make informed decisions on which, or both, will be brought into later phase studies and in which patient populations.

Utilize our TriKE and TetraKE platform technologies to develop a robust pipeline of targeted immuno-oncology products targeting a wide range of hematologic malignancies, sarcomas and solid tumors for development on our own and through potential collaborations with larger pharmaceutical companies

We are using our TriKE and TetraKE platforms with the intent to bring to market multiple, targeted, off-the-shelf therapies that can treat a range of hematologic malignancies, sarcomas and solid tumors. The platforms are scalable and we are currently working with several third parties investigating the optimal expression system of the TriKEs and TetraKE constructs which we expect to be part of a process in which we are able to produce IND-ready moieties in approximately 90-120 days after the construct conceptual design. After conducting market and competitive research, specific moieties can then be rapidly advanced into the clinic on our own or through potential collaborations with larger pharmaceutical companies.

We believe our TriKEs and TetraKEs will have the ability, if approved for marketing, to be used on a stand-alone basis, augment the current monoclonal antibody therapeutics, or be used in conjunction with more traditional cancer therapy and potentially overcome certain limitations of current CAR-T therapy.

Oncology Markets

B-cell Lymphomas/Leukemias

B-cell lymphoma is a type of cancer that forms in B cells (a type of immune system cell). B-cell lymphomas may be either indolent (slow-growing) or aggressive (fast-growing). Non-Hodgkin lymphoma has an incidence rate of 19.4 per 100,000 per year and B-cell lymphomas make up most (about 85%) of NHL in the United States. There are many different types of B-cell non-Hodgkin lymphomas. These include Burkitt lymphoma, chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), diffuse large B-cell lymphoma, follicular lymphoma and mantle cell lymphoma.

Acute Lymphoblastic Leukemia

ALL is an acute form of leukemia, or cancer of the white blood cells, characterized by the overproduction and accumulation of immature white blood cells, known as lymphoblasts. In persons with ALL, lymphoblasts are overproduced in the bone marrow and continuously multiply, causing damage and death by inhibiting the production of normal cells (such as red and white blood cells and platelets) in the bone marrow and by spreading (infiltrating) to other organs.

“Acute” is defined by the World Health Organization standards, in which greater than 20% of the cells in the bone marrow are blasts. Chronic lymphoblastic leukemia is defined as having less than 20% blasts in the bone marrow. Acute lymphoblastic leukemia is seen in both children and adults; the highest incidence is seen between ages 2 to 3 years (>90 cases per 1 million per year). ALL is the most common cancer diagnosed in children and represents approximately 25% of cancer diagnoses among children younger than 15 years. Among children with ALL, approximately 98% attain remission, and approximately 85% of patients aged 1 to 18 years with newly diagnosed ALL treated on current regimens are expected to be long-term event-free survivors, with over 90% surviving at 5 years.

Multiple Myeloma

Multiple myeloma is a type of cancer that forms in white blood cells. Multiple myeloma causes cancer cells to accumulate in the bone marrow, where they crowd out healthy blood cells. Multiple myeloma is also characterized by destructive lytic bone lesions (rounded, punched-out areas of bone), diffuse osteoporosis, bone pain and the production of abnormal proteins which accumulate in the urine. Anemia is also present in most multiple myeloma patients at the time of diagnosis and during follow-up. Anemia in multiple myeloma is multifactorial and is secondary to bone marrow replacement by malignant plasma cells, chronic inflammation, relative erythropoietin deficiency and vitamin deficiency. Plasma cell leukemia, a condition in which plasma cells comprise greater than 20% of peripheral leukocytes, is typically a terminal stage of multiple myeloma and is associated with short survival.

Myeloid Leukemias

Acute Myeloid Leukemia

AML is a heterogeneous hematologic stem cell malignancy in adults with incidence rate of 4.3% per 100,000 populations. The median age at the time of diagnosis is 68 years. AML is an aggressive disease and is fatal without anti-leukemic treatment. AML is the most common form of adult leukemia in the U.S. These patients will require frontline therapy, usually chemotherapy including cytarabine and an anthracycline, a therapy that has not changed in over 40 years. MDSs are a heterogeneous group of myeloid neoplasms characterized by dysplastic features of erythroid/myeloid/megakaryocytic lineages, progressive bone marrow failure, a varying percentage of blast cells and enhanced risk to evolve into acute myeloid leukemia. It is estimated that over 10,000 new cases of MDS are diagnosed each year and there are minimal treatment options; other estimates have put this number higher. In addition, the incidence of MDS is rising for unknown reasons.

Sarcomas

A sarcoma is a type of cancer that develops from certain tissues, like bone or muscle. Bone and soft tissue sarcomas are the main types of sarcoma. Soft tissue sarcomas can develop from soft tissues like fat, muscle, nerves, fibrous tissues, blood vessels or deep skin tissues. They can be found in any part of the body. Most of them develop in the arms or legs. They can also be found in the trunk, head and neck area, internal organs and the area in back of the abdominal cavity (known as the retroperitoneum). Sarcomas are not common tumors, and most cancers are the type of tumors called carcinomas.

The most common types of sarcoma in adults are undifferentiated pleomorphic sarcoma (previously called malignant fibrous histiocytoma), liposarcoma and leiomyosarcoma. Certain types occur more often in certain areas of the body than others. For example, leiomyosarcomas are the most common abdominal sarcoma, while liposarcomas and undifferentiated pleomorphic sarcoma are most common in legs. But pathologists (doctors who specialize in diagnosing cancers by how they look under the microscope), may not always agree on the exact type of sarcoma. Sarcomas of uncertain type are very common (American Cancer Society, Cancer Facts & Figures 2019).

Manufacturing

We do not currently own or operate manufacturing facilities for the production of clinical or commercial quantities of any of our product candidates. We rely on a small number of third-party manufacturers to produce our compounds and expect to continue to do so to meet the preclinical and clinical requirements of our potential product candidates as well as for all of our commercial needs. We do not have long-term agreements with any of these third parties. We require in our manufacturing and processing agreements that all third-party contract manufacturers and processors produce active pharmaceutical ingredients and finished products in accordance with the FDA's cGMPs and all other applicable laws and regulations. We maintain confidentiality agreements with potential and existing manufacturers in order to protect our proprietary rights related to our drug candidates.

Intellectual Property

We seek to protect our proprietary information by means of United States and foreign patents, trademarks and copyrights. In addition, we rely upon trade secret protection and contractual license agreements to protect certain of our proprietary information and products. We seek to protect and enhance proprietary technology, inventions, and improvements that are commercially important to the development of our business by seeking, maintaining, and defending patent rights, whether developed internally or licensed or acquired from third parties. We also plan to rely on regulatory protection afforded through orphan drug designations, available regulatory exclusivities and patent term extensions where available. To achieve this objective, a strategic focus for us has been to develop our own intellectual property, while also identifying and licensing patents that provide protection and serve as an optimal platform to enhance our intellectual property and technology base.

University of Minnesota Licensed Intellectual Property

We are party to an exclusive worldwide license agreement with the Regents of the University of Minnesota, to further develop and commercialize cancer therapies using TriKE technology developed by researchers at the university to target NK cells to cancer. Under the terms of the agreement, we receive exclusive rights to conduct research and to develop, make, use, sell, and import TriKE technology worldwide for the treatment of any disease, state or condition in humans. We are responsible for obtaining all permits, licenses, authorizations, registrations and regulatory approvals required or granted by any governmental authority anywhere in the world that is responsible for the regulation of products such as the TriKE technology, including without limitation the FDA in the United States and the European Agency for the Evaluation of Medicinal Products in the European Union. We are presently evaluating GTB-3550, our lead TriKE therapeutic product candidate in a Phase I/II clinical trial. Under the agreement, the University of Minnesota will receive an upfront license fee, royalty fees ranging from 4% to 6%, minimum annual royalty payments of \$0.25 million beginning in 2022, \$2.0 million in 2025, and \$5.0 million in 2027 and certain milestone payments totaling \$3.1 million.

The TriKE™ patent estate licensed from the Regents of the University of Minnesota includes more than 18 patent applications and the following foundational patent application:

Appl. No.	Title	Country	Status
PCT Patent Application Number PCT/US2016/055722	Therapeutic compounds and methods	Worldwide	Pending

Daniel A. Vallera, Ph.D. Licensed Intellectual Property

We are party to an exclusive worldwide license agreement with Daniel A. Vallera, Ph.D. and his co-inventor Jeffrey Lion, or jointly, Dr. Vallera, to further develop and commercialize DT2219ARL (GTB-1550), a novel therapy for the treatment of various human cancers. Under the terms of the agreement, we received exclusive rights to conduct research and to develop, make, use, sell, and import DT2219ARL worldwide for the treatment of any disease, state or condition in humans. We shall be responsible for obtaining all permits, licenses, authorizations, registrations and regulatory approvals required or granted by any governmental authority anywhere in the world that is responsible for the regulation of products such as DT2219ARL, including without limitation the FDA in the United States and the European Agency for the Evaluation of Medicinal Products in the European Union. . Under the agreement, Dr. Vallera will receive an upfront license fee, royalty fees ranging from 3% for net sales and 25% of net sublicensing revenues, and certain milestone payments totaling \$1.5 million.

The patent estate licensed from the Dr. Vallera includes more than 16 patent applications and the following issued U.S. patent and U.S. patent application:

Pat./Pub. No.	Title	Country	Status
U.S. Patent Number 9,371,386	Methods and compositions for bi-specific targeting of cd19/cd22	US	Issued
U.S. Patent Application Number 15/187,579	Methods and compositions for bi-specific targeting of cd19/cd22	US	Pending

Employees

As of December 31, 2020, we had two employees. Many of our activities are outsourced to consultants who provide services to us on a project basis. As business activities require and capital resources permit, we will hire additional employees to fulfill our company’s needs.

Legal Proceedings

On December 24, 2018, the Empery Funds filed in the N.Y. Supreme Court, Index No. 656408/2018, alleging causes of action against the Company for Breach of Contract, Liquidated Damages, Damages, and Indemnification. The claims arose out of a securities purchase agreement entered into between the Empery Funds and the Company pursuant to which the Company issued the Original Securities to the Empery Funds in or around January 2018. On June 19, 2020, the Company and the Empery Funds, among others, entered into the Settlement Agreement resolving all remaining disputes between the parties pertaining to the Original Securities. See “*Prospectus Summary—Recent Developments—Settlement with Empery Funds.*”

On August 28, 2019, a complaint was filed in the Superior Court of California, County of Los Angeles, West Judicial District, Santa Monica Courthouse, Unlimited Civil Division by Jeffrey Lion and Daniel Vallera. Lion and Vallera are referred to jointly as the “Plaintiffs”. The complaint was filed against the Company and its subsidiary Oxis Biotech, Inc. (either of them or jointly, the “Defendant”). The Plaintiffs allege breach of a license agreement between the Plaintiffs and the Defendant entered into on or about September 3, 2015. Lion alleges breach of a consulting agreement between Lion and the Defendant entered into on or about September 1, 2015. Vallera alleges breach of a consulting agreement between Vallera and the Defendant entered into in or around October, 2018. The complaint seeks actual damages of \$1,670,000, for the fair market value of the number of shares of the Company’s common stock that at the time of judgment represent 15,000,000 shares of such stock as of September 1, 2015, and that the Company issue Lion the number of common shares the Company’s common stock that at the time of judgment represent 15,000,000 such shares as of September 1, 2015.

Form and Year of Organization

In 1965, the corporate predecessor of the Company, Diagnostic Data, Inc., was incorporated in the State of California. Diagnostic Data, Inc. changed its incorporation to the State of Delaware in 1972; and changed its name to DDI Pharmaceuticals, Inc. in 1985. In 1994, DDI Pharmaceuticals merged with International BioClinical, Inc. and Bioxytech S.A. and changed its name to OXIS International, Inc. On July 17, 2017, we amended our certificate of incorporation for the purpose of changing our name from Oxis International, Inc. to GT Biopharma, Inc.

DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The following table sets forth the name, age and position held by each of our executive officers and directors as of the date of this prospectus. Directors are elected for a period of one year and thereafter serve until the next annual meeting at which their successors are duly elected by the stockholders.

Name	Age	Position
Anthony J. Cataldo	68	Chief Executive Officer and Chairman of the Board
Michael Handelman	61	Chief Financial Officer
Bruce Wendel	67	Vice Chairman of the Board
Greg Berk	62	Director
Michael Breen	58	Director
Rajesh Shrotriya	76	Director

Anthony J. Cataldo was appointed Chief Executive Officer and Chairman of the Board on March 15, 2019. Previously he served as Vice Chairman of the Board since January 2019. Mr. Cataldo has extensive experience with the Company, having served on the Board from July 2014 until November 2018, also serving as Chief Executive Officer from November 2014 to September 2017 and Executive Chairman of the Board from September 2017 to February 2018 during that time. Prior to joining the Company, from February 2011 until June 2013, Mr. Cataldo served as Chairman and CEO/Founder of Genesis Biopharma, Inc. (now known as Iovance Biotherapeutics, Inc.). Mr. Cataldo is credited with developing the Stage Four Cancer treatment for melanoma known as Lion/Genesis using assets acquired from the National Cancer Institute (NIH). Mr. Cataldo also served as non-executive co-chairman of the board of directors of MultiCell Technologies, Inc., a supplier of functional, non-tumorigenic immortalized human hepatocytes from February 2005 until July 2006.

Michael Handelman was appointed Chief Financial Officer on November 13, 2020. Mr. Handelman became a Director of the GooGreen, Inc. in August 2020, and Chairman of the Board of Directors and Secretary in September 2020. He has served as Chief Financial Officer of Clickstream Corporation since October 2015. He served as Chief Financial Officer of Lion Biotechnologies, Inc. from February 2011 until June 2015, and was a member of the Lion Bio Board of Directors from February 2013 until May 2013. Mr. Handelman served as the Chief Financial Officer and as a financial management consultant of Oxis International, Inc., a public company engaged in the research, development and commercialization of nutraceutical products, from August 2009 until October 2011. From November 2004 to July 2009, Mr. Handelman served as Chief Financial Officer and Chief Operating Officer of TechnoConcepts, Inc., formerly a public company engaged in designing, developing, manufacturing and marketing wireless communications semiconductors, or microchips. Prior thereto, Mr. Handelman served from October 2002 to October 2004 as Chief Financial Officer of Interglobal Waste Management, Inc., a manufacturing company, and from July 1996 to July 1999 as Vice President and Chief Financial Officer of Janex International, Inc., a children's toy manufacturer. Mr. Handelman was also the Chief Financial Officer from 1993 to 1996 of the Los Angeles Kings, a National Hockey League franchise. Mr. Handelman is a certified public accountant and holds a degree in accounting from the City University of New York.

Bruce Wendel was appointed as a director on November 12, 2020. From April 2018 to May 2019, Mr. Wendel served as the Chief Business Development Officer for Prometic Biotherapeutics, Inc., a pharmaceutical development company. Mr. Wendel also served as Chief Strategic Officer of Hepalink USA, the U.S. subsidiary of Shenzhen Hepalink Pharmaceutical Company from February 2012 to July 2017, and Chief Executive Officer of Scientific Protein Laboratories, LLC from December 2014 to June 2015. He also served as a director of ProMetic Life Sciences Inc. and Vice Chairman and Chief Executive Officer at Abraxis BioScience, LLC, where he oversaw the development and commercialization of Abraxane® and led the negotiations that culminated in the acquisition of the company by Celgene Corporation in 2010. He began his 14 years at Bristol-Myers Squibb as in-house counsel before shifting to global business and corporate development where he served in roles of increasing responsibility. Subsequently, he was VP of Business Development at IVAX Corporation, and at American Pharmaceutical Partners, Inc. Mr. Wendel earned a juris doctorate degree from Georgetown University Law School, and a B.S. from Cornell University.

Dr. Greg Berk was appointed as a director on November 12, 2020. Prior to joining the Company, Dr. Berk has served as a private consultant in the field of drug development and is the Chief Medical Officer of Celularity, a privately owned company. Previously, he served as Chief Medical Officer at Verastem as and President, Chief Medical Officer and Board Member of Sideris Pharmaceuticals. From May 2012 until January 2014, Dr. Berk was Chief Medical Officer of BIND Therapeutics. Prior to this, he was Chief Medical Officer at Intellikine, a privately held biotechnology company focused on the discovery and development of novel PI3 Kinase and mTOR inhibitors. Intellikine was acquired by Takeda/Millennium in January 2012. He also served as Senior Vice President of Global Clinical Development at Abraxis BioScience, where he was responsible for the company's overall clinical strategy, including efforts to expand the indications for their lead clinical program (Abraxane®). Dr. Berk obtained his medical degree from Case Western Reserve University, and completed his internship, residency and fellowship in internal medicine, hematology and medical oncology, at the Weill Medical College of Cornell University and New York Presbyterian Hospital, where he also served as a faculty member from 1989-2004. During this time Dr. Berk served as an investigator on several industry-sponsored and cooperative group oncology clinical trials, including the pivotal trials for Gleevec® and Avastin®.

Michael Breen was appointed as a director on January 13, 2021. Prior to joining the Company, Mr. Breen served as a senior partner in the global law firm of Clyde & Co., specializing in all aspects of corporate law, including mergers and acquisitions and fund management regulatory issues, which included advising clients in the biotechnology and health sciences sectors. Prior to joining Clyde & Co., Mr. Breen served as a senior partner and managing partner in the London law firm of Edward Lewis. Prior to his time at Edward Lewis, he was also a partner at Robert Gore & Company. Between 2002 and 2005, Mr. Breen was managing director of the Sports and Entertainment Division of Insinger de Beaufort Bank, a Dutch private banking, asset management and trust group. From 2001 to 2007 Mr. Breen also served as a non-executive director and co-owner of Damon Hill Holdings Limited, a multi franchise motor dealer group. Mr. Breen also serves as a director of a Los Angeles based hedge fund, Bristol International Fund, Limited and a Cayman Islands fund, Bristol Investment Fund, Limited. He also serves as a director of Wizard Brands Inc., an OTCQB Bulletin Board company. Mr. Breen is also a non-executive director and co-owner of Colorsport Images Limited, a sports photographic agency and library. He is the Chair of Trustees of Sturts Community Trust, a charity which brings together a diverse range of social initiatives centred around a sustainable 90 acre organic biodynamic farm offering land based work opportunities and individualised support and dwellings for adults with a learning disability. Mr. Breen is a U.K. qualified solicitor/attorney who holds an Honours LL.B. degree in law from the University College of Wales, Aberystwyth and qualified as a solicitor of the Supreme Court of Judicature of England and Wales in 1988. Mr. Breen is a former member of the International Bar Association, British Association for Sport and the Law, Law Society of England and Wales, and Holborn Law Society.

Dr. Rajesh Shrotriya was appointed as a director on January 13, 2021. Prior to joining the Company, until 2017, Dr. Shrotriya served as Chairman of the Board and Chief Executive Officer of Spectrum Pharmaceuticals, Inc. from August 2002 and a director since June 2001. From September 2000 to April 2014, Dr. Shrotriya also served as President of Spectrum Pharmaceuticals, Inc. and from September 2000 to August 2002, Dr. Shrotriya also served as Chief Operating Officer of Spectrum. Prior to joining Spectrum, Dr. Shrotriya held the position of Executive Vice President and Chief Scientific Officer from November 1996 until August 2000, and as Senior Vice President and Special Assistant to the President from November 1996 until May 1997, for SuperGen, Inc., a publicly-held pharmaceutical company focused on drugs for life-threatening diseases, particularly cancer. From August 1994 to October 1996, Dr. Shrotriya held the positions of Vice President, Medical Affairs and Vice President, Chief Medical Officer of MGI Pharma, Inc., an oncology-focused biopharmaceutical company. Dr. Shrotriya spent 18 years at Bristol-Myers Squibb Company, an NYSE-listed pharmaceutical company, in a variety of positions, most recently as Executive Director, Worldwide CNS Clinical Research. Previously, Dr. Shrotriya held various positions at Hoechst Pharmaceuticals, most recently as Medical Advisor. Dr. Shrotriya was an attending physician and held a courtesy appointment at St. Joseph Hospital in Stamford, Connecticut. In addition, he received a certificate for Advanced Biomedical Research Management from Harvard University. Dr. Shrotriya received an M.D. from Grant Medical College, Bombay, India, in 1974; a D.T.C.D. (Post Graduate Diploma in Chest Diseases) from Delhi University, V.P. Chest Institute, Delhi, India, in 1971; an M.B.B.S. (Bachelor of Medicine and Bachelor of Surgery — equivalent to an M.D. in the U.S.) from the Armed Forces Medical College, Poona, India, in 1967; and a B.S. in Chemistry from Agra University, Aligarh, India, in 1962. Currently, Dr. Shrotriya is a member of the Board of Directors of CASI Pharmaceuticals, Inc., a NASDAQ-listed biopharmaceutical company, and on the Board of Trustees at the UNLV Foundation.

Board Committees, Compensation Committee Interlocks and Insider Participation

The Audit Committee consists of Mr. Breen, as Chair and as audit committee financial expert, Dr. Shrotriya and Mr. Wendel. The Compensation Committee consists of Dr. Berk as Chair, Mr. Wendel and Mr. Breen. The Nominating and Governance Committee consists of Mr. Wendel, as Chair, Dr. Shrotriya and Mr. Breen.

Director Independence

Mr. Wendel, Dr. Berk, Mr. Breen and Dr. Shrotriya each qualify as an “independent director” as defined by Item 407 of Regulation S-K.

We have elected to use the definition for “director independence” under the Nasdaq Stock Market’s listing standards, which defines an “independent director” as “a person other than an officer or employee of us or its subsidiaries or any other individual having a relationship, which in the opinion of our Board, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.” The definition further provides that, among others, employment of a director by us (or any parent or subsidiary of ours) at any time during the past three years is considered a bar to independence regardless of the determination of our Board.

EXECUTIVE COMPENSATION

As a “smaller reporting company” under SEC rules, our named executive officers for the fiscal year ended December 31, 2020 (collectively, the “Named Executive Officers”) were as follows:

- Anthony J. Cataldo, our current Chief Executive Officer;
- Steven Weldon, was appointed Chief Financial Officer on March 20, 2019, and resigned on November 10, 2020; and

No other executive officers received total annual compensation during the fiscal year ended December 31, 2020 in excess of \$100,000.

Summary Compensation Table

The following table sets forth certain information relating to the total compensation earned for services rendered to us in all capacities by our Named Executive Officers.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$ (1))	All Other Compensation (\$)(2)	Total (\$)
Anthony J. Cataldo (3)	2020	362,000	—	—	—	362,000
Chief Executive Officer	2019	225,000	—	1,281,000	75,000	1,581,000
Steven Weldon (4)	2020	219,662	—	—	—	219,662
Chief Financial Officer	2019	230,000	—	823,500	—	1,053,500
Michael Handelman (5)	2020	74,833	—	—	—	74,833
Chief Financial Officer						

- (1) The amounts in this column represent the aggregate grant date fair value of the stock awards, determined in accordance with Financial Accounting Standards Board ASC Topic 718. The Company determines the grant date fair value of the awards by multiplying the number of shares granted by the closing market price of one share of the Company’s common stock on the award grant date. These amounts do not reflect the actual economic value that will be realized by the Named Executive Officer upon the sale of these awards.
- (2) The amount in this column represents compensation earned under a consultant agreement with the Company described in more detail below under “—*Employment Arrangements* .”
- (3) Mr. Cataldo was appointed Chief Executive Officer on March 15, 2019.
- (4) Mr. Weldon was appointed Chief Financial Officer on March 20, 2019, and resigned on November 10, 2020.
- (5) Mr. Handelman was appointed Chief Financial Officer on November 11, 2020.

Employment Arrangements

Effective August 11, 2020, the Company and Mr. Cataldo entered into the Cataldo Agreement with respect to Mr. Cataldo's continued employment as Chief Executive Officer of the Company. The Initial Term of the Cataldo Agreement is three years with the option of automatic one-year renewals thereafter. Mr. Cataldo will be paid a cash salary of \$30,000 per month, together with customary benefits, expense reimbursement and the possibility of performance bonuses. Mr. Cataldo will receive a stock grant equal to ten percent of the fully diluted shares of common stock of the Company (calculated with the inclusion of the current stock holdings of Mr. Cataldo) upon conversion of options, warrants and Convertible Notes in association with a national markets qualified financing as consideration for entering into the Cataldo Agreement (with such stock to vest and be delivered within 30 days after the national markets qualified financing). Mr. Cataldo will be entitled to certain additional severance payments and other benefits in connection with a Change in Control Period Involuntary Termination or a Non Change in Control Period Involuntary Termination (each as defined in the Cataldo Agreement) or his resignation as a result of a Change in Control Period Good Reason or Non Change in Control Period Good Reason (each as defined in the Cataldo Agreement). Following the Effective Date, Mr. Cataldo will also continue to serve as the chairman of the board of the Company.

Effective August 11, 2020, the Company and Mr. Weldon entered into the Weldon Agreement with respect to Mr. Weldon's continued employment as the Chief Financial Officer of the Company. The Initial Term of the Weldon Agreement was three years with the option of automatic one-year renewals thereafter. Mr. Weldon was paid a cash salary of \$25,000 per month, together with customary benefits, expense reimbursement and the possibility of performance bonuses. Mr. Cataldo received a stock grant equal to seven percent of the fully diluted shares of common stock of the Company (calculated with the inclusion of the current stock holdings of Mr. Weldon) upon conversion of options, warrants and Convertible Notes in association with a national markets qualified financing as consideration for entering into the Weldon Agreement (with such stock to vest and be delivered within 30 days after the national markets qualified financing). Mr. Weldon was entitled to certain additional severance payments and other benefits in connection with a Change in Control Period Involuntary Termination or a Non Change in Control Period Involuntary Termination (each as defined in the Weldon Agreement) or his resignation as a result of a Change in Control Period Good Reason or Non Change in Control Period Good Reason (each as defined in the Weldon Agreement). Mr. Weldon resigned as Chief Financial Officer and as a director of the Company on November 11, 2020. Mr. Weldon had no disagreement relating to the Company's financial reports or corporate filings.

On November, 11, 2020, the Company appointed Mr. Handelman as Chief Financial Officer on an interim basis. Effective November 13, 2020, the Company and Mr. Handelman entered into the Handelman Agreement with respect to Mr. Handelman's service as Chief Financial Officer of the Company. The term of the Handelman Agreement is indefinite, subject to ninety days prior written notice of termination. Pursuant to the Handelman Agreement, Mr. Handelman will receive a monthly consulting fee of \$15,000, along with the opportunity to earn a discretionary bonus. Mr. Handelman will also serve as the principal accounting officer of the Company.

Board Service Agreements

Effective November 11, 2020, the Company and Mr. Berk entered into the Berk Agreement with respect to Mr. Berk's service as a director on the Board. The term of the Berk Agreement is for a period of two years. Mr. Berk will receive an annual stipend of \$20,000, with an additional \$5,000 annually for chairing the Compensation Committee and \$5,000 annually for serving on the Nominating Committee. The Company also agreed to grant Mr. Berk a stock award of shares of common stock of the Company equal to 1.00% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the completion of the offering and the NASDAQ listing date.

Effective November 11, 2020, the Company and Mr. Wendel entered into the Wendel Agreement with respect to Mr. Wendel's service as a director on the Board. The term of the Wendel Agreement is for a period of two years. Mr. Wendel will receive an annual stipend of \$20,000, with an additional \$5,000 annually for chairing the Nominating Committee and \$5,000 annually for serving on the Audit Committee. The Company also agreed to grant Mr. Wendel a stock award of shares of common stock of the Company equal to 1.25% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the completion of the offering and the NASDAQ listing date.

Effective January 13, 2021, the Company and Mr. Breen entered into the Breen Agreement with respect to Mr. Breen's service as a director on the Board. The term of the Breen Agreement is for a period of two years. Mr. Breen will receive an annual stipend of \$120,000, which includes compensation for chairing the Audit Committee and serving as a member of the Nominating Committee. The Company also agreed to grant Mr. Breen 1.00% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the completion of the offering and the NASDAQ listing date.

Effective January 13, 2021, the Company and Mr. Shrotriya entered into the Shrotriya Agreement with respect to Mr. Shrotriya's service as a director on the Board. The term of the Shrotriya Agreement is for a period of two years. Mr. Shrotriya will receive an annual stipend of \$20,000, with an additional \$5,000 annually for serving on the Audit Committee. The Company also agreed to grant Mr. Shrotriya a stock award of shares of common stock of the Company equal to 1.00% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the completion of the offering and the NASDAQ listing date.

Outstanding Equity Awards at Fiscal Year End

As of December 31, 2020, there were no unexercised options, unvested stock awards or outstanding equity incentive plan awards held by our Named Executive Officers.

Director Compensation

The following table summarizes the total compensation we paid to our non-employee directors for the fiscal year ended December 31, 2020:

Name (1)	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)	Option Awards (\$)	Total (\$)
Bruce Wendel	2,500	—	—	2,500
Greg Berk	2,500	—	—	2,500

(1) Bruce Wendel and Greg Berk were appointed to the Board on November 12, 2020.

Effective November 2020, the following annual compensation for non-employee directors was approved by the Compensation Committee of our Board:

- \$20,000 annual stipend;
- an additional cash payment of \$5,000 for acting as chair of a committee and \$5,000 for acting as a member of a committee; and
- stock awards of shares of common stock of the Company equal to 1.00% (Berk) and 1.25% (Wendel) of the number of fully diluted shares of common stock of the company calculated on the fully diluted equity of the Company upon the completion of the offering and the NASDAQ listing date.

A director who is one of our employees receives no additional compensation for his service as a director or as a member of a committee of the Board.

VOTING SECURITIES AND PRINCIPAL HOLDERS

The following table sets forth certain information regarding beneficial ownership of our common stock and Preferred Stock as of January 31, 2021 (a) by each person known by us to own beneficially 5% or more of any class of our voting securities, (b) by each of our Named Executive Officers, (c) by each of our directors and (d) by all our current executive officers and directors as a group. As of January 31, 2021, there were (a) 91,748,639 shares of common stock, (b) 96,230 shares of Series C Preferred Stock and (c) 2,353,548 shares of Series J-1 Preferred Stock issued and outstanding.

Shares of common stock subject to stock options, Preferred Stock, convertible notes and debentures and warrants that are currently exercisable or convertible, or exercisable or convertible within 60 days of January 31, 2021, are deemed to be outstanding for purposes of computing the percentage ownership of that person but are not treated as outstanding for computing the percentage ownership of any other person. Unless indicated below, the persons and entities named in the table have sole voting and sole investment power with respect to all shares beneficially owned, subject to community property laws where applicable.

Except as otherwise indicated, the address of each stockholder is c/o GT Biopharma, Inc. at 9350 Wilshire Blvd., Suite 203, Beverly Hills, CA 90212.

Name and Address of Beneficial Owner	Shares of Common Stock Beneficially Owned (Pre- Split)	(4)	Shares of Common Stock Beneficially Owned (Post- Split)	(7)	Percentage of Class Outstanding (Pre-Offering)	(5)	Percentage of Class Outstanding (Post-Offering)	(9)	Shares of Series J-1 Preferred Stock Beneficially Owned (2)	(16)	Percentage of Class Outstanding
Certain Beneficial Owners:											
Alpha Capital Anstalt (3)	8,311,000	(4)	488,882	(7)	9.06%	(5)	6.31%	(9)	-	(16)	0.00%
Bristol Capital, LLC (6)	-	(7)	-	(7)	0.00%	(5)	0.00%	(9)	1,575,324	(16)	66.93%
Bristol Investment Fund, Ltd. (6)	9,165,689	(8)	773,923	(8)	9.99%	(9)	9.99%	(9)	778,224	(16)	33.07%
James Heavener (10)	9,165,689	(11)	773,923	(11)	9.99%	(16)	9.99%	(16)	-	(16)	0.00%
Adam Kasower	8,974,303	(11)	527,900	(11)	9.78%	(16)	6.81%	(16)	-	(16)	0.00%
Bigger Capital Fund, LP (12)	5,168,507	(11)	304,029	(11)	5.63%	(16)	3.92%	(16)	-	(16)	0.00%
District 2 Capital Fund LP (13)	5,087,289	(11)	299,252	(11)	5.54%	(16)	3.86%	(16)	-	(16)	0.00%
GT Bio Partners LLC (14)	7,685,000	(11)	452,058	(11)	8.38%	(16)	5.84%	(16)	-	(16)	0.00%
Kevin Young	5,425,753	(11)	319,161	(11)	5.91%	(16)	4.12%	(16)	-	(16)	0.00%
Red Mango Enterprises Limited (15)	9,165,689	(11)	773,923	(11)	9.99%	(16)	9.99%	(16)	-	(16)	0.00%
The Rosalinde and Arthur Gilbert Foundation (17)	9,165,689	(11)	773,923	(11)	9.99%	(16)	9.99%	(16)	-	(16)	0.00%
The RSZ Trust (18)	7,559,553	(11)	444,679	(11)	8.24%	(16)	5.74%	(16)	-	(16)	0.00%
Steven Weldon (19)	3,720,000	(11)	218,823	(11)	4.05%	(16)	2.82%	(16)	-	(16)	0.00%
Executive Officers and Directors:											
Anthony J. Cataldo	7,013,345	(11)	412,549	(11)	7.64%	(16)	5.33%	(16)	-	(16)	0.00%
Michael Handelman	-	(11)	-	(11)	0.00%	(16)	0.00%	(16)	-	(16)	0.00%
Bruce Wendel	55,555	(11)	3,267	(11)	0.06%	(16)	0.04%	(16)	-	(16)	0.00%
Greg Berk	-	(11)	-	(11)	0.00%	(16)	0.00%	(16)	-	(16)	0.00%
Michael Breen	-	(11)	-	(11)	0.00%	(16)	0.00%	(16)	-	(16)	0.00%
Rajesh Shrotriya	-	(11)	-	(11)	0.00%	(16)	0.00%	(16)	-	(16)	0.00%
Executive Officers and Directors as a Group (6 people):	7,068,900	(11)	415,816	(11)	7.70%	(16)	5.37%	(16)	-	(16)	0.00%

(1) The Company is not aware of any holder beneficially owning in excess of 5% of the outstanding shares of Series C Preferred Stock.

(2) Each holder of Series J-1 Preferred Stock is entitled to the number of votes equal to the number of shares of common stock into which the shares of Series J-1 Preferred Stock held by such holder could be converted as of January 31, 2021 (voting together, as a single class, with the holders of common stock and Series C Preferred Stock). After giving effect to the reverse stock split, each share of our Series J-1 Preferred Stock will be convertible into 5/17 of a share of our common stock, subject to a "blocker provision" which prohibits conversion if such conversion would result in the holder being the beneficial owner of in excess of 9.99% of our common stock.

- (3) Calculated based on the maximum number of shares of common stock that Alpha Capital could have beneficially owned on January 31, 2021 following conversion or exercise of securities held by Alpha Capital, subject to the beneficial ownership limitation described in note (4) above.
- (4) Paul Kessler, as manager of Bristol Capital Advisors, LLC, the investment advisor to Bristol Investment Fund, Ltd. ("BIF"), has voting and investment control over the securities held by BIF. Mr. Kessler, as manager of Bristol Capital, LLC ("Bristol Capital"), also has voting and investment control over the securities held by Bristol Capital. Mr. Kessler disclaims beneficial ownership of these securities except to the extent of his pecuniary interest therein. The address of Bristol Capital Advisors, LLC is 662 N. Sepulveda Blvd., Suite 300, Los Angeles, California 90049.
- (5) As reported on Schedule 13G filed with the SEC on June 10, 2020. Excludes shares of our common stock that may be issued upon conversion of the Series J-1 Preferred Stock held by Bristol Capital. Such Series J-1 Preferred Stock may be converted into shares of our common stock only if such conversion does not result in Bristol Capital (together with its affiliates, including BIF) holding more than 9.99% of our outstanding shares of common stock.
- (6) As reported on Schedule 13G filed with the SEC on June 10, 2020. As disclosed in the Schedule 13G, BIF also holds Series J-1 Preferred Stock and convertible notes which may be converted into shares of our common stock only if such conversion does not result in BIF (together with its affiliates, including Bristol Capital) holding more than 9.99% of our outstanding shares of common stock. The full conversion of such securities would exceed such beneficial ownership limitation. As of January 31, 2021, the maximum number of shares of common stock that BIF could beneficially own was 9,165,689 shares prior to giving effect to the reverse stock split and 773,923 shares after giving effect to the reverse stock split.
- (7) Calculated based on the maximum number of shares of common stock that BIF could have beneficially owned on January 31, 2021 following conversion of the Series J-1 Preferred Stock or convertible notes, subject to the beneficial ownership limitation described in note (8) above.
- (8) The address of Mr. Heavener is 3300 University Blvd, Suite 218 Winter Park, FL 32792.
- (9) Represents or includes shares of common stock that may be issuable to the stockholder upon conversion of certain convertible notes or other securities that are convertible into, or exercisable for, shares of our common stock and excludes additional shares of common stock that may be issuable to the stockholder (i) in lieu of cash payments of interest on convertible notes or (ii) in connection with any default amounts with respect to convertible notes. Such convertible notes are only convertible if such conversion does not result in the stockholder (together with its affiliates) holding more than 9.99% of our outstanding shares of common stock.
- (10) We have been advised that Michael Bigger exercises voting and investment power over the securities held by Bigger Capital Fund, LP.
- (11) Represents or includes shares of common stock that may be issuable to the stockholder upon conversion of certain convertible notes or other securities that are convertible into, or exercisable for, shares of our common stock and excludes additional shares of common stock that may be issuable to the stockholder (i) in lieu of cash payments of interest on convertible notes or (ii) in connection with any default amounts with respect to convertible notes. Such convertible notes are only convertible if such conversion does not result in the stockholder (together with its affiliates) holding more than 9.99% of our outstanding shares of common stock.
- (12) We have been advised that Michael Bigger exercises voting and investment power over the securities held by Bigger Capital Fund, LP.

- (13) We have been advised that Eric H Schlanger exercises voting and investment power over the securities held by District 2 Capital Fund LP.
- (14) We have been advised that Philip G. Werthman exercises voting and investment power over the securities held by of GT Bio Partners LLC.
- (15) We have been advised that Chi Kan Tang exercises voting and investment power over the securities held by Red Mango Enterprises Limited.
- (16) The full conversion or exercise of convertible notes or other securities convertible into, or exercisable for, our common stock held by the stockholder would exceed the beneficial ownership limitation described in note (11) above. This represents the maximum number of shares of common stock that the stockholder could beneficially own as of January 31, 2021.
- (17) We have been advised that Martin H. Blank exercises voting and investment power over the securities held by The Rosalinde and Arthur Gilbert Foundation.
- (18) We have been advised that Richard Ziman exercises voting and investment power over the securities held by RSZ Trust.
- (19) Mr. Weldon was appointed Chief Financial Officer on March 20, 2019, and resigned on November 10, 2020.

DESCRIPTION OF SECURITIES

The following description of our securities, together with any additional information we include in any applicable prospectus supplement or any related free writing prospectus, summarizes the material terms and provisions of our capital stock. For the complete terms of our capital stock, please refer to our certificate of incorporation bylaws that are incorporated by reference into the registration statement of which this prospectus is a part or may be incorporated by reference in this prospectus or any applicable prospectus supplement. The terms of these securities may also be affected by the DGCL. The summary below and that contained in any applicable prospectus supplement or any related free writing prospectus are qualified in their entirety by reference to our certificate of incorporation and bylaws.

General

As of the date of this prospectus, our authorized capital stock consists of 750.0 million shares of common stock, par value \$0.001 per share, and 15.0 million shares of preferred stock, par value \$0.001 per share. As of December 31, 2020, there were 83,723,370 shares of our common stock, 96,230 shares of Series C Preferred Stock and 2,353,548 shares of Series J-1 Preferred Stock issued and outstanding.

Common Stock

Holders of our common stock are entitled to one vote for each share of common stock held of record for the election of directors and on all matters submitted to a vote of stockholders. Holders of our common stock are entitled to receive dividends ratably, if any, as may be declared by the Board out of legally available funds, subject to any preferential dividend rights of any preferred stock then outstanding. In the event of our dissolution, liquidation or winding up, holders of our common stock are entitled to share ratably in our net assets legally available after the payment of all of our debts and other liabilities, subject to the liquidation preferences of any preferred stock then outstanding. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock currently outstanding or that we may designate and issue in the future. All outstanding shares of our common stock are fully paid and non-assessable. Except as described below in “Anti-Takeover Provisions Under Our Charter and Bylaws and Delaware Law,” holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business, and a vote of the majority of the voting power represented at such meeting at which a quorum is generally required to take action under our certificate of incorporation and bylaws.

Warrants and Pre-Funded Warrants

The Warrants and Pre-Funded Warrants will be issued in registered form and will entitle the registered holder to purchase one share of our common stock at a price equal to \$7.57 per share, subject to adjustment as discussed below, terminating at 5:00 p.m., New York City time, on the fifth anniversary of the date of issuance. In the case of the Warrants, if an effective registration statement is not available with respect to the offering of shares of common stock upon exercise of such Warrants, holders of such Warrants may exercise such warrants on a “cashless” basis. In such event, the aggregate number of shares of common stock issuable in such cashless exercise shall be equal to (x) the difference between (i) value of the aggregate number of shares of common stock for which the Warrant is being exercised based on the weighted average price of our common stock as determined in the formula set forth in such Warrant and (ii) the value of the aggregate number of shares of common stock for which the Warrant is being exercised based on the exercise price then in effect, divided by (y) the exercise price then in effect. In the case of the Pre-Funded Warrants, the exercise price will be deemed to have been paid as part of the purchase price for such Pre-Funded Warrants in this offering. The exercise price and number of shares of common stock issuable upon exercise of the Warrants and the Pre-Funded Warrants may be adjusted in certain circumstances, including in the event of a stock dividend, extraordinary dividend on or recapitalization, reorganization, merger or consolidation. The Warrants may be exercised by delivery of a notice of exercise and, in the case of the Warrants, the aggregate exercise price if no cashless exercise has been elected, to us as specified in such Warrant or Pre-Funded Warrant, as applicable. Holders of Warrants and Pre-Funded Warrants do not have the rights or privileges of holders of common stock and any voting rights until they exercise their Warrants or Pre-Funded Warrants, as applicable, and receive shares of common stock. After the issuance of shares of common stock upon exercise of the Series A-1 Warrants, each holder will be entitled to one vote for each share held of record on all matters to be voted on by stockholders.

Preferred Stock

Our Board is authorized, without action by the stockholders, to designate and issue up to 15.0 million shares of preferred stock in one or more series. In the past the Board has designated series lettered A through J-1 and issued shares in those series. As of the date of this prospectus, only preferred shares in the series designated C and J-1 have shares issued and outstanding. Our Board can fix or alter the rights, preferences and privileges of the shares of each series and any of its qualifications, limitations or restrictions, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and the number of shares constituting a class or series. The issuance of preferred stock could, under certain circumstances, result in one or more of the following adverse effects:

- decreasing the market price of our common stock;
- restricting dividends on our common stock;
- diluting the voting power of our common stock;
- impairing the liquidation rights of our common stock;
or
- delaying or preventing a change in control of us without further action by our stockholders.

Our Board will make any determination to issue such shares based on its judgment as to our best interests and the best interests of our stockholders.

Series C Preferred Stock

For a discussion of the terms of our Series C Preferred Stock, see Note 7 to our audited financial statements, *Stockholders' Equity*.

Series J-1 Preferred Stock

Shares of our Series J-1 Preferred Stock are convertible at any time, at the option of the holders, into shares of our common stock at an effective conversion price of \$0.20 per share, subject to adjustment for, among other things, stock dividends, stock splits, combinations, reclassifications of our capital stock and mergers or consolidations, and subject to a "blocker provision" which prohibits conversion if such conversion would result in the holder being the beneficial owner of in excess of 9.99% of our common stock. Shares of our Series J-1 Preferred Stock have the same voting rights as shares of our common stock, with the holders of the Series J-1 Preferred Stock entitled to vote on an as-converted-to-common stock basis, subject to the "blocker provision" described above, together with the holders of our common stock on all matters presented to our stockholders. The Series J-1 Preferred Stock are not entitled to any dividends (unless specifically declared by our Board), but will participate on an as-converted-to-common stock basis in any dividends to the holders of our common stock. In the event of our dissolution, liquidation or winding up, the holders of our Series J-1 Preferred Stock will be on parity with the holders of our common stock and will participate, on an as-converted-to-common stock basis, in any distribution to holders of our common stock.

Anti-Takeover Provisions Under Our Charter and Bylaws and Delaware Law

Certain provisions of Delaware law, our certificate of incorporation and our bylaws contain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, may have the effect of discouraging coercive takeover practices and inadequate takeover bids. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to first negotiate with our Board. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Amended and Restated Certificate of Incorporation

Undesignated Preferred Stock. Our Board has the ability to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Special Meetings of Stockholders. Our bylaws provide that special meetings of our stockholders may be called only by our Chairman of the Board, our president or our Board, thus prohibiting a stockholder from calling a special meeting. This provision might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.

Board Vacancies Filled Only by Majority of Directors. Vacancies and newly created seats on our Board may be filled only by a majority of the directors then in office. Only our Board may determine the number of directors on our board. The inability of stockholders to determine the number of directors or to fill vacancies or newly created seats on our Board makes it more difficult to change the composition of our Board, but these provisions promote a continuity of existing management.

No Cumulative Voting. The DGCL provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless our certificate of incorporation provides otherwise. Our certificate of incorporation and bylaws do not expressly provide for cumulative voting.

Directors Removed Only by Special Meeting of Stockholders. A director can be removed only by the affirmative vote of a majority of the votes of the issued and outstanding stock entitled to vote for the election of directors of the corporation given at a special meeting of the stockholders called and held for this purpose.

Amendment of Charter Provisions. In order to amend certain of the above provisions in our certificate of incorporation and our bylaws, the Board is expressly authorized to adopt, alter or repeal the bylaws, subject to the rights of the stockholders entitled to vote. Stockholders can vote at any stockholder meeting and repeal, alter, or amend the bylaws by the affirmative vote of a majority of the stockholders entitled to vote in such meeting.

Delaware Anti-takeover Statute

We are subject to Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interest stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes mergers, asset sales and other transactions in which the interested stockholder receives or could receive a financial benefit on other than a *pro rata* basis with other stockholders. An “interested stockholder” is a person who, together with affiliates and associates, owns, or within three years did own, 15% or more of the corporation’s outstanding voting stock. This provision has an anti-takeover effect with respect to transactions not approved in advance by our Board, including discouraging takeover attempts that might result in a premium over the market price for the shares of our market price. With approval of our stockholders, we could amend our amended and restated certificate of incorporation in the future to avoid the restrictions imposed by this anti-takeover law.

The provisions of Delaware law and our amended and restated certificate of incorporation could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Transfer Agent and Registrar

Our transfer agent and registrar for our capital stock is Computershare. The transfer agent’s address is 8742 Lucent Blvd., Suite 225, Highland Ranch, CO 80129, and its telephone number is (303) 262-0600.

Existing Trading Markets

Our common stock is quoted on the OTCQB, one of the OTC Markets Group over-the-counter markets, under the trading symbol “GTBP.” The closing sale price of our common stock on the OTCQB on February 5, 2021, was \$0.445 per share. Our common stock is also quoted on several European-based exchanges including Berlin (GTBP.BE), Frankfurt (GTBP.DE), the Euronext (GTBP.NX) and Paris (GTBP.PA).

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following is a summary of certain material U.S. federal income tax considerations that may be relevant to the acquisition, ownership and disposition of Units or Pre-Funded Units. This description addresses only the U.S. federal income tax considerations to holders that will hold the Units, Pre-Funded Units and the components thereof as capital assets within the meaning of Section 1221 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"). This description does not address all of the tax considerations applicable to particular investors in light of their individual circumstances, including holders that may be subject to special tax rules, including, but not limited to:

- certain financial institutions, banks, thrifts or insurance companies;
- real estate investment trusts;
- regulated investment companies;
- brokers, dealers or traders in securities;
- a trader in securities who elects to use a mark-to-market method of accounting for its securities holdings;
- investors subject to special tax accounting rules as a result of any item of gross income with respect to our ordinary shares being taken into account in an applicable financial statement;
- partnerships or other entities or arrangements classified as partnerships for U.S. federal income tax purposes or other pass-through entities (and investors therein);
- tax-exempt entities;
- individual retirement and other tax-deferred accounts;
- persons that will hold our securities as part of a "straddle," "hedging," "constructive sale," "conversion" or other integrated transaction or as a position in a "straddle" for U.S. federal income tax purposes;
- persons who acquire our securities pursuant to the exercise of compensatory options or compensatory warrants or in other compensatory transactions;
- persons that may be liable for the alternative minimum tax;
- certain former citizens or long-term residents of the United States;
- persons that have a "functional currency" other than the U.S. dollar; or
- persons that own or are deemed to own directly, indirectly, or constructively 10% or more, by voting power or value, of our stock.

Moreover, this description does not address the U.S. federal estate, gift or alternative minimum tax consequences or any state, local or non-U.S. tax consequences, of the acquisition, ownership and disposition of our Units, Pre-Funded Units, and the components thereof, or the U.S. federal Medicare tax on net investment income. This description is for general information purposes only and does not purport to be a complete analysis or summary of all potential U.S. federal income tax consequences that may apply as a result of the acquisition, ownership and disposition of our Units, Pre-Funded Units or the components thereof. Each prospective investor is urged to consult its own tax advisor regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of their investment in our ordinary shares.

This description is based on the Code, and existing, proposed and temporary U.S. Treasury regulations, and judicial and administrative interpretations thereof, in each case as of the date hereof. The U.S. tax laws and the interpretation thereof are subject to change, which change could apply retroactively and could affect the tax consequences described below.

A “U.S. Holder” is a beneficial owner of our Units, Pre-Funded Units, common stock, Common Warrants, or Pre-Funded Warrants that is, for U.S. federal income tax purposes:

- a citizen or individual resident of the United States;
- a corporation, created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust (A) the administration of which is subject to the primary supervision of a court within the United States and which has one or more U.S. persons who have the authority to control all of the substantial decisions of such trust or (B) that has otherwise validly elected to be treated as a U.S. person under applicable U.S. Treasury regulations.

If an entity or arrangement treated as a partnership for U.S. federal income tax purposes holds our Units or Pre-Funded Units or the components thereof, the tax treatment of the partnership and a partner in such partnership will generally depend on the status of the partner (or other interest holder) and the activities of the partnership. Such a partnership or partner in such a partnership should consult its own tax advisors as to its own tax consequences of acquiring, holding, or disposing of our ordinary shares.

For purposes of this discussion, a “Non-U.S. Holder” is a holder of our Units, Pre-Funded Units, common stock, Common Warrants, or Pre-Funded Warrants that is not a U.S. Holder and is not an entity or arrangement treated as a partnership for U.S. federal income tax purposes.

Prospective investors should consult their own tax advisors concerning the U.S. federal, state, local, foreign and other tax consequences of acquiring, owning and disposing of our units and the components thereof in light of their particular circumstances.

Characterization of Units and Allocation of Purchase Price

No statutory, administrative or judicial authority directly addresses the treatment of a Unit, a Pre-Funded Unit, or any instrument similar to these units for U.S. federal income tax purposes, and therefore, that treatment is not entirely clear. We intend to take the position that the acquisition or disposition of a Unit is treated for U.S. federal income tax purposes as the acquisition or disposition of the underlying common stock and Common Warrants and that the acquisition or disposition of a Pre-Funded Unit is treated for U.S. federal income tax purposes as the acquisition or disposition of the underlying Pre-Funded Warrants and Common Warrants. By purchasing a Unit or Pre-Funded Unit, you will agree to adopt such treatment for U.S. federal income tax purposes. For U.S. federal income tax purposes, each holder of a Unit or Pre-Funded Unit must allocate the purchase price paid by such holder for such unit between the underlying common stock, Common Warrant or Pre-Funded Warrant based on the relative fair market value of each at the time of issuance. Under U.S. federal income tax law, each investor must make his or her own determination of such value based on all the relevant facts and circumstances. Therefore, we urge each investor to consult his or her tax own advisors regarding the determination of value for these purposes. The price allocated to each share of common stock, each Common Warrant, and each Pre-Funded Warrant should be the shareholder’s initial tax basis in such shares of common stock or such Common Warrant or Pre-Funded Warrant. We also intend to take the position that the separation of the common stock and Common Warrant constituting a Unit and the separation of a Common Warrant and Pre-Funded Warrant constituting a Pre-Funded Unit is not a taxable event for U.S. federal income tax purposes.

The foregoing treatment of the Units, Pre-Funded Units, common stock, Common Warrants, and Pre-Funded Warrants and a holder’s purchase price allocation is not binding on the U.S. Internal Revenue Service (“IRS”) or the courts. Because there are no authorities that directly address instruments that are similar to the Units or Pre-Funded Units, no assurance can be given that the IRS or the courts will agree with the characterization described above or the discussion below. Accordingly, each prospective investor is urged to consult its own tax advisors regarding the tax consequences of an investment in a Unit or Pre-Funded Unit (including alternative characterizations of the same). The remainder of this discussion assumes that the characterization of the Units and Pre-Funded Units described above will be respected for U.S. federal income tax purposes.

Characterization of Pre-Funded Warrants

Although the characterization of the Pre-Funded Warrants for U.S. federal income tax purposes is not entirely clear, because the exercise price of the Pre-Funded Warrants is a nominal amount, the Company expects to treat the Pre-Funded Warrants as common stock of the Company for U.S. federal income tax purposes. Except where noted, the remainder of this discussion assumes that the Pre-Funded Warrants will be so treated. Each holder should consult its own tax advisors regarding the proper characterization of the Pre-Funded Warrants for U.S. federal, state and local, and non-U.S. tax purposes, and the consequences to them of such treatment given their individual circumstances.

Distributions

We have never declared or paid any cash dividends on our common stock. However, if we do make distributions with respect to our common stock of cash or other property (other than certain distributions of common stock), such distributions will constitute dividends for U.S. federal income tax purposes to the extent of our current and accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent any distributions exceed our current and accumulated earnings and profits, such distributions will first be treated as a tax-free return of capital to the extent of a U.S. Holder's U.S. federal income tax basis in the common stock, and then will be treated as gain from the sale of common stock. Amounts treated as gain from the sale of common stock will be treated as capital gain subject to the treatment described below in "—Sale or Exchange of Common Stock and Common Warrants." Generally, for U.S. Holders that are individuals (as well as certain trusts or estates), dividends paid by us will be subject to U.S. federal income tax at preferential rates.

Sale or Exchange of Common Stock and Common Warrants

A U.S. Holder will generally recognize gain or loss on a sale or other disposition of common stock or Common Warrants equal to the difference, if any, between the fair market value of the common stock or Common Warrants sold and the U.S. Holder's adjusted U.S. federal tax basis in the common stock or Common Warrants. The determination of a U.S. Holder's initial adjusted U.S. federal tax basis is described above in "—Characterization of Units and Allocation of Purchase Price." If the U.S. Holder has a holding period of more than one year, such gain generally will be long-term capital gain or loss. Generally, for U.S. Holders who are individuals (as well as certain trusts or estates), long-term capital gains will be subject to U.S. federal income tax at preferential rates. The deductibility of capital losses is subject to limitations.

Exercise or Lapse of a Common Warrant or Pre-Funded Warrant

In general, a U.S. Holder will not recognize gain or loss for U.S. federal income tax purposes upon the exercise for cash of a Common Warrant or the exercise of a Pre-Funded Warrant, except to the extent the U.S. Holder receives a cash payment for any such fractional share that would otherwise have been issuable upon exercise of the Common Warrant or Pre-Funded Warrant, which will be treated as a sale subject to the rules described under "—Sale or Other Disposition of Common Stock or Common Warrants" above. A common share acquired pursuant to the exercise of a Common Warrant or Pre-Funded Warrant generally will have a tax basis equal to the U.S. Holder's tax basis in such Common Warrant or Pre-Funded Warrant, increased by the amount paid to exercise such Common Warrant or Pre-Funded Warrant, and the holding period for such common share generally will begin the day after the date of exercise. Upon the lapse or expiration of a Common Warrant or Pre-Funded Warrant, a U.S. Holder will recognize a loss equal to such U.S. Holder's U.S. federal income tax basis in the Common Warrant or Pre-Funded Warrant. The deductibility of capital losses is subject to limitations.

The U.S. federal income tax consequences of a cashless exercise of Common Warrants are unclear under current law and could differ from the consequences described above. A cashless exercise could be considered a taxable event. U.S. Holders are urged to consult their own tax advisors regarding the cashless exercise of a Common Warrant and the U.S. federal income tax treatment thereof.

Certain Adjustments to the Common Warrants or Pre-Funded Warrants

Under Section 305(c) of the Code, an adjustment (or a failure to make an adjustment) to the conversion ratio of a Common Warrant or Pre-Funded Warrant that has the effect of increasing a U.S. Holder's proportionate interest in our assets or earnings may, in some circumstances, result in a deemed distribution to a U.S. Holder for U.S. federal income tax purposes. Adjustments to the conversion rate made pursuant to a bona fide, reasonable, adjustment formula that has the effect of preventing the dilution of the interest of the holders of our Common Warrants or Pre-Funded Warrants, however, generally will not be deemed to result in a distribution to a U.S. Holder. Any such deemed distribution could be taxable to a U.S. Holder as described above under "—Distributions."

Information Reporting and Backup Withholding

U.S. backup withholding and information reporting requirements will generally apply to U.S. holders with respect to distributions on our common shares, deemed distributions on Common Warrants or Pre-Funded Warrants, and proceeds from the sale or disposition of common shares, Common Warrants, or Pre-Funded Warrants, unless (i) the U.S. Holder is an exempt recipient or (ii) in the case of backup withholding, the U.S. Holder provides a correct taxpayer identification number and certifies that such U.S. Holder is not subject to backup withholding. A paying agent within the United States will be required to withhold at the applicable statutory rate, currently 24%. U.S. Holders who are required to establish their exempt status generally must provide a properly completed IRS Form W-9. The amount of any backup withholding from a payment to a U.S. Holder is not an additional tax and may be allowed as a credit against such U.S. Holder's U.S. federal income tax liability and may entitle the U.S. Holder to a refund, provided that the required information is timely furnished to the IRS. U.S. Holders should consult their own tax advisors concerning the application of information reporting and backup withholding rules.

Non-U.S. Holders Distributions

We have never declared or paid any cash dividends on our common stock. However, if we do make distributions with respect to our common stock of cash or other property (other than certain distributions of common stock), such distributions will constitute dividends for U.S. federal income tax purposes to the extent of our current and accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent any distributions exceed our current and accumulated earnings and profits, such distributions will first be treated as a tax-free return of capital to the extent of a Non-U.S. Holder's U.S. federal income tax basis in the common stock, and then will be treated as gain from the sale of common stock.

Dividends paid to a Non-U.S. Holder will generally be subject to withholding tax at a 30% rate unless the Non-U.S. Holder is eligible for the benefits of an income tax treaty that provides for a reduced rate of withholding and the Non-U.S. Holder establishes its eligibility for the reduced rate by providing a properly executed IRS Form W-8BEN or W-8BEN-E (or applicable successor form) claiming an exemption from or reduction of the withholding tax under the benefit of an applicable income tax treaty.

Additionally, a Non-U.S. Holder will not be subject to withholding tax if such Non-U.S. Holder holds our common stock in connection with the conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable), dividends are paid in connection with that trade or business, and such Non-U.S. Holder provides a properly executed IRS Form W-8ECI (or applicable successor form) stating that the dividends are effectively connected with the conduct by the Non-U.S. Holder of a trade or business within the United States. Instead, such Non-U.S. Holder will generally be subject to U.S. federal income tax at the rates applicable to U.S. persons and, in the case of a corporate Non-U.S. Holder, a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty.

If a Non-U.S. Holder is eligible for a reduced rate of withholding, such Non-U.S. Holder may file a refund claim with the IRS for a refund of any amounts withheld in excess of such reduced rate.

Sale or Exchange of Common Stock and Common Warrants

Non-U.S. Holders will generally not be subject to U.S. federal income tax on any gain realized upon the sale or exchange of common stock or Common Warrants unless:

- The gain is effectively connected with the conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such gains are attributable);
- The Non-U.S. Holder is an individual present in the United States for a period or periods aggregating 183 days or more during the calendar year in which the sale or disposition occurs and certain other conditions are met; or
- We are or have been within the five year period ending on the date of disposition a "United States real property holding corporation" (a "USRPHC").

If a Non-U.S. Holder is described in the first bullet above, such Non-U.S. Holder will generally be subject to U.S. federal income tax at the rates applicable to U.S. persons and, in the case of a corporate Non-U.S. Holder, a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty. If a Non-U.S. Holder is described in the second bullet above, such Non-U.S. Holder will be required to pay a flat 30% tax on the gain derived from the sale, which tax may be offset by U.S.-source capital losses for the year.

With respect to the third bullet above, we believe that we are not currently, and have not been a USRPHC. However, because the determination of whether we are a USRPHC depends on the fair market value of our U.S. real property relative to the fair market value of certain of our other assets, there can be no assurance that we will not become a USRPHC in the future. Even if we become a USRPHC, however, as long as our common stock is regularly traded on an established securities market, such common stock will be treated as U.S. real property interests only if you actually or constructively hold more than five percent of such regularly traded common stock at any time during the shorter of the five-year period preceding your disposition of, or your holding period for, our common stock. Special rules may apply to the determination of the five percent threshold in the case of a holder of a Common Warrant or Pre-Funded Warrant. Non-U.S. Holders are urged to consult their own tax advisors regarding the effect of holding our Common Warrants or Pre-Funded Warrants on the calculation of such five percent threshold.

Exercise or Lapse of a Common Warrant or Pre-Funded Warrant

In general, a Non-U.S. Holder will not recognize gain or loss for U.S. federal income tax purposes upon the exercise for cash of a Common Warrant or the exercise of a Pre-Funded Warrant, except to the extent the Non-U.S. Holder receives a cash payment for any such fractional share that would otherwise have been issuable upon exercise of the Common Warrant or Pre-Funded Warrant, which will be treated as a sale subject to the rules described under “—Sale or Other Disposition of Common Stock or Common Warrants” above. Upon the lapse or expiration of a Common Warrant or Pre-Funded Warrant, a Non-U.S. Holder will recognize a loss equal to such Non-U.S. Holder’s U.S. federal income tax basis in the Common Warrant or Pre-Funded Warrant if the loss is (i) effectively connected with the conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such loss is attributable) or (ii) treated as a loss from sources within the United States and the Non-U.S. Holder is present 183 days or more in the taxable year of disposition and certain other conditions are met. The deductibility of capital losses is subject to limitations.

The U.S. federal income tax consequences of a cashless exercise of Common Warrants are unclear under current law and could differ from the consequences described above. A cashless exercise could be considered a taxable event. U.S. Holders are urged to consult their own tax advisors regarding the cashless exercise of a Common Warrant and the U.S. federal income tax treatment thereof.

Certain Adjustments to the Common Warrants or Pre-Funded Warrants

Under Section 305(c) of the Code, an adjustment (or a failure to make an adjustment) to the conversion ratio of a Common Warrant or Pre-Funded Warrant that has the effect of increasing a Non-U.S. Holder’s proportionate interest in our assets or earnings may, in some circumstances, result in a deemed distribution to a Non-U.S. Holder for U.S. federal income tax purposes. Adjustments to the conversion rate made pursuant to a bona fide, reasonable, adjustment formula that has the effect of preventing the dilution of the interest of the holders of our Common Warrants or Pre-Funded Warrants, however, generally will not be deemed to result in a distribution to a Non-U.S. Holder. Any such deemed distribution would be taxable to a Non-U.S. Holder as described above under “—Distributions.”

In addition, regulations governing “dividend equivalents” under Section 871(m) of the Code may apply to the Pre-Funded Warrants. Under those regulations, an implicit or explicit payment under the Pre-Funded Warrants that references a dividend distribution on our common stock would possibly be taxable to a Non-U.S. Holder as described under “—Distributions” above. Such dividend equivalent amount would be taxable and subject to withholding whether or not there is actual payment of cash or other property. Non-U.S. Holders are encouraged to consult their own tax advisors regarding the application of Section 871(m) of the Code to the Pre-Funded Warrants.

Information Reporting and Backup Withholding

Payments to Non-U.S. Holders of dividends will generally not be subject to backup withholding, and payments of proceeds made to Non-U.S. Holders by brokers upon a sale of common stock, Common Warrants, and Pre-Funded Warrants will generally not be subject to information reporting or backup withholding, in each case so long as the Non-U.S. Holders certifies its non-resident status (and we or our paying agent do not have actual knowledge or reason to know that the Non-U.S. Holders is a U.S. person or that the conditions of any other exemption are not, in fact, satisfied) or otherwise establishes an exemption. The certification procedures to claim a reduced rate of withholding under an income tax treaty described above in "Distributions" will generally satisfy the certification requirements necessary to avoid backup withholding. Copies of information returns with respect to dividends that are filed with the IRS may also be made available to tax authorities of the country in which the Non-U.S. Holder resides.

Backup withholding is not an additional tax. Amounts withheld as backup withholding may be credited against a Non-U.S. Holder's US federal income tax liability. A Non-U.S. Holder generally may obtain a refund of any amounts withheld under the backup withholding rules in excess of such Non-U.S. Holder's U.S. federal income tax liability by filing the appropriate claim for refund with the U.S. Internal Revenue Service in a timely manner and furnishing any required information.

FATCA

Withholding taxes may be imposed under Sections 1471 to 1474 of the Code (commonly referred to as the Foreign Account Tax Compliance Act or "FATCA") on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on payments of dividends if paid to a "foreign financial institution" or a "non-financial foreign entity" (each as defined in the Code), unless (1) the foreign financial institution enters into an agreement with the United States Department of the Treasury to undertake certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any "substantial United States owners" (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution which entered into the agreement in (1) above, the diligence and reporting requirements include, among other things, that it undertake to identify accounts held by certain "specified United States persons" or "United States owned foreign entities" (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. An intergovernmental agreement governing FATCA between the United States and an applicable foreign country may modify the requirements described in this paragraph.

The FATCA withholding tax will apply to all withholdable payments without regard to whether the beneficial owner of the payment would otherwise be entitled to an exemption from withholding tax pursuant to an applicable tax treaty with the United States or under other provisions of the Code. Non-U.S. Holders are urged to consult their tax advisors regarding the potential application of withholding under FATCA.

THE US FEDERAL INCOME TAX SUMMARY SET FORTH ABOVE IS INCLUDED FOR GENERAL INFORMATION ONLY. HOLDERS OF UNITS, PRE-FUNDED UNITS, COMMON STOCK, COMMON WARRANTS, AND PRE-FUNDED WARRANTS SHOULD CONSULT THEIR TAX ADVISORS TO DETERMINE THE PARTICULAR TAX CONSEQUENCES TO SUCH HOLDERS, INCLUDING THE APPLICABILITY AND EFFECT OF STATE, LOCAL, AND NON-US TAX LAWS.

UNDERWRITING

We have entered into an underwriting agreement with Roth Capital Partners, LLC and Dawson James Securities, Inc. with respect to the offering. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and the underwriters have agreed to purchase from us on a firm commitment basis, the number of units set forth opposite its name in the table below.

Underwriter	Number of Units
Roth Capital Partners, LLC	
Dawson James Securities, Inc.	
Total	

The underwriting agreement provides that the obligations of the underwriters are subject to certain conditions precedent and that the underwriters have agreed to purchase all of the Units sold under the underwriting agreement if any of these Units are purchased. The underwriters propose to offer to the public the Units purchased pursuant to the underwriting agreement at the public offering price per Unit on the cover page of this prospectus supplement. The underwriters may offer some of the Units to other securities dealers at such price less a concession of \$ per Unit. The underwriters may also allow, and such dealers may re-allow, a concession not in excess of \$ per Unit to other dealers. After the Units are released for sale to the public, the underwriter may change the offering price and other selling terms at various times.

We have granted to the underwriter an option, exercisable no later than 45 calendar days after the closing of this offering, to purchase additional securities to cover over-allotments, if any, up to 15% of the total number of securities offered, which may be exercised for shares of common stock, warrants or both at the election of the underwriters. If this option is exercised in full, the total offering price to the public will be \$ and the total net proceeds, before expenses, to us will be \$. We will pay the expenses associated with the exercise of the over-allotment option.

Underwriting discounts and commissions

The following table shows the underwriting discounts and commissions that we are to pay to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters' over-allotment option.

	Per Unit	Total Without Over-Allotment	Total With Over-Allotment
Public offering price	\$	\$	\$
Underwriting discount (8%)*	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$

We have also agreed to reimburse the underwriter for its expenses in connection with this offering, up to \$125,000. We estimate the total expenses of this offering which will be payable by us, excluding the underwriting discount and the underwriter's expenses payable by us, will be approximately \$.

Indemnification

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

Tail Financing

The Representative will be entitled to the compensation set forth herein with respect to any public or private offering or other financing or capital-raising transaction of any kind ("Tail Financing") to the extent that such Tail Financing is provided to the Company by any investors in this offering, if such Tail Financing is consummated at any time within the 6-month period following the Closing Date.

Underwriters' Warrants

We have also agreed to issue to the underwriters a warrant to purchase a number of our shares of common stock equal to 5% of the securities sold in this offering. The underwriters' warrant will have an exercise price equal to 125% of the public offering price of the combination of shares and warrants set forth on the cover of this prospectus (or \$ per share and accompanying warrant) and may be exercised on a cashless basis. The underwriters' warrant is not redeemable by us. This prospectus also covers the sale of the underwriters' warrant and the shares of common stock underlying such warrant. The underwriters' warrant and the underlying securities have been deemed compensation by FINRA, and are therefore subject to FINRA Rule 5110. In accordance with FINRA Rule 5110, neither the underwriters' warrant nor any securities issued upon exercise of the underwriters' warrant may be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of such securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of the offering pursuant to which the underwriters' warrant is being issued, except the transfer of any security: (i) by operation of law or by reason of reorganization of our company; (ii) to any FINRA member firm participating in this offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction described above for the remainder of the time period; (iii) if the aggregate amount of our securities held by either an underwriter or a related person do not exceed 1% of the securities being offered; (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or (v) the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction set forth above for the remainder of the time period.

Lock-up Agreements

In connection with this offering, we agreed that we will not: (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (ii) file or cause to be filed any registration statement with the SEC relating to the offering of any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; or (iii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our capital stock, whether any such transaction described in clause (i), (ii) or (iii) above is to be settled by delivery of shares of our capital stock or such other securities, in cash or otherwise, in each case without the prior consent of the underwriters for a period of twelve months after the date of the Underwriting Agreement, other than (A) the securities sold in this offering, or (B) the issuance by us of shares of our common stock upon the exercise of a stock option or warrant or the conversion of a security outstanding on the date of this prospectus, hereafter issued pursuant to our currently existing or hereafter adopted equity compensation plans or employment or consulting agreements or arrangements of which the underwriters have been advised in writing or which have been filed with the SEC.

Our executive officers and directors, and certain holders of at least 5% or more of our common stock have agreed to enter into lock-up agreements in connection with this offering. Under the lock-up agreements, subject to certain exceptions, each of these persons may not, without the prior written approval of the underwriters, offer, sell, contract to sell, pledge, or otherwise dispose of, directly or indirectly, or hedge our common stock or securities convertible into or exchangeable or exercisable for our common stock. These restrictions remain in effect and will generally terminate on the six-month anniversary after the closing date.

Stabilization, Short Positions and Penalty Bids

The underwriters may engage in stabilizing transactions, short sales and purchases to cover positions created by short sales, and penalty bids or purchases for the purpose of pegging, fixing or maintaining the price of the common stock, in accordance with Regulation M under the Exchange Act:

- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.
- A short position involves a sale by the underwriters of shares in excess of the number of shares the underwriters are obligated to purchase in the offering, which creates the syndicate short position. This short position may be either a covered short position or a naked short position. In a covered short position, the number of shares involved in the sales made by the underwriters in excess of the number of shares they are obligated to purchase is not greater than the number of shares that they may purchase by exercising their option to purchase additional shares. In a naked short position, the number of shares involved is greater than the number of shares in their option to purchase additional shares. The underwriters may close out any short position by either exercising their option to purchase additional shares and/or purchasing shares in the open market. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through their option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.
- Syndicate covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover syndicate short positions.
- Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of the common stock. As a result, the price of the common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the Nasdaq Capital Market or otherwise and, if commenced, may be discontinued at any time.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

Electronic Distribution

A prospectus in electronic format may be made available on the Internet sites or through other online services maintained by one or more of the underwriters and/or selling group members participating in this offering, or by their affiliates. In those cases, prospective investors may view offering terms online and, depending upon the particular underwriter or selling group member, prospective investors may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares for sale to online brokerage account holders. Any such allocation for online distributions will be made by the representatives on the same basis as other allocations.

Other than the prospectus in electronic format, the information on any underwriter's or selling group member's web site and any information contained in any other web site maintained by an underwriter or selling group member is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or any underwriter or selling group member in its capacity as underwriter or selling group member and should not be relied upon by investors.

Listing on the Nasdaq Capital Market

Our common stock is presently quoted on the OTCQB, one of the OTC Markets Group over-the-counter markets, under the trading symbol "GTBP." We have applied to list our common stock on the Nasdaq Capital Market under the symbol "GTBP." No assurance can be given that our application will be approved or that the trading prices of our common stock on the OTCQB market will be indicative of the prices of our common stock if our common stock were traded on the Nasdaq Capital Market.

Other Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for the issuer and its affiliates, for which they received or may in the future receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments of the issuer or its affiliates. If the underwriters or their affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the shares of common stock offered hereby. Any such credit default swaps or short positions could adversely affect future trading prices of the shares of common stock offered hereby. The underwriters and certain of their affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

This prospectus does not constitute an offer to sell to, or a solicitation of an offer to buy from, anyone in any country or jurisdiction (i) in which such an offer or solicitation is not authorized, (ii) in which any person making such offer or solicitation is not qualified to do so or (iii) in which any such offer or solicitation would otherwise be unlawful. No action has been taken that would, or is intended to, permit a public offer of the shares of common stock or possession or distribution of this prospectus or any other offering or publicity material relating to the shares of common stock in any country or jurisdiction (other than the United States) where any such action for that purpose is required. Accordingly, each underwriter has undertaken that it will not, directly or indirectly, offer or sell any shares of common stock or have in its possession, distribute or publish any prospectus, form of application, advertisement or other document or information in any country or jurisdiction except under circumstances that will, to the best of its knowledge and belief, result in compliance with any applicable laws and regulations and all offers and sales of shares of common stock by it will be made on the same terms.

LEGAL MATTERS

The validity of the common stock offered by this prospectus will be passed upon for us by Baker & McKenzie LLP, Dallas, Texas. Certain legal matters in connection with the offering will be passed upon for the underwriters by Schiff Hardin LLP, Washington, DC.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the registrant pursuant to the foregoing provisions, the registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

EXPERTS

The financial statements of GT Biopharma, Inc. at December 31, 2019 and 2018, and for each of the two years in the period ending December 31, 2019, appearing in this prospectus have been audited by Seligson & Giannattasio, LLP, an independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-1 under the Securities Act with the SEC with respect to this offering. This prospectus was filed as a part of that registration statement but does not contain all of the information contained in the registration statement and exhibits. Reference is thus made to the omitted information. Statements made in this prospectus are summaries of the material terms of contracts, agreements and documents and are not necessarily complete; however, all information we considered material has been disclosed. Reference is made to each exhibit for a more complete description of the matters involved and these statements are qualified in their entirety by the reference. The SEC also maintains a web site (<http://www.sec.gov>) that contains this filed registration statement, reports and other information regarding us that we have filed electronically with the SEC. For more information pertaining to our company and this offering, reference is made to the registration statement.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of GT Biopharma, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of GT Biopharma, Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, stockholders' equity and cash flows for each of the years in the two-year period ended December 31, 2019, and the related notes (collectively referred to as the financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Company as of December 31, 2019 and 2018 and the consolidated results of its operations and its consolidated cash flows for each of the years in the two-year period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

Basis of Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

The accompanying consolidated financial statements have been prepared assuming the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred significant recurring losses. The realization of a major portion of its assets is dependent upon its ability to meet its future financing needs and the success of its future operations. These factors raise substantial doubt about the Company's ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from this uncertainty.

/s/ Seligson & Giannattasio, LLP
Seligson & Giannattasio, LLP

We have served as the Company's auditor since 2008.

White Plains, New York
March 27, 2020

GT Biopharma, Inc. and Subsidiaries
Consolidated Balance Sheets
(in thousands, except par value and share data)

	December 31, 2019	December 31, 2018
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 28	\$ 60
Prepaid expenses	246	30
Total Current Assets	<u>274</u>	<u>90</u>
Intangible assets		
Operating lease right-to use asset	110	-
Deposits	12	12
Fixed assets, net	-	35
Total Other Assets	<u>122</u>	<u>25,309</u>
TOTAL ASSETS	<u>\$ 396</u>	<u>\$ 25,399</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities:		
Accounts payable	\$ 1,940	\$ 1,762
Accrued expenses	2,379	1,023
Accrued interest	2,029	432
Line of credit	31	31
Note Payable to Related Party	-	100
Deferred Rent	-	8
Operating lease liability	120	
Convertible debentures	13,207	10,673
Total Current Liabilities	<u>19,706</u>	<u>14,029</u>
Total liabilities	<u>19,706</u>	<u>14,029</u>
Commitments and Contingencies		
Stockholders' (deficit) Equity:		
Convertible preferred stock - \$0.001 par value; 15,000,000 shares authorized:		
Series C - 96,230 and 96,230 shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively	1	1
Series J - 2,353,548 and 1,163,548 shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively	2	1
Common stock - \$0.001 par value; 750,000,000 shares authorized; and 69,784,699 and 50,650,478 shares issued and outstanding at December 31, 2019 and December 31, 2018, respectively	70	51
Additional paid-in capital	548,118	540,171
Accumulated deficit	(567,332)	(528,685)
Noncontrolling interest	(169)	(169)
Total Stockholders' (deficit) Equity	<u>(19,310)</u>	<u>11,370</u>
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	<u>\$ 396</u>	<u>\$ 25,399</u>

The accompanying notes are an integral part of these consolidated financial statements.

GT Biopharma, Inc. and Subsidiaries
Consolidated Statements of Operations
(in thousands except per share data)

	December 31	
	2019	2018
Operating expenses:		
Research and development	\$ 1,667	\$ 9,067
Selling, general and administrative expenses	9,790	12,487
Loss on impairment	4,599	228,515
Total operating expenses	<u>16,056</u>	<u>250,069</u>
Loss from operations	<u>(16,056)</u>	<u>(250,069)</u>
Other income (expense):		
Loss on disposal of assets	(20,463)	-
Interest expense	(2,128)	(9,117)
Total other income (expense)	<u>(22,591)</u>	<u>(9,117)</u>
Loss before provision for income taxes	<u>(38,647)</u>	<u>(259,186)</u>
Provision for income tax	-	-
Net loss	<u>\$ (38,647)</u>	<u>\$ (259,186)</u>
Net loss per common share – basic and diluted	<u>\$ (0.67)</u>	<u>\$ (5.16)</u>
Weighted average common shares outstanding – basic and diluted	<u>57,527</u>	<u>50,240</u>

The accompanying notes are an integral part of these consolidated financial statements.

GT Biopharma, Inc. and Subsidiaries
Consolidated Statement of Stockholders' Equity
For the Years Ended December 31, 2019 and 2018

	<u>Preferred Shares</u>		<u>Common Shares</u>		<u>Paid-in Capital</u>	<u>Accumulated Deficit</u>
	<u>Shares</u>	<u>Amount</u>	<u>Shares</u>	<u>Amount</u>		
Balance at December 31, 2018	1,260	\$ 2	50,118	\$ 50	\$ 521,305	\$ (269,499)
Issuance of warrants					8,304	
Issuance of common stock for convertible notes			162	0	325	
Beneficial conversion feature on convertible notes					544	
Issuance of common stock for compensation			370	1	9,693	
Net loss						(259,186)
Balance at December 31, 2018	1,260	\$ 2	50,650	\$ 51	\$ 540,171	\$ (528,685)
Issuance of preferred stock	1,190	1			1,139	
Issuance of common stock for convertible notes			3,484	3	1,357	
Beneficial conversion feature on convertible notes					158	
Issuance of common stock for compensation			15,650	16	5,293	
Net loss						(38,647)
Balance at December 31, 2019	2,450	\$ 3	69,784	\$ 70	\$ 548,118	\$ (567,332)

The accompanying notes are an integral part of these consolidated financial statements.

GT Biopharma, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
(In thousands)

	Twelve Months Ended December 31,	
	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	\$ (38,647)	\$ (259,186)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	4	7
Loss on impairment of long-lived assets	4,599	228,515
Loss on the disposal of assets	20,494	-
Stock compensation expense for options and warrants issued to employees and non-employees	5,308	9,696
Amortization of debt discounts	505	8,663
Non-cash interest expense	1,140	441
Amortization of loan costs	-	1,076
Changes in operating assets and liabilities:		
Prepaid Expenses	(216)	(30)
Other assets	-	(3)
Other liabilities	-	8
Accounts payable and accrued liabilities	3,154	136
Net cash used in operating activities	(3,659)	(10,677)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Acquisition of fixed assets		(36)
Disposal of fixed assets	200	-
Net cash used by investing activities	200	(36)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from notes payable	3,527	15,145
Loan costs	-	(533)
Repayment of note payable	(100)	(4,415)
Net cash provided by financing activities	3,427	10,197
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(32)	(516)
CASH AND CASH EQUIVALENTS - Beginning of period	60	576
CASH AND CASH EQUIVALENTS - End of period	\$ 28	\$ 60
Supplemental cash flow disclosures:		
Issuance of common stock upon conversion of convertible notes	\$ 1,360	\$ 325
Issuance of common stock for interest expense	\$ 21	\$ -

The accompanying condensed notes are an integral part of these consolidated financial statements.

1. The Company

Business

In 1965, the corporate predecessor of GT Biopharma, Diagnostic Data, Inc. was incorporated in the State of California. Diagnostic Data changed its incorporation to the State of Delaware in 1972; and changed its name to DDI Pharmaceuticals, Inc. in 1985. In 1994, DDI Pharmaceuticals merged with International BioClinical, Inc. and Bioxytech S.A. and changed its name to OXIS International, Inc. In July 2017, the Company changed its name to GT Biopharma, Inc.

We are a clinical stage biopharmaceutical company focused on the development and commercialization of novel immuno-oncology products based off our proprietary Tri-specific Killer Engager (TriKE™), Tetra-specific Killer Engager (TetraKE™) and bi-specific ligand-directed single-chain fusion protein technology platforms. Our TriKE and TetraKE platforms generate proprietary therapeutics designed to harness and enhance the cancer killing abilities of a patient's own natural killer cells, or NK cells. Once bound to an NK cell, our moieties are designed to enhance the NK cell and precisely direct it to one or more specifically-targeted proteins expressed on a specific type of cancer cell or virus infected cell, ultimately resulting in the targeted cell's death. TriKEs and TetraKEs are made up of recombinant fusion proteins, can be designed to target any number of tumor antigens on hematologic malignancies, sarcomas or solid tumors and do not require patient-specific customization.

Basis of Consolidation

The accompanying consolidated financial statements include the accounts of GT Biopharma, Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated. The Company's financial statements are prepared using the accrual method of accounting.

Going Concern

The Company's current operations have focused on business planning, raising capital, establishing an intellectual property portfolio, hiring, and conducting preclinical studies and clinical trials. The Company does not have any product candidates approved for sale and has not generated any revenue from product sales. The Company has sustained operating losses since inception and expects such losses to continue over the foreseeable future.

The financial statements of the Company have been prepared on a going-concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Accordingly, the financial statements do not include any adjustments that might be necessary should the Company be unable to continue in existence.

The Company has incurred substantial losses and negative cash flows from operations since its inception and has an accumulated deficit of \$567 million and cash of \$28 thousand as of December 30, 2019. The Company anticipates incurring additional losses until such time, if ever, that it can generate significant sales of its products currently in development. Substantial additional financing will be needed by the Company to fund its operations and to commercially develop its product candidates. These factors raise substantial doubt about the Company's ability to continue as a going concern.

Management is currently evaluating different strategies to obtain the required funding for future operations. These strategies may include but are not limited to: public offerings of equity and/or debt securities, payments from potential strategic research and development, and licensing and/or marketing arrangements with pharmaceutical companies. If the Company is unable to secure adequate additional funding, its business, operating results, financial condition and cash flows may be materially and adversely affected.

Use of Estimates

The financial statements and notes are representations of the Company's management, which is responsible for their integrity and objectivity. These accounting policies conform to accounting principles generally accepted in the United States of America and have been consistently applied in the preparation of the financial statements. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and disclosures of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

Segment Information

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision-maker in making decisions regarding resource allocation and assessing performance. To date, the Company has viewed its operations and manages its business as one segment operating in the United States of America.

2. Summary of Significant Accounting Policies

Advertising and promotional fees

Advertising expenses consist primarily of costs incurred in the design, development, and printing of Company literature and marketing materials. The Company expenses all advertising expenditures as incurred. There were no advertising expenses for the years ended December 31, 2019 and 2018, respectively.

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents.

Concentrations of Credit Risk

The Company's cash and cash equivalents, marketable securities and accounts receivable are monitored for exposure to concentrations of credit risk. The Company maintains substantially all of its cash balances in a limited number of financial institutions. The balances are each insured by the Federal Deposit Insurance Corporation up to \$250,000. The Company had no balances in excess of this limit at December 31, 2019.

Stock Based Compensation to Employees

The Company accounts for its stock-based compensation for employees in accordance with Accounting Standards Codification ("ASC") 718. The Company recognizes in the statement of operations the grant-date fair value of stock options and other equity-based compensation issued to employees and non-employees over the related vesting period.

The Company granted no stock options during the years ended December 31, 2019 and 2018, respectively.

Long-Lived Assets

Our long-lived assets include property, plant and equipment, capitalized costs of filing patent applications and other indefinite lived intangible assets. We evaluate our long-lived assets for impairment, other than indefinite lived intangible assets, in accordance with ASC 360, whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Estimates of future cash flows and timing of events for evaluating long-lived assets for impairment are based upon management's judgment. If any of our intangible or long-lived assets are considered to be impaired, the amount of impairment to be recognized is the excess of the carrying amount of the assets over its fair value.

Applicable long-lived assets are amortized or depreciated over the shorter of their estimated useful lives, the estimated period that the assets will generate revenue, or the statutory or contractual term in the case of patents. Estimates of useful lives and periods of expected revenue generation are reviewed periodically for appropriateness and are based upon management's judgment.

Impairment of Long-Lived Assets

The Company's long-lived assets currently consist of indefinite lived intangible assets associated with IPR&D ("In-Process Research & Development") projects and related capitalized patents acquired in the acquisition of Georgetown Translational Pharmaceuticals, Inc. as described in Note 3 below. Intangible assets associated with IPR&D projects are not amortized until approval by the Food and Drug Administration (FDA) is obtained in a major market subject to certain specified conditions and management judgment. The useful life of an amortizing asset generally is determined by identifying the period in which substantially all of the cash flows are expected to be generated.

The Company evaluates indefinite lived intangible assets for impairment at least annually and whenever impairment indicators are present in accordance with ASC 350. When necessary, the Company records an impairment loss for the amount by which the fair value is less than the carrying value of these assets. The fair value of intangible assets other than goodwill is typically determined using the “relief from royalty method”, specifically the discounted cash flow method utilizing Level 3 fair value inputs. Some of the more significant estimates and assumptions inherent in this approach include: the amount and timing of the projected net cash flows, which includes the expected impact of competitive, legal and/or regulatory forces on the projections and the impact of technological risk associated with IPR&D assets, as well as the selection of a long-term growth rate; the discount rate, which seeks to reflect the various risks inherent in the projected cash flows; and the tax rate, which seeks to incorporate the geographic diversity of the projected cash flows.

The Company performs impairment testing for all other long-lived assets whenever impairment indicators are present. When necessary, the Company calculates the undiscounted value of the projected cash flows associated with the asset, or asset group, and compares this estimated amount to the carrying amount. If the carrying amount is found to be greater, we record an impairment loss for the excess of book value over fair value.

Income Taxes

The Company accounts for income taxes using the asset and liability approach, whereby deferred income tax assets and liabilities are recognized for the estimated future tax effects, based on current enacted tax laws, of temporary differences between financial and tax reporting for current and prior periods. Deferred tax assets are reduced, if necessary, by a valuation allowance if the corresponding future tax benefits may not be realized.

Net Income (Loss) per Share

Basic net income (loss) per share is computed by dividing the net loss for the period by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share is computed by dividing the net loss for the period by the weighted average number of common shares outstanding during the period, plus the potential dilutive effect of common shares issuable upon exercise or conversion of outstanding stock options and warrants during the period.

During 2019, there were three repricings related to the conversion price of the convertible debt and the exercise price of the warrants. The Company prepared the calculations of the change in value pursuant to ASU 2017-11, and determined there was no deemed dividend to include in the calculation of earnings per share.

The computation of basic and diluted net loss per share for the years ended December 31, 2019 and 2018 excludes the common stock equivalents of the following potentially dilutive securities because their inclusion would be anti-dilutive:

	December 31,	
	2019	2018
Exercise of common stock warrants	9,065,265	1,813,053
Conversion of preferred stock into common stock	11,768,295	1,163,659
Conversion of convertible debentures into common stock	66,136,870	5,704,543
Exercise of common stock options	40	1,113
	<u>86,970,470</u>	<u>8,682,368</u>

Patents

Acquired patents are capitalized at their acquisition cost or fair value. The legal costs, patent registration fees and models and drawings required for filing patent applications are capitalized if they relate to commercially viable technologies. Commercially viable technologies are those technologies that are projected to generate future positive cash flows in the near term. Legal costs associated with patent applications that are not determined to be commercially viable are expensed as incurred. All research and development costs incurred in developing the patentable idea are expensed as incurred. Legal fees from the costs incurred in successful defense to the extent of an evident increase in the value of the patents are capitalized.

Capitalized costs for pending patents are amortized on a straight-line basis over the remaining twenty-year legal life of each patent after the costs have been incurred. Once each patent is issued, capitalized costs are amortized on a straight-line basis over the shorter of the patent's remaining statutory life, estimated economic life or ten years.

Fixed Assets

Fixed assets are stated at cost. Depreciation is computed on a straight-line basis over the estimated useful lives of the assets, which are 3 to 10 years for machinery and equipment and the shorter of the lease term or estimated economic life for leasehold improvements.

Fair Value

The carrying amounts reported in the balance sheets for current liabilities qualify as financial instruments and are a reasonable estimate of fair value because of the short period of time between the origination of such instruments and their expected realization and their current market rate of interest. The three levels are defined as follows:

- Level 1 inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets. The Company's Level 1 assets include cash equivalents, primarily institutional money market funds, whose carrying value represents fair value because of their short-term maturities of the investments held by these funds.
- Level 2 inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument. The Company's Level 2 liabilities consist of liabilities arising from the issuance of convertible securities and in accordance with ASC 815-40. These liabilities are remeasured each reporting period if required by ASC 815-40. Fair value is determined using the Black-Scholes valuation model based on observable market inputs, such as share price data and a discount rate consistent with that of a government-issued security of a similar maturity. There were no such liabilities at December 31, 2019 ..
- Level 3 inputs to the valuation methodology are unobservable and significant to the fair value measurement. The Company does not have any assets or liabilities measured using Level 3 inputs.

Research and Development

Research and development costs are expensed as incurred and reported as research and development expense. Research and development costs totaled \$1.7 million and \$9.1 million for the years ended December 31, 2019 and 2018, respectively. Research and development costs for the year ended December 31, 2018 included non-cash compensation of \$6.8 million.

Leases

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") No. 2016-02, "Leases." This ASU requires all lessees to be recognized on the balance sheet as right to use assets and lease liabilities for the rights and obligations created by lease arrangements with terms greater than 12 months. The Company adopted the ASU as of January 1, 2019. The effect of the adoption of the ASU was to increase the other assets and liabilities by approximately \$174,000.

3. Intangibles

On September 1, 2017, the Company entered into an Agreement and Plan of Merger whereby it acquired 100% of the issued and outstanding capital stock of Georgetown Translational Pharmaceuticals, Inc. (GTP). In exchange for the ownership of GTP, the Company issued a total of 16,927,878 shares of its common stock, having a share price of \$15.00 on the date of the transaction, to the three prior owners of GTP which represented 33% of the issued and outstanding capital stock of the Company on a fully diluted basis. \$253.8 million of the value of shares issued was allocated to intangible assets consisting of a portfolio of three CNS development candidates, which are classified as IPR&D.

For the year ended December 31, 2018, the Company recorded an intangible asset impairment charge of \$228.5 million related to the portfolio of CNS IPR&D assets within Operating Expenses, which represents the excess carrying value compared to fair value. The impairment charge was the result of both internal and external factors. In the 3rd quarter of 2018, the Company experienced changes in key senior management, led by the appointment of a new CEO with extensive experience in oncology drug development. These changes resulted in the prioritization of immuno-oncology development candidates relative to CNS development candidates. In conjunction with these strategic changes, limited internal resources delayed the development of the CNS IPR&D assets. The limited resources, changes in senior leadership, and favorable market conditions for immuno-oncology development candidates have resulted in the Company choosing to focus on development of its immuno-oncology portfolio. In light of this shift in market strategy, the Company performed a commercial assessment and a valuation of the CNS IPR&D assets, both to assess fair value and support potential future licensing efforts. The valuation indicated an excess carrying value over the fair value of these assets, resulting in the impairment charge noted above.

The fair value of the CNS IPR&D assets was determined using the discounted cash flow method which utilized significant estimates and assumptions surrounding the amount and timing of the projected net cash flows, which includes the probability of commercialization, the assumption that the assets would be out-licensed to third-parties for continued development for upfront licensing fees and downstream royalty payments based on net sales, and expected impact of competitive, legal and/or regulatory forces on the projections, as well as the selection of a long-term growth rate; the discount rate, which seeks to reflect the various risks inherent in the projected cash flows; and the tax rate, which seeks to incorporate the geographic diversity of the projected cash flows.

On September 19, 2019, the Company entered into an Asset Purchase Agreement (the "Agreement"), pursuant to which the Company sold its rights, titles and interests, including associated patents, to the pharmaceutical product designated by the Company as GTB-004 (the "Product"). Under the Agreement, the Product was purchased by DAS Therapeutics, Inc. who the Company believes is well positioned to take over the clinical development of the Product including obtaining timely approval by the FDA.

The Company received \$200,000 at closing. The Company will also participate in the future commercial value of the Product by receiving \$6,000,000 upon the achievement of certain sales objectives. In addition, the Company will receive a royalty equal to 1.5% of U.S. sales until such time as the last of the patents associated with the Product expires. The Company reflected a loss in the year ended December 31, 2019 totaling \$20,463,000.

As a result of the loss reported on the sale of the Product, as well as the response received on inquiries related to the other two projects, the Company determined that the remaining value related to these remaining projects should be fully impaired. During the year ended December 31, 2019, the Company reported an impairment charge for these projects totaling \$4,599,000.

4. Debt

Convertible Notes

On January 22, 2018, the Company entered into a Securities Purchase Agreement ("SPA") with fourteen accredited investors (individually, a "Buyer" and collectively, the "Buyers") pursuant to which the Company agreed to issue to the Buyers senior convertible notes in an aggregate principal amount of \$7,760,510 (the "Notes"), which Notes shall be convertible into the Company's common stock, par value \$0.001 per share (the "Common Stock") at a price of \$4.58 per share, and five-year warrants to purchase the Company's Common Stock representing the right to acquire an aggregate of approximately 1,694,440 shares of Common Stock (the "Warrants").

Pursuant to the terms of SPA the Notes were subject to an original issue discount of 10% resulting in proceeds to the Company of \$7,055,000 from the transaction.

Upon the purchase of the Notes, the Buyers received Warrants to purchase 1,694,440 shares of Common Stock. Such Warrants are exercisable for (5) years from the date the shares underlying the Warrants are freely saleable. The initial Exercise Price is \$4.58. According to the terms of the warrant agreement, the Warrants are subject to certain adjustments depending upon the price and structure of a subsequent financing, including a qualified financing with gross proceeds of at least \$20 million, as defined in the agreements.

The issuance of the Notes and Warrants were made in reliance on the exemption provided by Section 4(a)(2) of the Securities Act of 1933, as amended (the “Securities Act”) for the offer and sale of securities not involving a public offering, and Regulation D promulgated under the Securities Act.

Contemporaneously with the execution and delivery of the SPA, the Company and the Buyers executed and delivered a Registration Rights Agreement (the “Registration Rights Agreement”) pursuant to which the Company has agreed to provide certain registration rights with respect to the Registrable Securities under the 1933 Act and the rules and regulations promulgated thereunder, and applicable state securities laws.

Senior Convertible Debentures

On August 2, 2018, GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement with the purchasers identified on the signature pages thereto (individually, a “Purchaser,” and collectively, the “Purchasers”) pursuant to which the Company issued to the Purchasers one year 10% Senior Convertible Debentures in an aggregate principal amount of \$5,140,000 (the “Debentures”), which Debentures shall be convertible into the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at a price of \$2 per share. The Company used a portion of these proceeds to repay \$4.4 million of the notes issued on January 22, 2018. Additionally, the remaining \$3.3 million of the notes issued on January 22, 2018 were converted into the Debentures at the same terms discussed above.

On September 7, 2018, GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement with the purchasers identified on the signature pages thereto (individually, a “Purchaser,” and collectively, the “Purchasers”) pursuant to which the Company has issued to the Purchasers one year 10% Senior Convertible Debentures in an aggregate principal amount of \$2,050,000 (the “Debentures”), which Debentures shall be convertible into the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at an initial price of \$2 per share.

On September 24, 2018, GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement with the purchasers identified on the signature pages thereto (individually, a “Purchaser,” and collectively, the “Purchasers”) pursuant to which the Company has issued to the Purchasers one year 10% Senior Convertible Debentures in an aggregate principal amount of \$800,000 (the “Debentures”), which Debentures shall be convertible into the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at an initial price of \$2 per share.

On February 4, 2019, GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement (the “Purchase Agreement”) with the 15 purchasers (individually, a “Purchaser,” and collectively, the “Purchasers”), pursuant to which the Company issued to the Purchasers, on February 4, 2019, Secured Convertible Notes in an aggregate principal amount of \$1,352,224 (the “Notes”), consisting of gross proceeds of \$1,052,224 and settlement of existing debt of \$300,000, which Notes shall be convertible at any time after issuance into shares (the “Conversion Shares”) of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at an initial conversion price of \$0.60 per share (the “Conversion Price”).

The Notes accrue interest at the rate of 10% per annum and mature on August 2, 2019. Interest on the Notes is payable in cash or, at a Purchaser’s option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

Contemporaneously with the execution and delivery of the Purchase Agreement, on February 4, 2019, the Company and certain of its wholly-owned subsidiaries entered into a Security Agreement (the “Security Agreement”) with Alpha Capital Anstalt, as collateral agent on behalf of the Purchasers, and with the Purchasers, pursuant to which the Purchasers have been granted a first-priority security interest in substantially all of the assets of the Company and such subsidiaries securing (i) an aggregate principal amount of \$1,352,224 of Notes and (ii) an aggregate principal amount of \$9,058,962 of the Company’s 10% Senior Convertible Debentures issued on August 2, 2018, September 7, 2018 and September 24, 2018 held by such Purchasers.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not effect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with the Purchasers, pursuant to which the Company has agreed to file, within 14 days after February 4, 2019, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement. The Form S-3 was filed by the Company on February 14, 2019 and became effective on March 11, 2019.

On May 22, 2019, GT Biopharma, Inc. (the "Company") entered into a Securities Purchase Agreement (the "Purchase Agreement") with the ten purchasers (individually, a "Purchaser," and collectively, the "Purchasers"), pursuant to which the Company issued to the Purchasers, on May 22, 2019, Secured Convertible Notes in an aggregate principal amount of \$1,300,000 (the "Notes"), which Notes shall be convertible at any time after issuance into shares (the "Conversion Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), at an initial conversion price of \$0.35 per share (the "Conversion Price").

The Notes accrue interest at the rate of 10% per annum and mature on November 22, 2019. Interest on the Notes is payable in cash or, at a Purchaser's option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not effect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with the Purchasers, pursuant to which the Company has agreed to file, within 30 days after May 22, 2019, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement. The Form S-1 was filed by the Company on June 21, 2019 and became effective on July 12, 2019.

Between July 31 and August 28, 2019, GT Biopharma, Inc. (the "Company") entered into a Securities Purchase Agreement (the "Purchase Agreement") with the eleven purchasers (individually, a "Purchaser," and collectively, the "Purchasers"), pursuant to which the Company issued to the Purchasers, Secured Convertible Notes in an aggregate principal amount of \$975,000 (the "Notes"), which Notes shall be convertible at any time after issuance into shares (the "Conversion Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), at an initial conversion price of \$0.20 per share (the "Conversion Price").

The Notes accrue interest at the rate of 10% per annum and mature between January 31 and February 28, 2020. Interest on the Notes is payable in cash or, at a Purchaser's option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not effect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with the Purchasers, pursuant to which the Company has agreed to file, within 30 days, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement. The Form S-1 was filed by the Company on September 13, 2019 and became effective in October 2, 2019.

On December 19, 2019, GT Biopharma, Inc. (the "Company") entered into a Securities Purchase Agreement (the "Purchase Agreement") with the one purchaser (individually, a "Purchaser," and collectively, the "Purchasers"), pursuant to which the Company issued to the Purchasers, on December 19, 2019, Secured Convertible Notes in an aggregate principal amount of \$200,000 (the "Notes"), which Notes shall be convertible at any time after issuance into shares (the "Conversion Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), at an initial conversion price of \$0.20 per share (the "Conversion Price").

The Notes accrue interest at the rate of 10% per annum and mature on August 19, 2020. Interest on the Notes is payable in cash or, at a Purchaser's option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not affect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with the Purchasers, pursuant to which the Company has agreed to file, within 30 days after December 19, 2019, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement.

Financing Agreement

On November 8, 2010, the Company entered into a financing arrangement with Gemini Pharmaceuticals, Inc., a product development and manufacturing partner of the Company, pursuant to which Gemini Pharmaceuticals made a \$250,000 strategic equity investment in the Company and agreed to make a \$750,000 purchase order line of credit facility available to the Company. The outstanding principal of all Advances under the Line of Credit will bear interest at the rate of interest of prime plus 2 percent per annum. There is \$31,000 due on this credit line at December 31, 2019.

5. Accrued Expenses

Accrued Expenses are comprised of the following:

	2019	2018
Rent	52,000	-
License Fee	50,000	-
Research & Development	1,675,000	585,000
Professional Fees	95,000	162,000
Consulting and Advisory Services	161,000	161,000
Board of Directors Service Costs	101,000	94,000
Payroll and Benefits	245,000	21,000
Accrued Expenses	2,379,000	1,023,000

6. Related Party Transactions

On December 21, 2018, Dr. Raymond Urbanski, Chief Executive Officer and Chairman of the Board, provided a short-term loan of \$100,000 to meet immediate capital needs. The loan matured on January 20, 2019 and carries an interest rate of 5%. The loan was repaid in January, 2019.

7. Stockholders' Equity

Common Stock

For the year ended December 31, 2018, the Company issued 162,500 shares of common stock upon conversion of \$325,000 of senior convertible notes.

For the year ended December 31, 2018, the Company issued a total of 245,000 shares of Rule 144 restricted common stock in full settlement of outstanding legal matters, and 125,000 shares of Rule 144 restricted common stock in connection with consulting services.

For the year ended December 31, 2019, the Company issued a total 3,484,222 shares of common stock upon conversion of \$1,361,034 in principal and interest on senior convertible notes.

For the year ended December 31, 2019, the Company issued CEO Anthony Cataldo a total of 7,000,000 and the Company's CFO Steven Weldon a total of 4,500,000 shares of Rule 144 restricted common stock as compensation, and 4,150,000 shares of Rule 144 restricted common stock in connection with consulting services.

Preferred Stock

The 96,230 shares of Series C preferred stock are convertible into 111 shares of the Company's common stock at the option of the holders at any time. The conversion ratio is based on the average closing bid price of the common stock for the fifteen consecutive trading days ending on the date immediately preceding the date notice of conversion is given, but cannot be less than .20 or more than .2889 common shares for each Series C preferred share. The conversion ratio may be adjusted under certain circumstances such as stock splits or stock dividends. The Company has the right to automatically convert the Series C preferred stock into common stock if the Company lists its shares of common stock on the Nasdaq National Market and the average closing bid price of the Company's common stock on the Nasdaq National Market for 15 consecutive trading days exceeds \$3,000.00. Each share of Series C preferred stock is entitled to the number of votes equal to .26 divided by the average closing bid price of the Company's common stock during the fifteen consecutive trading days immediately prior to the date such shares of Series C preferred stock were purchased. In the event of liquidation, the holders of the Series C preferred stock shall participate on an equal basis with the holders of the common stock (as if the Series C preferred stock had converted into common stock) in any distribution of any of the assets or surplus funds of the Company. The holders of Series C preferred stock are entitled to noncumulative dividends if and when declared by the Company's board of directors. No dividends to Series C preferred stockholders were issued or unpaid through December 31, 2019.

On September 1, 2017, the Company designated 2,000,000 shares of Series J Preferred Stock. Shares of Series J Preferred Stock will have the same voting rights as shares of common stock with each share of Series J Preferred Stock entitled to one vote at a meeting of the shareholders of the Corporation. Shares of Series J Preferred Stock will not be entitled to receive any dividends, unless and until specifically declared by our board of directors. The holders of the Series J Preferred Stock will participate, on an as-if-converted-to-common stock basis, in any dividends to the holders of common stock. Each share of the Series J Preferred Stock is convertible into one share of our common stock at any time at the option of the holder.

On the same day, the Board issued 1,513,548 of those shares in exchange for the cancellation of debt. In the first quarter of 2019, it was discovered that a certificate of designation with respect to the Series J Preferred Stock had never been filed with the Office of the Secretary of State for the State of Delaware. Legal research determined that despite the fact the Company had issued shares of Series J Preferred Stock, those shares had, in fact, never existed.

To remedy the situation, on April 4, 2019, the Company filed a certificate of designation with the Office of the Secretary State for the State of Delaware designating a series of preferred stock as Series J-1 Preferred Stock. On April 19, 2019, the Company issued 2,353,548 of those shares. The issuance was in lieu of the preferred stock that should have been issued on September 1, 2017, and in settlement for not receiving preferred stock until 20 months after the debt for which the stock was issued was cancelled. The Company reflected an expense in general and administrative costs in the year ended December 31, 2019 totaling \$1,140,000.

The Shares are convertible into shares of common stock of the Registrant at the rate of \$0.60 per share. The issuance was exempt from the registration requirements of Section 5 of the Securities Act of 1933 pursuant to Section 4(2) of the same Act since the issuance of the Shares did not involve any public offering.

Common Stock Warrants

Warrant transactions for the years ended December 31, 2019 and 2018 are as follows:

	<u>Number of Warrants</u>	<u>Weighted- Average Exercise Price</u>
Outstanding, December 31, 2018	-	-
Granted	1,813,053	0.20
Exercised	-	-
Expired	-	-
Outstanding, December 31, 2019	<u>1,813,053</u>	-
Granted	-	-
Exercised	-	-
Expired	-	-
Outstanding, December 31, 2019	<u>1,813,053</u>	0.20
Exercisable Warrants:		
December 31, 2019	1,813,053	0.20
December 31, 2018	1,813,053	0.20

Stock Options

The Company reserved 1,333 shares of its common stock at December 31, 2014 for issuance under the 2014 Stock Incentive Plan (the "2014 Plan"). The 2014 Plan, approved by stockholders in May 2015, permits the Company to grant stock options to acquire shares of the Company's common stock, award stock bonuses of the Company's common stock, and grant stock appreciation rights. At December 31, 2019, 87 shares of common stock were available for grant and options to purchase 40 shares of common stock are outstanding under the 2014 Plan.

The following table summarizes stock option transactions for the years ended December 31, 2019 and 2018:

	Number of Options	Weighted- Average Exercise Price
Outstanding, December 31, 2017	1,246	1,320.00
Granted	-	-
Exercised	-	-
Expired	(133)	1,020.00
Outstanding, December 31, 2018	1,113	1,320.00
Granted	-	-
Exercised	-	-
Expired	(1,073)	1,500.00
Outstanding, December 31, 2019	40	877.50
Exercisable Options:		
December 31, 2019	40	877.50
December 31, 2018	1,113	1,320.00

The following table summarizes information about all outstanding and exercisable stock options at December 31, 2019 :

Range of Exercise Prices	Outstanding Options			Exercisable Options	
	Number of Options	Weighted-Average Remaining Contractual Life	Weighted-Average Exercise Price	Number of Options	Weighted-Average Exercise Price
\$750.00 to \$2,225.00	40	0.89	\$ 877.50	40	\$ 877.50

8. Income Taxes

Deferred Taxes

Deferred taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and operating losses and tax credit carryforwards. The significant components of net deferred income tax assets for the Company are (in thousands):

	December 31,	
	2019	2018
Deferred tax assets:		
Federal net operating loss carryforward	36,803,000	25,306,000
Intellectual property	58,504,000	61,787,000
Accrued expense	1,262,000	129,000
Patent amortization	4,000	5,000
Deferred tax assets before valuation	96,573,000	87,227,000
Valuation allowance	(96,573,000)	(87,227,000)
Net deferred income tax assets	-	-

Generally accepted accounting principles requires that the tax benefit of net operating losses, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on the Company's ability to generate sufficient taxable income within the carryforward period. Because of the Company's history of operating losses, management has provided a valuation allowance equal to its net deferred tax assets. The valuation allowance increased by approximately \$9,346,000 during the year ended December 31, 2019.

Tax Carryforward

At December 31, 2019, the Company had net operating loss carryforwards of approximately \$122,676,000 to reduce United States federal taxable income in future years. These carryforwards expire from 2020 through 2039.

The Company is no longer subject to U.S. and state tax examinations for years ending before the fiscal year ended December 31, 2015. Management does not believe there will be any material changes in our unrecognized tax positions over the next twelve months.

The Company's policy is to recognize interest and penalties accrued on any unrecognized tax benefits as a component of income tax expense. There was no accrued interest or penalties associated with any unrecognized tax benefits, nor was any interest expense recognized during the years ended December 31, 2019 and 2018.

9. Commitments and Contingencies

Leases

On September 1, 2017, the Company entered into a three-year lease agreement for its office in Washington, D.C. In addition to minimum rent, certain leases require payment of real estate taxes, insurance, common area maintenance charges and other executory costs. The Company recognizes rent expense under such arrangements on a straight-line basis over the effective term of each lease. This lease was terminated as of June 30, 2018.

On October 1, 2018, the Company entered into a three-year lease agreement for its office in Westlake Village, CA. In addition to minimum rent, certain leases require payment of real estate taxes, insurance, common area maintenance charges and other executory costs. The Company recognizes rent expense under such arrangements on a straight-line basis over the effective term of each lease.

The following table summarizes the Company's future minimum lease commitments as of December 31, 2019 (in thousands):

Year ending December 31:

2020	71,000
2021	61,000
Total minimum lease payments	<u>132,000</u>

Rent expense for the years ended December 31, 2019 and 2018 was \$69,000 and \$9,000, respectively.

Employment Agreements

On February 14, 2018, the Company entered into the First Amendment to the Employment Agreement with Dr. Clarence-Smith, amending the Employment Agreement, dated September 1, 2017, between the Company and Dr. Clarence-Smith. Under the First Amendment, Dr. Clarence-Smith's title was revised to reflect her new position and included an annual salary of \$500,000, paid in equal monthly installments. All other terms of her original Employment Agreement remain unchanged. In October 2018, Dr. Clarence-Smith resigned from her position with the Company. In connection with this resignation, the Company entered into a separation agreement which superseded the Employment Agreement.

On October 18, 2018, the Company entered into a Consultant Agreement with Anthony Cataldo. The term of the Consultant Agreement shall remain in effect until September 30, 2019. This Agreement supersedes the Consultant Agreement dated February 14, 2018 and will pay Mr. Cataldo \$25,000 per month during the term of the Agreement.

On October 19, 2018, the Company entered into an Executive Employment Agreement with Dr. Raymond Urbanski, reflecting his current position as Chief Executive Officer of the Company. Under the terms of this agreement, Dr. Urbanski's annual salary is essentially unchanged from his previous positions. Dr. Urbanski is also entitled to participate in the Company's bonus plans. Under the Executive Employment Agreement, the Company has agreed that upon shareholder approval of a Stock Option Plan, it will recommend to the Board that the Company grant Dr. Urbanski a Non-Qualified stock option to purchase 2,971,102 shares of the Company's common stock having an exercise equal to the fair market value of the shares on the date of the Agreement. The stock option grant would vest according to the following schedule: (i) 1,250,000 fully vested shares upon signing of the agreement, (ii) 1,250,000 shares on January 1, 2019 and (iii) 471,102 shares on January 1, 2020. On March 15, 2019, Dr., Urbanski resigned his position as Chief Executive Officer, President and Chairman of the Board.

10. Subsequent Events

Financing

On January 30, 2020 GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement (the “Purchase Agreement”) with the one purchaser (individually, a “Purchaser,” and collectively, the “Purchasers”), pursuant to which the Company issued to the Purchasers, between April 20 and May 7, 2020, Secured Convertible Notes in an aggregate principal amount of \$200,000 (the “Notes”), which Notes shall be convertible at any time after issuance into shares (the “Conversion Shares”) of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at an initial conversion price of \$0.20 per share (the “Conversion Price”).

The Notes accrue interest at the rate of 10% per annum and mature on September 30, 2020. Interest on the Notes is payable in cash or, at a Purchaser’s option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not effect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the “Registration Rights Agreement”) with the Purchasers, pursuant to which the Company has agreed to file, within 30 days after January 30, 2020, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement.

On March 24, 2020 GT Biopharma, Inc. (the “Company”) entered into a Securities Purchase Agreement (the “Purchase Agreement”) with the one purchaser (individually, a “Purchaser,” and collectively, the “Purchasers”), pursuant to which the Company issued to the Purchasers, on January 30, 2020, Secured Convertible Notes in an aggregate principal amount of \$200,000 (the “Notes”), which Notes shall be convertible at any time after issuance into shares (the “Conversion Shares”) of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at an initial conversion price of \$0.20 per share (the “Conversion Price”).

The Notes accrue interest at the rate of 10% per annum and mature on September 30, 2020. Interest on the Notes is payable in cash or, at a Purchaser’s option, in shares of Common Stock at the Conversion Price. Upon the occurrence of an event of default, interest accrues at 18% per annum. The Notes contain customary default provisions, including provisions for potential acceleration, and covenants, including negative covenants regarding additional indebtedness and dividends. The Conversion Price is subject to adjustment due to certain events, including stock dividends and stock splits, and is subject to reduction in certain circumstances if the Company issues Common Stock or Common Stock equivalents at an effective price per share that is lower than the Conversion Price then in effect. The Company may only prepay the Notes with the prior written consent of the respective Purchasers thereof.

The Purchase Agreement contains customary representations, warranties and covenants, including covenants, subject to certain exceptions, that the Company, until the date on which less than 10% of the Notes are outstanding, shall not effect any Variable Rate Transaction (as defined in the Purchase Agreement) and that, for as long as a Purchaser holds any Notes or Conversion Shares, the Company shall amend the terms and conditions of the Purchase Agreement and the transactions contemplated thereby with respect to such Purchaser to give such Purchaser the benefit of any terms or conditions under which the Company agrees to issue or sell any Common Stock or Common Stock equivalents that are more favorable to an investor than the terms and conditions granted to such Purchaser under the Purchase Agreement and the transactions contemplated thereby.

In addition, the Company entered into a registration rights agreement (the "Registration Rights Agreement") with the Purchasers, pursuant to which the Company has agreed to file, within 30 days after March 24, 2020, one or more registration statements on Form S-3 (or, if Form S-3 is not then available to the Company, such form of registration that is then available to effect a registration for resale of the subject securities) covering the resale of all Conversion Shares, subject to certain penalties set forth in the Registration Rights Agreement.

Common Stock

In the first quarter of 2020, the Company issued 814,733 shares of common stock upon conversion of \$162,947 in principal and interest on senior convertible notes.

GT BIOPHARMA, INC. AND SUBSIDIARIES
As of September 30, 2020 and December 31, 2019
Consolidated Balance Sheets
(In Thousands, Except Par Value and Share Data)

	September 30, 2020 (unaudited)	December 31, 2020
ASSETS		
Current Assets:		
Cash and cash equivalents	\$ 350	\$ 28
Prepaid expenses	483	246
Total Current Assets	<u>833</u>	<u>274</u>
Deposits	12	12
Operating lease right-to-use asset	72	110
Total Other Assets	<u>84</u>	<u>122</u>
TOTAL ASSETS	<u>\$ 917</u>	<u>\$ 396</u>
LIABILITIES AND STOCKHOLDERS' DEFICIT		
Current Liabilities:		
Accounts payable	\$ 2,171	\$ 1,940
Accrued expenses	1,228	2,379
Accrued interest	4,182	2,029
Operating lease liability	82	120
Line of credit	31	31
Convertible notes	23,000	13,207
Total Current Liabilities	<u>30,694</u>	<u>19,706</u>
Total liabilities	<u>30,694</u>	<u>19,706</u>
Stockholders' Deficit:		
Convertible preferred stock - \$0.01 par value; 15,000,000 shares authorized:		
Series C - 96,230 and 96,230 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	1	1
Series J-1 - 2,353,548 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	24	24
Common stock - \$0.001 par value; 750,000,000 shares authorized; and 77,518,614 and 69,784,699 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively		
Additional paid-in capital	550,984	548,096
Accumulated deficit	(580,695)	(567,332)
Noncontrolling interest	(169)	(169)
Total Stockholders' Deficit	<u>(29,777)</u>	<u>(19,310)</u>
TOTAL LIABILITIES AND STOCKHOLDERS' DEFICIT	<u>\$ 917</u>	<u>\$ 396</u>

The accompanying notes are an integral part of these consolidated financial statements.

GT BIOPHARMA, INC. AND SUBSIDIARIES
Consolidated Statements of Operations
(Unaudited)
(In thousands, except per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Operating expenses:				
Research and development	(84)	671	252	1,659
Selling, general and administrative expenses	2,029	3,585	4,321	8,932
Loss on impairment	-	4,599	-	4,599
Total operating expenses	<u>1,945</u>	<u>8,855</u>	<u>4,573</u>	<u>15,190</u>
Loss from operations	<u>(1,945)</u>	<u>(8,855)</u>	<u>(4,573)</u>	<u>(15,190)</u>
Other income (expense):				
Loss on disposal of assets	-	(20,463)	-	(20,494)
Settlement expense	-	-	(2,563)	-
Interest expense	(931)	(560)	(6,227)	(1,493)
Total other income (expense)	<u>(931)</u>	<u>(21,023)</u>	<u>(8,790)</u>	<u>(21,987)</u>
Loss before provision for income taxes	(2,876)	(29,878)	(13,363)	(31,177)
Provision for income tax	-	-	-	-
Net loss	<u>(2,876)</u>	<u>(29,878)</u>	<u>(13,363)</u>	<u>(31,177)</u>
Net loss per common share – basic and diluted	<u>\$ (0.04)</u>	<u>\$ (0.51)</u>	<u>\$ (0.18)</u>	<u>\$ (0.69)</u>
Weighted average common shares outstanding – basic and diluted	<u>76,730,076</u>	<u>58,805,997</u>	<u>72,909,738</u>	<u>53,967,298</u>

The accompanying notes are an integral part of these consolidated financial statements.

GT Biopharma, Inc. and Subsidiaries
Consolidated Statement of Stockholders' Deficit
(In thousands)

	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit
	Shares	Amount	Shares	Amount		
Balance at January 1, 2020	2,450	\$ 25	69,785	\$ 70	\$ 548,096	\$ (567,332)
Issuance of common stock for convertible notes			3,147	3	626	
Beneficial conversion feature of convertible notes					27	
Issuance of common stock for settlement of litigation			3,500	4	1,909	
Issuance of warrants for compensation					180	
Issuance of common stock for compensation			1,086	1	146	
Net loss						(13,363)
Balance at September 30, 2020	<u>2,450</u>	<u>\$ 25</u>	<u>77,518</u>	<u>\$ 78</u>	<u>\$ 550,984</u>	<u>\$ (580,695)</u>

	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit
	Shares	Amount	Shares	Amount		
Balance at January 1, 2019	1,260	\$ 13	50,650	\$ 51	\$ 540,160	\$ (528,685)
Issuance of preferred stock	1,190	12			1,128	
Issuance of common stock for convertible notes			2,741	3	1,160	
Beneficial conversion feature of convertible notes					158	
Issuance of common stock for compensation			13,500	13	5,047	
Net loss						(37,177)
Balance at September 30, 2019	<u>2,450</u>	<u>\$ 25</u>	<u>66,891</u>	<u>\$ 67</u>	<u>\$ 547,653</u>	<u>\$ (565,862)</u>

The accompanying notes are an integral part of these consolidated financial statements.

GT Biopharma, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
For the Nine Months Ended September 30, 2020 and 2019
(in Thousands)

	2020	2019
	(unaudited)	(unaudited)
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	\$ (13,363)	\$ (37,177)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	-	10
Stock compensation expense for options and warrants issued to employees and non-employees	327	6,202
Amortization of debt discounts	-	451
Non-cash interest expense	3,970	1,140
Loss on disposal of assets	-	20,494
Impairment of intangible assets	-	4,599
Settlement expense	2,363	-
Changes in operating assets and liabilities:		
Other assets	3	6
Accounts payable and accrued liabilities	1,365	1,101
Net cash used in operating activities	<u>(5,335)</u>	<u>(3,174)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Disposal of fixed assets	-	200
Net cash used by investing activities	<u>0</u>	<u>200</u>
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from notes payable	5,657	3,327
Repayment of note payable	-	(100)
Net cash provided by financing activities	<u>5,657</u>	<u>3,227</u>
Minority interest	-	-
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	<u>322</u>	<u>253</u>
CASH AND CASH EQUIVALENTS - Beginning of period	28	60
CASH AND CASH EQUIVALENTS - End of period	<u>\$ 350</u>	<u>\$ 313</u>
Supplemental disclosures:		
Interest paid	\$ 69	\$ -
Income taxes paid	\$ -	\$ -
Supplemental disclosures:		
Issuance of common stock upon conversion of convertible notes	\$ 598	\$ 1,150
Issuance of common stock upon conversion of accrued interest	\$ 32	\$ 14

The accompanying condensed notes are an integral part of these consolidated financial statements.

1. The Company and Summary of Significant Accounting Policies

Business

In 1965, the corporate predecessor of GT Biopharma, Diagnostic Data, Inc. was incorporated in the State of California. Diagnostic Data changed its incorporation to the State of Delaware in 1972, and changed its name to DDI Pharmaceuticals, Inc. in 1985. In 1994, DDI Pharmaceuticals merged with International BioClinical, Inc. and Bioxytech S.A. and changed its name to OXIS International, Inc. In July 2017, the Company changed its name to GT Biopharma, Inc.

The Company is a clinical stage biopharmaceutical company focused on the development and commercialization of novel immuno-oncology products based off our proprietary Tri-specific Killer Engager (TriKE™), Tetra-specific Killer Engager (Dual Targeting TriKEDual Targeting TriKE) platforms. The Company's TriKE and Dual Targeting TriKE platforms generate proprietary therapeutics designed to harness and enhance the cancer killing abilities of a patient's own natural killer cells, or NK cells. Once bound to an NK cell, the Company's moieties are designed to enhance the NK cell, and precisely direct it to one or more specifically-targeted proteins expressed on a specific type of cancer cell or virus infected cell, ultimately resulting in the targeted cell's death. TriKEs and Dual Targeting TriKEs are made up of recombinant fusion proteins, can be designed to target any number of tumor antigens on hematologic malignancies, sarcomas or solid tumors and do not require patient-specific customization.

Going Concern

The Company's current operations have focused on business planning, raising capital, establishing an intellectual property portfolio, hiring, and conducting preclinical studies and clinical trials. The Company does not have any product candidates approved for sale and has not generated any revenue from product sales. The Company has sustained operating losses since inception and expects such losses to continue over the foreseeable future.

The financial statements of the Company have been prepared on a goingconcern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Accordingly, the financial statements do not include any adjustments that might be necessary should the Company be unable to continue in existence.

The Company has incurred substantial losses and negative cash flows from operations since its inception and has an accumulated deficit of \$580 million and cash of \$350 thousand as of September 30, 2020. The Company anticipates incurring additional losses until such time, if ever, that it can generate significant sales of its products currently in development. Substantial additional financing will be needed by the Company to fund its operations and to commercially develop its product candidates. These factors raise substantial doubt about the Company's ability to continue as a going concern.

Management is currently evaluating different strategies to obtain the required funding for future operations. These strategies may include but are not limited to: public offerings of equity and/or debt securities, payments from potential strategic research and development, and licensing and/or marketing arrangements with pharmaceutical companies. If the Company is unable to secure adequate additional funding, its business, operating results, financial condition and cash flows may be materially and adversely affected.

Use of Estimates

The financial statements and notes are representations of the Company's management, which is responsible for their integrity and objectivity. These accounting policies conform to accounting principles generally accepted in the United States of America, and have been consistently applied in the preparation of the financial statements. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities revenues and expenses and disclosures of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

Basis of Consolidation and Comprehensive Income

The accompanying consolidated financial statements include the accounts of GT Biopharma, Inc. and its subsidiaries. All intercompany balances and transactions have been eliminated. The Company's financial statements are prepared using the accrual method of accounting.

Basis of Presentation

The accompanying unaudited interim condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the U.S. ("U.S. GAAP") and the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). Certain information and disclosures required by U.S. GAAP for complete consolidated financial statements have been condensed or omitted herein. The interim condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in the Company's Form 10-K for the year ended December 31, 2019 filed with the SEC on March 27, 2020. The unaudited interim condensed consolidated financial information presented herein reflects all normal adjustments that are, in the opinion of management, necessary for a fair statement of the financial position, results of operations and cash flows for the periods presented. The Company is responsible for the unaudited interim consolidated financial statements included in this report. The results of operations of any interim period are not necessarily indicative of the results for the full year.

Cash and Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less to be cash equivalents.

Concentrations of Credit Risk

The Company's cash and cash equivalents, marketable securities and accounts receivable are monitored for exposure to concentrations of credit risk. The Company maintains substantially all of its cash balances in a limited number of financial institutions. The balances are each insured by the Federal Deposit Insurance Corporation up to \$250,000. The Company had a balance of approximately \$100,000 in excess of this limit at September 30, 2020.

Stock Based Compensation to Employees

The Company accounts for its stock-based compensation for employees in accordance with Accounting Standards Codification ("ASC") 718. The Company recognizes in the statement of operations the grant-date fair value of stock options and other equity-based compensation issued to employees and non-employees over the related vesting period.

The Company granted no stock options during the nine months ended September 30, 2020 and 2019, respectively.

Long-Lived Assets

Our long-lived assets include property, plant and equipment, capitalized costs of filing patent applications and other indefinite lived intangible assets. We evaluate our long-lived assets for impairment, other than indefinite lived intangible assets, in accordance with ASC 360, whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Estimates of future cash flows and timing of events for evaluating long-lived assets for impairment are based upon management's judgment. If any of our intangible or long-lived assets are considered to be impaired, the amount of impairment to be recognized is the excess of the carrying amount of the assets over its fair value.

Applicable long-lived assets are amortized or depreciated over the shorter of their estimated useful lives, the estimated period that the assets will generate revenue, or the statutory or contractual term in the case of patents. Estimates of useful lives and periods of expected revenue generation are reviewed periodically for appropriateness and are based upon management's judgment.

Impairment of Long-Lived Assets

The Company evaluates indefinite lived intangible assets for impairment at least annually and whenever impairment indicators are present in accordance with ASC 350. When necessary, the Company records an impairment loss for the amount by which the fair value is less than the carrying value of these assets. The fair value of intangible assets other than goodwill is typically determined using the "relief from royalty method", specifically the discounted cash flow method utilizing Level 3 fair value inputs. Some of the more significant estimates and assumptions inherent in this approach include: the amount and timing of the projected net cash flows, which includes the expected impact of competitive, legal and/or regulatory forces on the projections and the impact of technological risk associated with IPR&D assets, as well as the selection of a long-term growth rate; the discount rate, which seeks to reflect the various risks inherent in the projected cash flows; and the tax rate, which seeks to incorporate the geographic diversity of the projected cash flows.

The Company performs impairment testing for all other long-lived assets whenever impairment indicators are present. When necessary, the Company calculates the undiscounted value of the projected cash flows associated with the asset, or asset group, and compares this estimated amount to the carrying amount. If the carrying amount is found to be greater, we record an impairment loss for the excess of book value over fair value.

Income Taxes

The Company accounts for income taxes using the asset and liability approach, whereby deferred income tax assets and liabilities are recognized for the estimated future tax effects, based on current enacted tax laws, of temporary differences between financial and tax reporting for current and prior periods. Deferred tax assets are reduced, if necessary, by a valuation allowance if the corresponding future tax benefits may not be realized.

Net Income (Loss) per Share

Basic net income (loss) per share is computed by dividing the net income (loss) for the period by the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share is computed by dividing the net income (loss) for the period by the weighted average number of common shares outstanding during the period, plus the potential dilutive effect of common shares issuable upon exercise or conversion of outstanding, convertible notes and debentures (including shares issuable upon conversion of accrued interest or other default amounts with respect to such convertible notes or debentures), stock options and warrants during the period. The weighted average number of potentially dilutive common shares excluded from the calculation of net income (loss) per share totaled in 114,887,906 and 73,520,680 as of September 30, 2020 and 2019, respectively.

Patents

Acquired patents are capitalized at their acquisition cost or fair value. The legal costs, patent registration fees and models and drawings required for filing patent applications are capitalized if they relate to commercially viable technologies. Commercially viable technologies are those technologies that are projected to generate future positive cash flows in the near term. Legal costs associated with patent applications that are not determined to be commercially viable are expensed as incurred. All research and development costs incurred in developing the patentable idea are expensed as incurred. Legal fees from the costs incurred in successful defense to the extent of an evident increase in the value of the patents are capitalized.

Capitalized cost for pending patents are amortized on a straight-line basis over the remaining twenty year legal life of each patent after the costs have been incurred. Once each patent is issued, capitalized costs are amortized on a straight-line basis over the shorter of the patent's remaining statutory life, estimated economic life or ten years.

Fixed Assets

Fixed assets are stated at cost. Depreciation is computed on a straight-line basis over the estimated useful lives of the assets, which are 3 to 10 years for machinery and equipment and the shorter of the lease term or estimated economic life for leasehold improvements.

Fair Value

The carrying amounts reported in the balance sheets for receivables and current liabilities each qualify as financial instruments and are a reasonable estimate of fair value because of the short period of time between the origination of such instruments and their expected realization and their current market rate of interest. The three levels are defined as follows:

- Level 1 inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets. The Company's Level 1 assets include cash equivalents, primarily institutional money market funds, whose carrying value represents fair value because of their short-term maturities of the investments held by these funds.
- Level 2 inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument. There were not such liabilities at September 30, 2020.
- Level 3 inputs to the valuation methodology are unobservable and significant to the fair value measurement. There were no such assets or liabilities as of September 30, 2020.

Research and Development

Research and development costs are expensed as incurred and reported as research and development expense. Research and development costs totaled \$0.3 million and \$1.6 million for the nine months ended September 30, 2020 and 2019, respectively.

Revenue Recognition

License Revenue

License arrangements may consist of non-refundable upfront license fees, exclusive licensed rights to patented or patent pending technology, and various performance or sales milestones and future product royalty payments. Some of these arrangements are multiple element arrangements.

Non-refundable, up-front fees that are not contingent on any future performance by us, and require no consequential continuing involvement on our part, are recognized as revenue when the license term commences and the licensed data, technology and/or compound is delivered. We defer recognition of non-refundable upfront fees if we have continuing performance obligations without which the technology, right, product or service conveyed in conjunction with the non-refundable fee has no utility to the licensee that is separate and independent of our performance under the other elements of the arrangement. In addition, if we have continuing involvement through research and development services that are required because our know-how and expertise related to the technology is proprietary to us, or can only be performed by us, then such up-front fees are deferred and recognized over the period of continuing involvement.

Payments related to substantive, performance-based milestones in a research and development arrangement are recognized as revenue upon the achievement of the milestones as specified in the underlying agreements when they represent the culmination of the earnings process. As of September 30, 2020, the Company has not generated any licensing revenue.

Leases

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases (Topic 842)* (“Topic 842”). Topic 842 requires the entity to recognize the assets and liabilities for the rights and obligations created by leased assets. Leases will be classified as either finance or operating, with classification affecting expense recognition in the income statement.

On January 1, 2019, the Company adopted Topic 842 applying the optional transition method, which allows an entity to apply the new standard at the adoption date with a cumulative effect adjustment to the opening balance of retained earnings in the period of adoption. As a result of adopting Topic 842, the Company recognized assets and liabilities for the rights and obligations created by operating leases totaling approximately \$174 thousand.

The Company determines if a contract contains a lease at inception based on whether it conveys the right to control the use of an identified asset. Substantially all of the Company’s leases are classified as operating leases. The Company records operating lease right-of-use assets within “Other assets” and lease liabilities are recorded within “current and noncurrent liabilities” in the consolidated balance sheets. Lease expenses are recorded within “General and administrative expenses” in the consolidated statements of operations. Operating lease payments are presented within “Operating cash flows” in the consolidated statements of cash flows.

Operating lease right-of-use assets and lease liabilities are recognized based on the net present value of future minimum lease payments over the lease term starting on the commencement date. The Company generally is not able to determine the rate implicit in its leases and, as such, applies an incremental borrowing rate based on the Company’s cost of borrowing for the relevant terms of each lease. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. Lease terms may include an option to extend or terminate a lease if it is reasonably certain that the Company will exercise such options. The Company has elected the practical expedient to not separate lease components from non-lease components, and also has elected not to record a right-of-use asset or lease liability for leases which, at inception, have a term of twelve months or less. Variable lease payments are recognized in the period in which the obligation for those payments is incurred.

2. Debt

Convertible Notes/Debentures

As of September 30, 2020, the Company had approximately \$23 million aggregate principal amount of convertible notes and debentures (collectively, the “Convertible Notes”) outstanding that were issued pursuant to securities purchase agreements (or, in the case of the Settlement Notes (as defined herein), the Settlement Agreement (as defined herein)) entered into with numerous investors.

The Convertible Notes are convertible at any time, at the holder's option, into shares of the Company's common stock at an initial conversion price, subject to certain beneficial ownership limitations (which vary between maximum ownership of between 4.99% and 9.99%). The conversion price of the Convertible Notes is also generally subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion price then in effect. The conversion price for each of the Company's outstanding Convertible Notes is currently \$0.20 per share. In addition, approximately \$5.3 million aggregate principal amount of the Company's Convertible Notes will be subject to mandatory conversion in connection with the completion of a future financing in the amount of at least \$15 million, subject to the beneficial ownership limitations described above.

The Convertible Notes generally have terms of six months to one year and mature between August 2, 2019 and January 7, 2021, unless earlier converted or repurchased. The Convertible Notes each accrue interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default with respect to certain of the Convertible Notes. Interest is payable in cash or, with respect to certain of the Convertible Notes, and at the holder's option, in shares of common stock based on the conversion price then in effect.

Pursuant to the terms of the Settlement Notes, the Company is required to make an offer to repurchase, at the holder's option, the Settlement Notes at price in cash equal to 100% of the aggregate principal amount of the Settlement Note plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a financing transaction, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million. Generally, the Company otherwise does not have the right to prepay any of the Convertible Notes without the prior written consent of the holders of such securities.

The Convertible Notes contain a number of affirmative and negative covenants and customary events of default. As of September 30, 2020, approximately \$13.2 million aggregate principal amount of our Convertible Notes were in default. See "*Forbearance Agreements*" below.

The securities purchase agreements and Settlement Agreement, as applicable, also generally contain certain ongoing covenants of the Company, including rights of participation in certain future financing transactions, limitations on future variable rate transactions and "at-the-market" offerings and "most favored nation" provisions giving holders of certain of the Convertible Notes the benefit of any terms or conditions under which the Company agrees to issue or sell any common stock or common stock equivalents that are more favorable to an investor than the terms and conditions granted to such holder under the applicable securities purchase agreement and the transactions contemplated thereby.

The Convertible Notes are senior obligations of the Company. In addition, approximately \$8.9 million aggregate principal amount of the Convertible Notes are secured by a first priority security interest in substantially all of the assets of the Company and its subsidiaries. Convertible Notes are also secured by individual pledges by certain of our current and former officers and directors of our common stock owned by such officer and directors.

For additional information about the Convertible Notes, see Note 4, *Debt* to the Company's audited consolidated financial statements included in the Company's Form 10-K for the year ended December 31, 2019.

Forbearance Agreements

Effective as of June 23, 2020, the Company entered into Standstill and Forbearance Agreements (collectively, the "Forbearance Agreements") with the holders of \$13.2 million aggregate principal amount of the Convertible Notes (the "Default Notes"), which are currently in default. Pursuant to the Forbearance Agreements, the holders of the Default Notes have agreed to forbear from exercising their rights and remedies under the Default Notes (including declaring such Default Notes (together with any default amounts and accrued and unpaid interest) immediately due and payable) until the earlier of (i) the date that the Company completes a future financing in the amount of \$15 million and, in connection therewith, commences listing on NASDAQ (collectively, the "New Financing") or (ii) January 31, 2021 (the "Termination Date"). As a result of the ongoing default, the Default Notes are currently accruing interest at the default rate of 18% per annum and have accrued additional default amounts of approximately \$3.9 million in the aggregate as of September 30, 2020.

The obligations of the holders to forbear from exercising their rights and remedies under the Default Notes pursuant to the Forbearance Agreements will terminate on the earliest of (i) the Termination Date, (ii) the date of any bankruptcy filing by the Company or its subsidiaries, (iii) the date on which the Company defaults on any of the terms and conditions of the Forbearance Agreements or (iv) the date the Forbearance Agreements are otherwise terminated or expire.

The Forbearance Agreements contain various customary and other representations, warranties and covenants of the Company and the holders of the Default Notes, including an agreement that the Default Notes (together with default amounts and accrued and unpaid interest) will be converted into common stock upon the closing of a New Financing at a conversion price equal to the lesser of (i) the conversion price in effect for the Default Notes on the date of such New Financing or (ii) 75% of the lowest per share price at which common stock is or may be issued in connection with such New Financing, in each case, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%). Shares of the Company's preferred stock, which are convertible into the Company's common stock, will be issued in lieu of common stock to the extent that conversion of the Default Notes is prohibited by such beneficial ownership limitations.

Settlement Notes

On June 19, 2020, the Company entered into a settlement agreement (the "Settlement Agreement") with Empery Asset Master Ltd., Empery Tax Efficient, LP and Empery Tax Efficient II, LP (collectively, the "Empery Funds"), Anthony Cataldo and Paul Kessler resolving all remaining disputes between the parties pertaining to certain Convertible Notes and warrants to purchase common stock of the Company (collectively, the "Original Securities") issued by the Company to the Empery Funds in January 2018 pursuant to a securities purchase agreement. In connection with the Settlement Agreement, the Company issued Convertible Notes in an aggregate principal amount of \$450,000 (the "Settlement Notes") to the Empery Funds on June 19, 2020. The Settlement Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 4.99%).

The Settlement Notes mature on December 19, 2020, unless earlier converted or repurchased. The terms of the Settlement Notes are generally the same as the Company's other Convertible Notes, except that the Company is required to make an offer to repurchase, at the option of each holder, the Settlement Notes at price in cash equal to 100% of the aggregate principal amount of the Settlement Notes plus accrued and unpaid interest, if any, to, but excluding, the date of repurchase following the consummation by the Company of a financing transaction, or a series of transactions, resulting in aggregate gross proceeds to the Company in excess of \$7.5 million.

Fiscal 2019 and Fiscal 2020 Convertible Notes Transactions

On February 4, 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which it issued secured Convertible Notes in an aggregate principal amount of \$1,352,224, consisting of gross proceeds of \$1,052,224 and settlement of existing debt of \$300,000, which Convertible Notes were convertible into common stock at an initial conversion price of \$0.60 per share.

On May 22, 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$1,300,000, which Convertible Notes were convertible into the Company's common stock at an initial conversion price of \$0.35 per share.

Between July 31 and August 28, 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$975,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

On December 19, 2019, the Company entered into a securities purchase agreement with one purchaser pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$200,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

On January 30, 2020, the Company entered into a securities purchase agreement with one purchaser pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$200,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

Between April 20 and May 7, 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$2,017,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

On June 19, 2020, the Company entered into the Settlement Agreement pursuant to which the Company issued the Settlement Notes in an aggregate principal amount of \$450,000, which Settlement Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

On July 7, 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$3,190,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

On September 16, 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$250,000, which Convertible Notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

Gemini Financing Agreement

On November 8, 2010, the Company entered into a financing arrangement with Gemini Pharmaceuticals, Inc., a product development and manufacturing partner of the Company, pursuant to which Gemini Pharmaceuticals made a \$250,000 strategic equity investment in the Company and agreed to make a \$750,000 purchase order line of credit facility available to the Company. The outstanding principal of all advances under the line of credit will bear interest at the rate of interest of prime plus 2% per annum. There is \$31,000 due on this credit line at September 30, 2020.

3. Stockholders' Equity

Common Stock

Our authorized capital stock consists of 750,000,000 shares of common stock, par value \$0.001 per share, and 15,000,000 shares of preferred stock, par value \$0.01 per share. As of September 30, 2020, 77,518,614 shares of common stock were issued and outstanding.

During the nine months ended September 30, 2020, the Company issued 3,147,486 shares of common stock upon conversion of \$629,497 in principal and interest on Convertible Notes.

On May 1, 2020, the Company issued 1,086,429 shares of common stock for consulting services.

On June 19, 2020, the Company issued 3,500,000 shares of common stock pursuant to the Settlement Agreement.

Preferred Stock

The 96,230 shares of Series C preferred stock, par value \$0.01 per share (the "Series C Preferred Stock"), are convertible into 111 shares of the Company's common stock at the option of the holders at any time. The conversion ratio is based on the average closing bid price of the common stock for the fifteen consecutive trading days ending on the date immediately preceding the date notice of conversion is given, but cannot be less than 0.20 or more than 0.2889 common shares for each share of Series C Preferred Stock. The conversion ratio may be adjusted under certain circumstances such as stock splits or stock dividends. The Company has the right to automatically convert the Series C Preferred Stock into common stock if the Company lists its shares of common stock on the Nasdaq National Market and the average closing bid price of the Company's common stock on the Nasdaq National Market for 15 consecutive trading days exceeds \$3,000.00. Each share of Series C Preferred Stock is entitled to the number of votes equal to 0.26 divided by the average closing bid price of the Company's common stock during the fifteen consecutive trading days immediately prior to the date such shares of Series C Preferred Stock were purchased. In the event of liquidation, the holders of the Series C Preferred Stock shall participate on an equal basis with the holders of the common stock (as if the Series C Preferred Stock had converted into common stock) in any distribution of any of the assets or surplus funds of the Company. The holders of Series C Preferred Stock are entitled to noncumulative dividends if and when declared by the Company's board of directors (the "Board"). No dividends to holders of the Series C Preferred Stock were issued or unpaid through September 30, 2020.

On September 1, 2017, the Board designated 2,000,000 shares of Series J preferred stock (the "Series J Preferred Stock"). On the same day, the Board issued 1,513,548 shares of Series J Preferred Stock in exchange for the cancellation of certain indebtedness. In the first quarter of 2019, it was discovered that a certificate of designation with respect to the Series J Preferred Stock had never been filed with the Office of the Secretary of State for the State of Delaware. Despite the fact the Company had issued shares of Series J Preferred Stock, the issuance of those shares was not valid and was of no legal effect.

To remedy the situation, on April 4, 2019, the Company filed a certificate of designation with the Office of the Secretary State for the State of Delaware designating a series of preferred stock as the Series J-1 preferred stock, par value \$0.01 per share (the "Series J-1 Preferred Stock"). On April 19, 2019, the Company issued 2,353,548 shares of Series J-1 Preferred Stock. The issuance was in lieu of the Series J Preferred Stock that should have been issued on September 1, 2017, and in settlement for not receiving preferred stock until 20 months after the debt for which the stock was issued was cancelled. The Company reflected an expense in general and administrative costs in the quarter ended September 30, 2019 totaling \$1,140,000.

Shares of the Series J-1 Preferred Stock are convertible at any time, at the option of the holders, into shares of the Company's common stock at an effective conversion price of \$0.20 per share, subject to adjustment for, among other things, stock dividends, stock splits, combinations, reclassifications of our capital stock and mergers or consolidations, and subject to a beneficial ownership limitation which prohibits conversion if such conversion would result in the holder (together with its affiliates) being the beneficial owner of in excess of 9.99% of the Company's common stock. Shares of the Series J-1 Preferred Stock have the same voting rights a shares of the Company's common stock, with the holders of the Series J-1 Preferred Stock entitled to vote on an as-converted-to-common stock basis, subject to the beneficial ownership limitation described above, together with the holders of the Company's common stock on all matters presented to the Company's stockholders. The Series J-1 Preferred Stock are not entitled to any dividends (unless specifically declared by the Board), but will participate on an as-converted-to-common-stock basis in any dividends to the holders of the Company's common stock. In the event of the Company's dissolution, liquidation or winding up, the holders of the Series J-1 Preferred Stock will be on parity with the holders of the Company's common stock and will participate, on a on an as-converted-to-common stock basis, in any distribution to holders of the Company's common stock.

4. Stock Options and Warrants

Stock Options

The following table summarizes stock option transactions for the nine months ended September 30, 2020:

	Number of Options	Weighted Average Exercise Price
Outstanding, December 31, 2019	40	\$ 877.50
Granted	-	-
Exercised	-	-
Expired	-	-
Outstanding, September 30, 2020	40	\$ 877.50
Exercisable, September 30, 2020	40	\$ 877.50

Common Stock Warrants

Warrant transactions for the nine months ended September 30, 2020 are as follows:

	Number of Warrants	Weighted Average Exercise Price
Outstanding at December 31, 2019:	1,813,053	\$ 0.20
Granted	6,500,000	\$ 0.20
Forfeited/canceled	480,352	\$ 0.20
Exercised	-	-
Outstanding at September 30, 2020	7,832,701	\$ 0.20
Exercisable at September 30, 2020	7,832,701	\$ 0.20

Compensation Warrant

On July 28, 2020, the Company issued a warrant to purchase up to an aggregate of 1,000,000 shares of common stock at an exercise price of \$0.20 per share, subject to adjustment in certain circumstances. The warrant expires on July 28, 2025. The warrant was issued as compensation for certain services provided to the Company.

Settlement Warrants

Pursuant to the Settlement Agreement, the Company issued pre-funded warrants to purchase up to an aggregate of 5,500,000 shares of common stock (the "Settlement Warrants") at an exercise price of \$0.20 per share, subject to adjustment in certain circumstances. The Settlement Warrants expire on June 19, 2025. The aggregate exercise price of the Settlement Warrants was deemed to be pre-funded to the Company in conjunction with exchange of previously issued warrants to purchase 480,352 shares of common stock pursuant to the Settlement Agreement. Exercise of the Settlement Warrant is subject to certain additional terms and conditions, including certain beneficial ownership limitations.

Forbearance Agreements

Pursuant to the Forbearance Agreements, (i) the exercise price of all warrants to purchase common stock held by holders of the Default Notes will be reduced to equal the conversion price of the Default Notes and (ii) the number of shares of common stock underlying such warrants shall be increased so that the total exercise price of all such warrants after the decrease in the exercise price equals the total exercise price of all such warrants prior to the decrease in the exercise price. Further, the expiration date of all such warrants shall be extended for three years following the closing date of any New Financing.

5. Commitments and Contingencies

Leases

On October 1, 2018, the Company entered into a three-year lease agreement for its office in Westlake Village, CA. In addition to minimum rent, certain leases require payment of real estate taxes, insurance, common area maintenance charges and other executory costs. The Company recognizes rent expense under such arrangements on a straight-line basis over the effective term of each lease.

The following table summarizes the Company's future minimum lease commitments as of September 30, 2020:

Year ending December 31:	
2020	18,000
2021	61,000
Total minimum lease payments	<u>\$ 79,000</u>

Rent expense for the nine months ended September 30, 2020 and 2019 was \$50,000 and \$50,000, respectively.

6. Subsequent Events

Convertible Notes

On November 5, 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued Convertible Notes in an aggregate principal amount of \$250,000 (the "November 2020 Notes"). The November 2020 Notes are convertible at any time, at the holder's option, into shares of our common stock at an initial conversion price of \$0.20 per share, subject to certain beneficial ownership limitations (with a maximum ownership limit of 9.99%).

The November 2020 Notes mature on May 5, 2021, unless earlier converted or repurchased. The terms of the July 2020 Notes are generally the same as the Company's other Convertible Notes, except that the November 2020 Notes will be subject to mandatory conversion in the event of the completion of a future financing in the amount of at least \$15 million at a conversion price equal to the lesser of (i) the conversion price in effect for the November 2020 Notes on the date of completion of such financing or (ii) 75% of the lowest per share price at which common stock may be issued in connection with any conversion rights associated with the financing, in each case, subject to the beneficial ownership limitations described above. See Note 2, *Debt* under the caption "Convertible Notes/Debentures" for additional information regarding the terms of the Company's Convertible Notes.

Common Stock

In October 2020, the Company issued 750,000 shares of common stock upon conversion of \$150,000 aggregate principal amount of Convertible Notes.

Theorem Settlement Agreement

On November 9, 2020, the Company, entered into a settlement agreement (the “Theorem Settlement Agreement”) with Adam Kasower (“Kasower”), East Ventures, Inc., A British Virgin Islands company (“East Ventures”), SV Booth Investments III, LLC, a Delaware limited liability company (“SV Booth”) and Theorem Group, LLC, a California limited liability company (“Theorem Group” and, collectively with Kasower, East Ventures and SV Booth, the “Claimants”) resolving all remaining disputes and claims between the parties pertaining to certain securities purchase agreements pursuant to which the Claimants purchased from the Company convertible warrants and preferred stock.

As a result of the Theorem Settlement Agreement, the Company has agreed to issue each Claimant a convertible note in the following amounts (the “Theorem Settlement Notes”):

Theorem Group	\$ 303,726.40
East Venture	\$ 112,788.48
Kasower	\$ 500,078.58
SV Booth	\$ 294,245.54

The Theorem Settlement Agreement also contains certain representations and warranties and covenants, including limitations on future variable rate transactions and “at-the-market offerings.”

Theorem Settlement Notes

The Theorem Settlement Notes are convertible, at the option of the applicable Claimant, at any time into shares of common stock at an initial conversion rate of \$0.20 per share, subject to certain beneficial ownership limitations. The conversion price is also subject to adjustment due to certain events, including stock dividends, stock splits and in connection with the issuance by the Company of common stock or common stock equivalents at an effective price per share lower than the conversion rate then in effect. The Theorem Settlement Notes mature on January 31, 2021, and bear interest at a rate of 10% per annum, subject to increase to 18% per annum upon and during the occurrence of an event of default. Interest is payable in cash or, at the holder’s option, in shares of common stock based on the conversion price then in effect. The Company may not prepay the Theorem Settlement Notes without the prior written consent of the applicable Claimant.

The Theorem Settlement Notes contain a number of other affirmative and negative covenants and events of default (including events of default related to certain change of control and other fundamental change transactions). Following an event of default, the Theorem Settlement Notes will become immediately due and payable in cash at a mandatory default amount equal to 130% of the outstanding principal amount of the Theorem Settlement Notes plus all other amounts, costs and expenses due in respect of the Theorem Settlement Notes.

Resignation of Chief Financial Officer

On November 11, 2020, Steven Weldon resigned from the Board and from his office as Chief Financial Officer of the Company, effective immediately. His resignation was the result of general disagreement regarding the Company’s decision making process. Pursuant to Mr. Weldon’s Employment Contract, dated August 11, 2020, Mr. Weldon is only entitled to such stock options, restricted stock awards and other Company stock-based awards granted which have vested as of the date of his resignation. He is not entitled to any other compensation or benefits.

Appointment of New Interim Chief Financial Officer

Anthony Cataldo, Chief Executive Officer and Chairman of the Board, assumed the additional role of Chief Financial Officer on an interim basis, and will be succeeded as Chief Financial Officer on an interim basis by Michael Handelman immediately after the filing of this report.

Mr. Handelman became a Director of the GooGreen, Inc. in August 2020, and Chairman of the Board of Directors and Secretary in September 2020. He has served as Chief Financial Officer of Clickstream Corporation since October 2015. He served as Chief Financial Officer of Lion Biotechnologies, Inc. from February 2011 until June 2015, and was a member of the Lion Bio Board of Directors from February 2013 until May 2013. Mr. Handelman served as the Chief Financial Officer and as a financial management consultant of Oxis International, Inc., a public company engaged in the research, development and commercialization of nutraceutical products, from August 2009 until October 2011. From November 2004 to July 2009, Mr. Handelman served as Chief Financial Officer and Chief Operating Officer of TechnoConcepts, Inc., formerly a public company engaged in designing, developing, manufacturing and marketing wireless communications semiconductors, or microchips. Prior thereto, Mr. Handelman served from October 2002 to October 2004 as Chief Financial Officer of Interglobal Waste Management, Inc., a manufacturing company, and from July 1996 to July 1999 as Vice President and Chief Financial Officer of Janex International, Inc., a children's toy manufacturer. Mr. Handelman was also the Chief Financial Officer from 1993 to 1996 of the Los Angeles Kings, a National Hockey League franchise. Mr. Handelman is a certified public accountant and holds a degree in accounting from the City University of New York.

Mr. Handelman will receive a monthly consulting fee of \$15,000.00.

Mr. Handelman has no direct or indirect material interest in any transaction required to be disclosed pursuant to Item 404(a) of Regulation S-K, has no arrangement or understanding between him and any other person required to be disclosed pursuant to Item 401(b) of Regulation S-K and has no family relationships required to be disclosed pursuant to Item 401(d) of Regulation S-K.

Mr. Handelman has entered into a Consulting Agreement with the Company, effective as of November 13, 2020.

Appointment of New Directors

On November 12, 2020, the Board appointed Bruce Wendel, age 67, and Greg Berk, age 62, as directors of the Company. Following the filing of this Quarterly Report on Form 10-Q, Mr. Cataldo will resign as interim Chief Financial Officer, and Michael Handelman, age 61, will be appointed as the interim Chief Financial Officer in his place.

From April 2018 to May 2019, Mr. Wendel served as the Chief Business Development Officer for Prometic Biotherapeutics, Inc., a pharmaceutical development company. Mr. Wendel also served as Chief Strategic Officer of Hepalink USA, the U.S. subsidiary of Shenzhen Hepalink Pharmaceutical Company from February 2012 to July 2017, and Chief Executive Officer of Scientific Protein Laboratories, LLC from December 2014 to June 2015. He also served as a director of ProMetic Life Sciences Inc. and Vice Chairman and Chief Executive Officer at Abraxis BioScience, LLC, where he oversaw the development and commercialization of Abraxane® and led the negotiations that culminated in the acquisition of the company by Celgene Corporation in 2010. He began his 14 years with Bristol-Myers Squibb as in-house counsel before shifting to global business and corporate development, where he served in business and corporate development roles of increasing responsibility at American Pharmaceutical Partners, IVAX Corporation and Bristol-Myers Squibb. Mr. Wendel earned a juris doctorate degree from Georgetown University Law School, and a B.S. from Cornell University.

Mr. Wendel has no direct or indirect material interest in any transaction required to be disclosed pursuant to Item 404(a) of Regulation S-K, has no arrangement or understanding between him and any other person required to be disclosed pursuant to Item 401(b) of Regulation S-K and has no family relationships required to be disclosed pursuant to Item 401(d) of Regulation S-K.

Prior to joining the Company, Dr. Berk has served as a private consultant in the field of drug development and is the Chief Medical Officer of Celularity, a privately owned company. Previously, he served as Chief Medical Officer at Verastem as and President, Chief Medical Officer and Board Member of Sideris Pharmaceuticals. From May 2012 until January 2014, Dr. Berk was Chief Medical Officer of BIND Therapeutics. Prior to this, he was Chief Medical Officer at Intellikine, a privately held biotechnology company focused on the discovery and development of novel PI3 Kinase and mTOR inhibitors. Intellikine was acquired by Takeda/Millennium in January 2012. He also served as Senior Vice President of Global Clinical Development at Abraxis BioScience, where he was responsible for the company's overall clinical strategy, including efforts to expand the indications for their lead clinical program (Abraxane®). Dr. Berk obtained his medical degree from Case Western Reserve University, and completed his internship, residency and fellowship in internal medicine, hematology and medical oncology, at the Weill Medical College of Cornell University and New York Presbyterian Hospital, where he also served as a faculty member from 1989-2004. During this time Dr. Berk served as an investigator on several industry-sponsored and cooperative group oncology clinical trials, including the pivotal trials for Gleevec® and Avastin®.

Dr. Berk has no direct or indirect material interest in any transaction required to be disclosed pursuant to Item 404(a) of Regulation S-K, has no arrangement or understanding between him and any other person required to be disclosed pursuant to Item 401(b) of Regulation S-K and has no family relationships required to be disclosed pursuant to Item 401(d) of Regulation S-K.

Mr. Wendel and Dr. Berk will each receive an annual stipend of \$20,000.00 for director compensation, with Mr. Wendel receiving an additional \$5,000.00 annually for chairing the Nominating Committee and \$5,000.00 annually as a member of the Audit Committee, and Dr. Berk receiving an additional \$5,000.00 annually for chairing the Compensation Committee and \$5,000.00 annually as a member of the Nominating Committee. The Company will also grant stock awards of shares of common stock of the Company equal to 1.25%, in the case of Mr. Wendel, and 1.00%, in the case of Dr. Berk, of the number of fully diluted shares of common stock of the Company, calculated on the fully diluted equity of the Company upon the Company's national exchange financing date.

Mr. Wendel and Dr. Berk have each entered into Board Service Agreements with the Company, effective as of November 11, 2020, which supplement the indemnification provisions of the Company's bylaws and obligate the company to insure them both under the Company's director and officer's insurance policy.



Biopharma, Inc.

Up to 2,642,008 Units
(Each Unit Consisting of One Share of Common Stock and One Common Warrant to
Purchase One Share of Common Stock)

PRELIMINARY PROSPECTUS

____, 2021

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 13. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

The following table sets forth the expenses expected to be incurred in connection with the issuance and distribution of common stock registered hereby, all of which expenses, except for the SEC registration fee, are estimated.

SEC registration fee	\$ 2,646
Miscellaneous expenses	\$ 5,854
Legal	100,000
Accounting fees and expenses	1,500
Total	<u>\$ 110,000</u>

ITEM 14. INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 145 of the DGCL provides that a corporation may indemnify directors and officers as well as other employees and individuals against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any threatened, pending or completed actions, suits or proceedings in which such person is made a party by reason of such person being or having been a director, officer, employee or agent to us. The DGCL provides that Section 145 is not exclusive of other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise. Our certificate of incorporation provides for indemnification by us of our directors, officers and employees to the fullest extent permitted by the DGCL.

Section 102(b)(7) of the DGCL permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) for unlawful payments of dividends or unlawful stock repurchases, redemptions or other distributions or (iv) for any transaction from which the director derived an improper personal benefit. Our certificate of incorporation provides for such limitation of liability.

ITEM 15. RECENT SALES OF UNREGISTERED SECURITIES

Since July 2017, the Company made the following issuances of its unregistered securities pursuant exemptions contained in Section 4(a)(2) or 3(a)(9) of the Securities Act and/or Rule 506 of Regulation D promulgated thereunder:

- In July 2017, the Company entered into a securities purchase agreement with one purchaser pursuant to which the Company issued (i) 10% senior convertible debentures in an aggregate principal amount of \$650,000, which debentures are convertible into the Company's common stock at an initial conversion price equal to the lesser of (x) \$15.00 or (y) the average of the three lowest intra-day trading prices of the common stock during the 20 trading days immediately prior to delivery of the notice of conversion, and (ii) warrants to acquire up to 43,333 shares of the Company's common stock at an exercise price of \$15.00 per share.
- In August 2017, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued (i) 10% senior convertible debentures in an aggregate principal amount of \$3,890,000, which debentures are convertible into the Company's common stock at an initial conversion price equal to the lesser of (x) \$15.00 or (y) the average of the three lowest intra-day trading prices of the common stock during the 20 trading days immediately prior to delivery of the notice of conversion, and (ii) warrants to acquire up to an aggregate of 259,333 shares of the Company's common stock at an initial exercise price of \$15.00 per share.

- In January 2018, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued (i) senior convertible notes in an aggregate principal amount of \$7,760,510, which notes are convertible into the Company's common stock at an initial conversion price of \$4.58 per share, and (ii) warrants to acquire up to an aggregate of 1,694,440 shares of the Company's common stock at an initial exercise price of \$4.58 per share.
- In August 2018, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued 10% senior convertible debentures in an aggregate principal amount of \$5,140,000, which debentures are convertible into common stock at an initial conversion price of \$2 per share.
- In September 2018, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued 10% senior convertible debentures in an aggregate principal amount of \$2,050,000, which debentures are convertible into common stock at an initial conversion price of \$2 per share.
- In September 2018, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued 10% senior convertible debentures in an aggregate principal amount of \$800,000, which debentures are convertible into common stock at an initial conversion price of \$2 per share.
- In February 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued secured convertible notes in an aggregate principal amount of \$1,352,224, consisting of gross proceeds of \$1,052,224 and settlement of existing debt of \$300,000, which notes are convertible into common stock at an initial conversion price of \$0.60 per share.
- In April 2019, the Company issued 2,353,548 shares of Series J Preferred Stock to certain existing investors, which Series J Preferred Stock are convertible into shares of common stock at an initial rate of \$0.60 per share.
- In May 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$1,300,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.35 per share.
- Between July and August 2019, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$975,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In December 2019, the Company entered into a securities purchase agreement with one purchaser pursuant to which the Company issued convertible notes in an aggregate principal amount of \$200,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In January 2020, the Company entered into a securities purchase agreement with one purchaser pursuant to which the Company issued convertible notes in an aggregate principal amount of \$200,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- Between April and May 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$2,017,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In June 2020, the Company issued (i) an aggregate of 3,500,000 shares of common stock, (ii) pre-funded warrants to purchase an aggregate of 5,500,000 million shares of common stock at an initial exercise price of \$0.20 per share and (iii) convertible notes in an aggregate principal amount of \$450,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share, in each case, pursuant to the Settlement Agreement.

- In July 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$3,190,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In September 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$250,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In November 2020, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$350,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.
- In December 2020 and January 2021, the Company entered into a securities purchase agreement with certain purchasers pursuant to which the Company issued convertible notes in an aggregate principal amount of \$8,985,000, which notes are convertible into the Company's common stock at an initial conversion price of \$0.20 per share.

In addition, since July 2017, the Company made the following issuances of its unregistered common stock pursuant exemptions from the registration requirements of the Securities Act:

- 20,934,347 shares of common stock in connection with (i) the conversion of the Company's convertible notes or debentures and (ii) payments of interest in lieu of cash with respect to the Company's convertible notes or debentures;
- 11,500,000 shares of common stock in connection with compensation of the Company's officers and directors; and
- 5,236,429 shares of common stock in connection with compensation of the Company's consultants.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) Exhibits

The following exhibits are filed with this registration statement:

<u>Exhibit Number</u>	<u>Exhibit Description</u>	<u>Form</u>	<u>Date</u>	<u>Number</u>	<u>Filed Herewith</u>
1.1	Form of Underwriting Agreement				X
3.1	Restated Certificate of Incorporation of GT Biopharma, Inc., filed September 10, 1996 and amended through March 1, 2002	10-KSB	04/01/02	3.A	
3.2	Certificate of Amendment to the Restated Certificate of Incorporation of GT Biopharma, Inc., dated February 9, 2011	10-K	03/31/11	3.2	
3.3	Certificate of Amendment to the Restated Certificate of Incorporation of GT Biopharma, Inc., effective as of July 19, 2017	8-K/A	3/15/18	3.1	
3.4	Bylaws, as restated effective September 7, 1994 and as amended through April 29, 2003	10-QSB	08/13/03	3	
4.1	Certificate of Designation of Preferences, Rights and Limitations of Series J-1 Preferred Stock of GT Biopharma, Inc., dated April 3, 2019	8-K	04/04/2019	3.1	
4.2	Form of Warrant	S-1/A	2/02/21	4.2	
4.3	Form of Pre-Funded Warrant	S-1/A	2/02/21	4.3	
5.1*	Opinion of Baker & McKenzie LLP*				
10.1	Exclusive License Agreement, dated July 18, 2016, between the Regents of the University of Minnesota and Oxis Biotech, Inc.	10-Q	08/11/17	10.3	
10.2	License Agreement, dated September 3, 2015, among Daniel A. Vallera, Jeffrey Lion and Oxis Biotech, Inc.	10-Q	08/11/17	10.4	

10.3	Clinical Trial Agreement, dated September 2019, between the Regents of the University of Minnesota and GT Biopharma, Inc.	10-Q	5/15/20	10.7
10.4	Note Conversion Agreement, dated as of August 29, 2017, among GT Biopharma, Inc. and the holders of the convertible notes and debentures named therein	10-Q	11/14/17	10.5
10.5	Amendment Agreement related to Note Conversion Agreement, dated October 10, 2017, among GT Biopharma, Inc. and the holders of the convertible notes and debentures named therein	10-Q	11/14/17	10.8
10.6	Warrant Exercise Agreement, dated August 29, 2017, among GT Biopharma, Inc. and the warrant holders named therein	10-Q	11/14/17	10.6
	Amendment Agreement related to Warrant Exercise Agreement, dated October 10, 2017, among GT Biopharma, Inc. and the warrant holders named therein	10-Q	11/14/17	10.9
10.7	Preferred Stock Exchange Agreement, dated as of August 29, 2017, among GT Biopharma, Inc. and the holders of preferred stock named therein	10-Q	11/14/17	10.7
10.8	Amendment Agreement related to Preferred Stock Exchange Agreement, dated October 10, 2017, among GT Biopharma, Inc. and the holders of preferred stock named therein	10-Q	11/14/17	10.10
10.9	Securities Purchase Agreement, dated January 9, 2017, among OXIS International, Inc. and the purchasers named therein	8-K	01/13/17	10.1
10.10	Form of 10% Senior Convertible Debenture (related to Securities Purchase Agreement, dated January 9, 2017)	8-K	01/13/17	10.2
10.11	Form of Common Stock Purchase Warrant (related to Securities Purchase Agreement, dated January 9, 2017)	8-K	01/13/17	10.3
10.12	Securities Purchase Agreement, dated January 22, 2018, among GT Biopharma, Inc. and the buyers named therein	8-K	1/23/18	10.1
10.13	Registration Rights Agreement, dated January 22, 2018, among GT Biopharma, Inc. and the buyers named therein	8-K	1/23/18	10.2
10.14	Form of Senior Convertible Note (related to Securities Purchase Agreement, dated January 22, 2018)	8-K	1/23/18	10.3
10.15	Form of Warrant to Purchase Common Stock (related to Securities Purchase Agreement, dated January 22, 2018)	8-K	1/23/18	10.4
10.16	Securities Purchase Agreement, dated August 2, 2018, among GT Biopharma, Inc. and the purchasers named therein	8-K	08/03/18	10.1
10.17	Form of 10% Senior Convertible Debenture (related to Securities Purchase Agreement, dated August 2, 2018)	8-K	08/03/18	4.1
10.18	Stock Pledge Agreement, dated August 2, 2018, by the Pledgors named therein for the benefit of Grushko & Mittman, P.C.	10-Q	08/14/18	10.10
10.19	Security Purchase Agreement, dated September 7, 2018, among GT Biopharma, Inc. and the purchasers named therein	8-K	09/07/18	10.1
10.20	Form of 10% Senior Convertible Debenture (related to Securities Purchase Agreement, dated September 7, 2018)	8-K	09/07/18	4.1
10.21	Security Purchase Agreement, dated September 24, 2018, among GT Biopharma, Inc. and the purchasers named therein	8-K	09/28/18	10.1
10.22	Form of 10% Senior Convertible Debenture (related to Securities Purchase Agreement, dated September 24, 2018)	8-K	09/28/18	4.1
10.23	Securities Purchase Agreement, dated February 4, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	02/06/19	10.1
10.24	Registration Rights Agreement, dated February 4, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	02/06/19	10.3
10.25	Form of Secured Convertible Note (related to Securities Purchase Agreement, dated February 4, 2019)	8-K	02/06/19	4.1
10.26	Security Agreement, dated February 4, 2019, among GT Biopharma, Inc. and Alpha Capital Anstalt, as collateral agent	8-K	02/06/19	10.2
10.27	Securities Purchase Agreement, dated May 22, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	05/24/19	10.1
10.28	Registration Rights Agreement, dated May 22, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	05/24/19	10.2
10.29	Form of Convertible Note (related to Securities Purchase Agreement, dated August 20, 2019)	8-K	05/24/19	4.1

10.30	Securities Purchase Agreement, dated August 20, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	05/24/19	10.1
10.31	Registration Rights Agreement, dated August 20, 2019, among GT Biopharma, Inc. and the purchasers named therein	8-K	05/24/19	10.2
10.32	Form of Convertible Note (related to Securities Purchase Agreement, dated May 22, 2019)	8-K	05/15/20	4.1
10.33	Securities Purchase Agreement, dated January 30, 2020, among GT Biopharma, Inc. and the purchaser named therein	10-Q	05/15/20	10.1
10.34	Registration Rights Agreement, dated January 30, 2020, among GT Biopharma, Inc. and the purchaser named therein	10-Q	05/15/20	10.2
10.35	Form of Convertible Note (related to Securities Purchase Agreement, dated January 30, 2020)	10-Q	05/15/20	10.3
10.36	Form Securities Purchase Agreement among GT Biopharma, Inc. and the purchaser named therein (executed in April/May 2020)	10-Q	05/15/20	10.1
10.37	Form of Registration Rights Agreement among GT Biopharma, Inc. and the purchaser named therein (executed in April/May 2020)	10-Q	05/15/20	10.2
10.38	Form of Convertible Note (related to Securities Purchase Agreement executed in April/May 2020)	10-Q	05/15/20	10.3
10.39	Securities Purchase Agreement, dated July 7, 2020, among GT Biopharma, Inc. and the purchaser named therein	8-K	07/09/20	10.1
10.40	Registration Rights Agreement, dated July 7, 2020, among GT Biopharma, Inc. and the purchaser named therein	8-K	07/09/20	10.3
10.41	Form of Convertible Note (related to Securities Purchase Agreement, dated July 7, 2020)	8-K	07/09/20	4.1
10.42	Form of Standstill and Forbearance Agreement, dated June 23, 2020, between the Company and certain holders of convertible notes and debentures	8-K	06/23/20	10.1
10.43	Settlement Agreement, dated June 19, 2020, among GT Biopharma, Inc., Empery Asset Master Ltd., Empery Tax Efficient, LP and Empery Tax Efficient II, LP, Anthony Cataldo and Paul Kessler.	8-K	06/19/20	10.1
10.44	Form of Convertible Note, dated June 19, 2020 (related to Settlement Agreement, dated June 19, 2020)	8-K	06/19/20	10.1
10.45	Form of Pre-Funded Warrant to Purchase Common Stock, dated June 19, 2020 (related to Settlement Agreement, dated June 19, 2020)	8-K	06/19/20	10.1
10.46	Executive Employment Agreement, dated October 19, 2018, among GT Biopharma, Inc. and Raymond W. Urbanski	10-Q	11/14/18	10.17
10.47	Consultant Agreement, dated February 14, 2018, among GT Biopharma, Inc., Georgetown Translational Pharmaceuticals, Inc. and Anthony J. Cataldo	8-K	2/21/18	10.3
10.48	Employment agreement with Anthony Cataldo	10-Q	8/14/20	10.11
10.49	Employment agreement with Steven Weldon	10-Q	8/14/20	10.12
10.50	Form of Convertible Note (related to Securities Purchase Agreement, dated September 16, 2020)	8-K	9/22/20	4.1
10.51	Securities Purchase Agreement, dated September 16, 2020, among GT Biopharma, Inc. and the purchasers named therein	8-K	9/22/20	10.1
10.52	Master Services Agreement, dated October 5, 2020, between Gt Biopharma, Inc. and Cytovance Biologics, Inc.	8-K	10/6/20	10.1
10.53	Form of First Amendment and Extension of Standstill and Forbearance Agreement	8-K	11/4/20	10.1
10.54	Form of Secured Convertible Note	8-K	11/9/20	4.1
10.55	Securities Purchase Agreement	8-K	11/9/20	10.1
10.56	Settlement Agreement, dated as of November 9, 2020, by and among Adam Kasower, East Ventures, Inc., A British Virgin Islands company, SV Booth Investments III, LLC, a Delaware limited liability company and Theorem Group, LLC, a California LLC and GT Biopharma Inc., a Delaware corporation.	10-Q	11/13/20	10.19
10.57	Form of Settlement Note, dated November 9, 2020.	10-Q	11/13/20	10.20
10.58	Steve Weldon Letter of Resignation, dated November 11, 2020	10-Q	11/13/20	10.21
10.59	Board Service Agreement with Bruce Wendel, dated November 11, 2020	10-Q	11/13/20	10.22
10.60	Board Service Agreement with Greg Berk, dated November 11, 2020	10-Q	11/13/20	10.23
10.61	Consultant Agreement with Michael Handelman, dated November 13, 2020	10-Q	11/13/20	10.24

10.62	Form of Amendment to Convertible Note & Standstill Agreement	8-K	12/23/20	10.1	
10.63	Settlement Agreement, dated as of December 22, 2020, by and among Alto Opportunity Master Fund, SPC - Segregated Master Portfolio B, Anthony Cataldo, Paul Kessler and GT Biopharma Inc., a Delaware corporation.	8-K	12/28/20	10.1	
10.64	Settlement Note, dated December 22, 2020, by GT Biopharma Inc. payable to Alto Opportunity Master Fund, SPC - Segregated Master Portfolio B.	8-K	12/28/20	10.2	
10.65	Form of Second Amendment and Extension of Standstill and Forbearance Agreement.	8-K	2/1/21	10.1	
10.66	Form of Amendment to Convertible Note, dated January 31, 2021	8-K	2/1/21	10.2	
10.67	Board Service Agreement with Bruce Wendel, dated November 11, 2020.	10-Q	11/13/20	10.22	
10.68	Board Service Agreement with Greg Berk, dated November 11, 2020.	10-Q	11/13/20	10.23	
10.69	Board Service Agreement with Rajesh Shrotriya, dated January 12, 2021.				X
10.70	Board Service Agreement with Michael Breen, dated January 12, 2021.				X
10.71	Amendment to Settlement Note with Alto Opportunity Master Fund, SPC - Segregated Master Portfolio B.				X
10.72	Form of Securities Purchase Agreement - December 2020 / January 2021 Notes.				X
10.73	Form of December 2020 / January 2021 Note.				X
21.1	Subsidiaries of GT Biopharma, Inc.	10-K	03/31/16	21.1	
23.1	Consent of Seligson & Giannattasio, LLP				X
23.2	Consent of Baker McKenzie LLP (included in Exhibit 5.1)				X
24.1	Power of Attorney (included on signature page to this registration statement)				
101.INS	XBRL Instance Document				X
101.SCH	XBRL Taxonomy Extension Schema Document				X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				X

(b) Financial Statement Schedules

See the Index to Financial Statements included on page F-1 for a list of the financial statements included in this prospectus.

ITEM 17. UNDERTAKINGS

The undersigned registrant hereby undertakes:

1. To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

- (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
- (ii) To reflect in the prospectus any facts or events arising after the effective date of this registration statement (or most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) (Section 230.424(b) of this chapter) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

Provided, however, that:

2. That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
3. To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the provisions above, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Los Angeles, State of California, on February 8, 2021.

GT BIOPHARMA, INC.

By: /s/ Anthony J. Cataldo
Anthony J. Cataldo
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

/s/ Anthony J. Cataldo
Anthony J. Cataldo, Chief Executive Officer and Director
(principal executive officer)
February 8, 2021

/s/ Michael Handelman
Michael Handelman, Chief Financial Officer
(principal financial officer and principal accounting officer)
February 8, 2021

*
Bruce Wendel, Vice-Chairman of the Board
February 8, 2021

*
Greg Berk, Director
February 8, 2021

*
Michael Breen, Director
February 8, 2021

*
Rajesh Shrotriya, Director
February 8, 2021

By: /s/ Anthony J. Cataldo
Anthony J. Cataldo, Attorney-in-fact
February 8, 2021

_____ SHARES OF COMMON STOCK
COMMON WARRANTS TO PURCHASE _____ SHARES OF COMMON STOCK
AND
_____ PRE-FUNDED WARRANTS

GT BIOPHARMA, INC.
UNDERWRITING AGREEMENT

_____, 2021

ROTH CAPITAL PARTNERS, LLC

As the Representative of the
Several underwriters, if any, named in Schedule I hereto

888 San Clemente Drive
Newport Beach, CA 92660
Ladies and Gentlemen:

The undersigned, GT BIOPHARMA, INC., a company incorporated under the laws of Delaware (collectively with its subsidiaries and affiliates, including, without limitation, all entities disclosed or described in the Registration Statement as being subsidiaries or affiliates of GT BIOPHARMA, INC., the "Company"), hereby confirms its agreement (this "Agreement") with the several underwriters (such underwriters, including the Representative (as defined below), the "Underwriters" and each an "Underwriter") named in Schedule I hereto for which ROTH CAPITAL PARTNERS, LLC is acting as representative to the several Underwriters (the "Representative" and if there are no Underwriters other than the Representative, references to multiple Underwriters shall be disregarded and the term Representative as used herein shall have the same meaning as Underwriter) on the terms and conditions set forth herein.

It is understood that the several Underwriters are to make a public offering of the Public Securities as soon as the Representative deems it advisable to do so. The Public Securities are to be initially offered to the public at the public offering price set forth in the Prospectus.

It is further understood that you will act as the Representative for the Underwriters in the offering and sale of the Closing Securities and, if any, the Option Securities in accordance with this Agreement.

**ARTICLE I.
DEFINITIONS**

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Action” shall have the meaning ascribed to such term in Section 3.1(k).

“Affiliate” means with respect to any Person, any other Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with such Person as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day.

“Closing” means the closing of the purchase and sale of the Closing Securities pursuant to Section 2.1.

“Closing Date” means the hour and the date on the Trading Day on which all conditions precedent to (i) the Underwriters’ obligations to pay the Closing Purchase Price and (ii) the Company’s obligations to deliver the Closing Securities, in each case, have been satisfied or waived, but in no event later than 10:00 a.m. (New York City time) on the second (2nd) Trading Day following the date hereof or at such earlier time as shall be agreed upon by the Representative and the Company.

“Closing Pre-Funded Warrants” shall have the meaning ascribed to such term in Section 2.1(a)(ii).

“Closing Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b), which aggregate purchase price shall be net of the underwriting discounts and commissions.

“Closing Securities” shall have the meaning ascribed to such term in Section 2.1(a)(ii).

“Closing Shares” shall have the meaning ascribed to such term in Section 2.1(a)(i).

“Closing Warrants” shall have the meaning ascribed to such term in Section 2.1(a)(iii).

“Combined Common Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Combined Pre-Funded Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Company Auditor” means Weinberg & Co, with offices located at 1925 Century Park East, Suite 1120, Los Angeles, CA 90067.

“Company Counsel” means Baker & McKenzie LLP, , with offices located at 1900 N. Pearl Street, Suite 1500, Dallas, TX 75201.

“Effective Date” shall have the meaning ascribed to such term in Section 3.1(f).

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Execution Date” shall mean the date on which the parties execute and enter into this Agreement.

“Exempt Issuance” means the issuance of (a) shares of Common Stock or options to employees, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose for services rendered to the Company, (b) if any underwriter warrants, include issuance of underwriter warrants and shares issuable upon exercise of the underwriter warrants securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities or to extend the term of such securities, and (c) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith within 90 days following the Closing Date, and provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“FINRA” means the Financial Industry Regulatory Authority.

“GAAP” shall have the meaning ascribed to such term in Section 3.1(i).

“Indebtedness” means (a) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (b) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company’s consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (c) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP.

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Lock-Up Agreements” means the lock-up agreements that are delivered on the date hereof by each of the Company’s officers and directors and each holder of Common Stock and Common Stock Equivalents holding, on a fully diluted basis, more than 5% of the Company’s issued and outstanding Common Stock, in the form of Exhibit E attached hereto.

“Material Adverse Effect” means (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole or (iii) a material adverse effect on the Company’s ability to perform in any material respect on a timely basis its obligations under any Transaction Document.

“Offering” shall have the meaning ascribed to such term in Section 2.1(c).

“Option Closing Date” shall have the meaning ascribed to such term in Section 2.2(c).

“Option Closing Purchase Price” shall have the meaning ascribed to such term in Section 2.2(b), which aggregate purchase price shall be net of the underwriting discounts and commissions.

“Option Securities” shall have the meaning ascribed to such term in Section 2.2(a).

“Option Shares” shall have the meaning ascribed to such term in Section 2.2(a)(i).

“Option Warrants” shall have the meaning ascribed to such term in Section 2.2(a).

“Over-Allotment Option” shall have the meaning ascribed to such term in Section 2.2.

“Pre-Funded Warrant” shall be in the form filed as an exhibit to the Registration Statement (as hereinafter defined), exercisable into an aggregate of [] shares of Common Stock, which shall have an exercise price of \$0.001 per share (subject to adjustment as provided in the Pre-Funded Warrants).

“Pre-Funded Warrant Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Pre-Funded Warrant Shares” means the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Preliminary Prospectus” means, if any, any preliminary prospectus relating to the Securities included in the Registration Statement or filed with the Commission pursuant to Rule 424(b).

“Prior Auditor” means Seligson & Giannattasio, LLP, 723 N Broadway, White Plains, NY 10603

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the final prospectus filed for the Registration Statement.

“Prospectus Supplement” means, if any, any supplement to the Prospectus complying with Rule 424(b) of the Securities Act that is filed with the Commission.

“Public Securities” means, collectively, the Closing Securities and, if any, the Option Securities.

“Registration Statement” means, collectively, the various parts of the registration statement prepared by the Company on Form S-1 (File No. 333-251311) with respect to the Securities, each as amended as of the date hereof, including the Prospectus and Prospectus Supplement, if any, the Preliminary Prospectus, if any, and all exhibits filed with or incorporated by reference into such registration statement, and includes any Rule 462(b) Registration Statement.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 462(b) Registration Statement” means any registration statement prepared by the Company registering additional Public Securities, which was filed with the Commission on or prior to the date hereof and became automatically effective pursuant to Rule 462(b) promulgated by the Commission pursuant to the Securities Act.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(i).

“Securities” means the Closing Securities, the Option Securities and the Warrant Shares.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Shares” means, collectively, the shares of Common Stock delivered to the Underwriters in accordance with Section 2.1(a)(i) and Section 2.2(a).

“SHLLP” means Schiff Hardin LLP with offices located at 901 K Street NW, Suite 700, Washington, DC 20001.

“Subsidiary” means any subsidiary of the Company and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange OTCQX or OTCQB (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Warrants, the Warrant Agency Agreement, the Lock-Up Agreements, and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means Computershare, the current transfer agent of the Company, with offices located at 8742 Lucent Blvd., Suite 225, Highland Ranch, CO 80129, and any successor transfer agent of the Company.

“Warrant Agency Agreement” means the warrant agency agreement dated on or about the date hereof, among the Company and Computershare in the form of Exhibit D attached hereto.

“Warrant Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b).

“Warrant Shares” means the shares of Common Stock issuable upon exercise of the Warrants.

“Warrants” means the warrants in the form filed as an exhibit to the Registration Statement, exercisable into an aggregate of [] shares of Common Stock, which shall have an exercise price of \$0.001 per share (subject to adjustment as provided in the Warrants).

ARTICLE II. PURCHASE AND SALE

2.1 Closing.

(a) Upon the terms and subject to the conditions set forth herein, the Company agrees to sell in the aggregate _____ shares of Common Stock, _____ Pre-Funded Warrants, and _____ Warrants, exercisable for an aggregate of _____ shares of Common Stock, and each Underwriter agrees to purchase, severally and not jointly, at the Closing, the following securities of the Company:

(i) the number of shares of Common Stock (the “Closing Shares”) set forth opposite the name of such Underwriter on Schedule I hereof; and

(ii) the number of shares of Pre-Funded Warrants (the “Closing Pre-Funded Warrants”) set forth opposite the name of such Underwriter on Schedule I hereof; and

(iii) Warrants to purchase up to the number of shares of Common Stock set forth opposite the name of such Underwriter on Schedule I hereof (the “Closing Warrants” and, collectively with the Closing Shares and the Pre-Funded Warrants the “Closing Securities”), which Warrants shall have an exercise price of \$____, subject to adjustment as provided therein.

(b) The aggregate purchase price for the Closing Securities shall equal the amount set forth opposite the name of such Underwriter on Schedule I hereto (the “Closing Purchase Price”). The combined purchase price for one Share and a Warrant to purchase _____ Warrant Share shall be \$____ (the “Combined Common Purchase Price”) which shall be allocated as \$____ per Share (the “Share Purchase Price”) and \$0.01 per Warrant (the “Warrant Purchase Price”). The combined purchase price for one Pre-Funded Warrant and a Warrant to purchase _____ Warrant Share shall be \$____ (the “Combined Pre-Funded Purchase Price”) which shall be allocated as \$____ per Pre-Funded Warrant (the “Pre-Funded Warrant Purchase Price”) and \$0.01 per Warrant; and

(c) On the Closing Date, each Underwriter shall deliver or cause to be delivered to the Company, via wire transfer, immediately available funds equal to such Underwriter’s Closing Purchase Price and the Company shall deliver to, or as directed by, such Underwriter its respective Closing Securities and the Company shall deliver the other items required pursuant to Section 2.3 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.3 and 2.4, the Closing shall occur at the offices of SHLLP or such other location as the Company and Representative shall mutually agree. The Public Securities are to be offered initially to the public at the offering price set forth on the cover page of the Prospectus (the “Offering”).

(d) The Company acknowledges and agrees that, with respect to any Notice(s) of Exercise (as defined in the Pre-Funded Warrants) delivered by a Holder (as defined in the Pre-Funded Warrants) on or prior to 12:00 p.m. (New York City time) on the Closing Date, which Notice(s) of Exercise may be delivered at any time after the time of execution of this Agreement, the Company shall deliver the Exercise Shares (as defined in the Pre-Funded Warrants) subject to such notice(s) to the Holder by 4:00 p.m. (New York City time) on the Closing Date and the Closing Date shall be the Warrant Share Delivery Date (as defined in the Pre-Funded Warrants). The Company acknowledges and agrees that the Holders are third-party beneficiaries of this covenant of the Company.

2.2 Over-Allotment Option.

(a) For the purposes of covering any over-allotments in connection with the distribution and sale of the Closing Securities, the Representative is hereby granted an option (the “Over-Allotment Option”) to purchase, in the aggregate, up to _____ shares of Common Stock (the “Option Shares”) and up to _____ Warrants to purchase (the “Option Warrants”) and, collectively with the Option Shares, the Pre-Funded Warrants and the “Option Securities”) which may be purchased in any combination of Option Shares and/or Option Warrants at the Share Purchase Price and/or Warrant Purchase Price, respectively.

(b) In connection with an exercise of the Over-Allotment Option, (a) the purchase price to be paid for the Option Shares is equal to the product of the Share Purchase Price multiplied by the number of Option Shares to be purchased and (b) the purchase price to be paid for the Option Warrants is equal to the product of the Warrant Purchase Price multiplied by the number of Option Warrants to be purchased (the aggregate purchase price to be paid on an Option Closing Date, the “Option Closing Purchase Price”).

(c) The Over-Allotment Option granted pursuant to this Section 2.2 may be exercised by the Representative as to all (at any time) or any part (from time to time) of the Option Securities within 45 days after the Execution Date. An Underwriter will not be under any obligation to purchase any Option Securities prior to the exercise of the Over-Allotment Option by the Representative. The Over-Allotment Option granted hereby may be exercised by the giving of oral notice to the Company from the Representative, which must be confirmed in writing by overnight mail or facsimile or other electronic transmission setting forth the number of Option Shares and/or Option Warrants to be purchased and the date and time for delivery of and payment for the Option Securities (each, an “Option Closing Date”), which will not be later than two (2) full Business Days after the date of the notice or such other time as shall be agreed upon by the Company and the Representative, at the offices of SHLLP or at such other place (including remotely by facsimile or other electronic transmission) as shall be agreed upon by the Company and the Representative. If such delivery and payment for the Option Securities does not occur on the Closing Date, each Option Closing Date will be as set forth in the notice. Upon exercise of the Over-Allotment Option, the Company will become obligated to convey to the Underwriters, and, subject to the terms and conditions set forth herein, the Underwriters will become obligated to purchase, the number of Option Shares and/or Option Warrants specified in such notice. The Representative may cancel the Over-Allotment Option at any time prior to the expiration of the Over-Allotment Option by written notice to the Company.

2.3 Deliveries. The Company shall deliver or cause to be delivered to each Underwriter (if applicable) the following:

(i) At the Closing Date, the Closing Shares and, as to each Option Closing Date, if any, the applicable Option Shares, which shares shall be delivered via The Depository Trust Company Deposit or Withdrawal at Custodian system for the accounts of the several Underwriters;

(ii) At the Closing Date, the Closing Warrants and, as to each Option Closing Date, if any, the applicable Option Warrants, in definitive form, in such denominations and registered in such names as the Underwriter or its designees request, to the several Underwriters;

(iii) At the Closing Date, and each Option Closing Date, if any, to the underwriters, a Warrant to purchase up to a number of shares units of Common Stock and Warrants equal to five percent (5%) of the Closing Shares, and Option Shares and Closing Pre-Funded Warrants and Option Pre-Funded Warrants, and the Closing Warrants and the Option Warrants issued on such Closing Date and Option Closing Date, as applicable, for the accounts of the Representative and Dawson James Securities, Inc (or their designees), which Warrant shall have an exercise price of \$____, subject to adjustment therein, and will otherwise be on the same terms as the Closing Warrants (except as otherwise required by FINRA Rule 5110), and registered in the names of the Representative, Dawson James Securities, Inc., and/or their respective designees;

(iv) At the Closing Date, the Warrant Agency Agreement duly executed by the parties thereto;

(v) At the Closing Date, a legal opinion of Company Counsel addressed to the Underwriters, including, without limitation, a negative assurance letter, substantially in the form of Exhibit A attached hereto and as to the Closing Date and as to each Option Closing Date, if any, a bring-down opinion from Company Counsel in form and substance reasonably satisfactory to the Representative and the favorable opinions of intellectual property legal counsel and FDA legal counsel to the Company, including, without limitation, a negative assurance letter, addressed to the Underwriters and in form and substance satisfactory to the Representative;

(vi) Contemporaneously herewith, a cold comfort letter, addressed to the Underwriters and in form and substance satisfactory in all respects to the Representative from the Company Prior Auditor dated, respectively, as of the date of this Agreement and a bring-down letter dated as of the Closing Date and each Option Closing Date, if any;

(vii) On the Closing Date and on each Option Closing Date, the duly executed and delivered Officer's Certificate, substantially in the form required by Exhibit B attached hereto;

(viii) On the Closing Date and on each Option Closing Date, the duly executed and delivered Secretary's Certificate, substantially in the form required by Exhibit C attached hereto; and

(ix) Contemporaneously herewith, the duly executed and delivered Lock-Up Agreements.

2.4 Closing Conditions. The respective obligations of each Underwriter hereunder in connection with the Closing and each Option Closing Date are subject to the following conditions being met:

(i) the accuracy in all material respects when made and on the date in question (other than representations and warranties of the Company already qualified by materiality, which shall be true and correct in all respects) of the representations and warranties of the Company contained herein (unless as of a specific date therein);

(ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the date in question shall have been performed;

(iii) the delivery by the Company of the items set forth in Section 2.3 of this Agreement;

(iv) the Registration Statement shall be effective on the date of this Agreement and at each of the Closing Date and each Option Closing Date, if any, no stop order suspending the effectiveness of the Registration Statement shall have been issued and no proceedings for that purpose shall have been instituted or shall be pending or contemplated by the Commission and any request on the part of the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representative;

(v) by the Execution Date, if required by FINRA, the Underwriters shall have received clearance from FINRA as to the amount of compensation allowable or payable to the Underwriters as described in the Registration Statement;

(vi) the Closing Shares, the Option Shares and the Warrant Shares have been approved for listing on the Trading Market; and

(vii) prior to and on each of the Closing Date and each Option Closing Date, if any: (i) there shall have been no material adverse change or development involving a prospective material adverse change in the condition or prospects or the business activities, financial or otherwise, of the Company from the latest dates as of which such condition is set forth in the Registration Statement and Prospectus; (ii) no action suit or proceeding, at law or in equity, shall have been pending or threatened against the Company or any Affiliate of the Company before or by any court or federal or state commission, board or other administrative agency wherein an unfavorable decision, ruling or finding may materially adversely affect the business, operations, prospects or financial condition or income of the Company, except as set forth in the Registration Statement and Prospectus; (iii) no stop order shall have been issued under the Securities Act and no proceedings therefor shall have been initiated or threatened by the Commission; and (iv) the Registration Statement and the Prospectus and any amendments or supplements thereto shall contain all material statements which are required to be stated therein in accordance with the Securities Act and the rules and regulations thereunder and shall conform in all material respects to the requirements of the Securities Act and the rules and regulations thereunder, and neither the Registration Statement nor the Prospectus nor any amendment or supplement thereto shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

**ARTICLE III.
REPRESENTATIONS AND WARRANTIES**

3.1 Representations and Warranties of the Company. The Company represents and warrants to the Underwriters as of the Execution Date, as of the Closing Date and as of each Option Closing Date, if any, as follows:

(a) Subsidiaries. All of the direct and indirect Subsidiaries of the Company are set forth in the SEC Reports. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. If the Company has no Subsidiaries, all other references to the Subsidiaries or any of them in the Transaction Documents shall be disregarded.

(a) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in a Material Adverse Effect and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(b) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents to which the Company is a party and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which the Company is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(c) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(d) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filing with the Commission of the Registration Statement, Preliminary Prospectus and Prospectus and (ii) such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

(e) Registration Statement. The Company has filed with the Commission the Registration Statement, including any related Prospectus or Prospectuses, for the registration of the Securities under the Securities Act, which Registration Statement has been prepared by the Company in all material respects in conformity with the requirements of the Securities Act and the rules and regulations of the Commission under the Securities Act. The Registration Statement has been declared effective by the Commission on the date hereof (the “Effective Date”). The Company has filed with the Commission a registration under the Exchange Act of its Common Stock and Warrants; and that registration has been declared effective by the Commission as of the date hereof.

(f) Issuance of Securities. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Warrant Shares, when issued in accordance with the terms of the Warrants, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to this Agreement and the Warrants. The holder of the Securities will not be subject to personal liability by reason of being such holders. The Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. All corporate action required to be taken for the authorization, issuance and sale of the Securities has been duly and validly taken. The Securities conform in all material respects to all statements with respect thereto contained in the Registration Statement.

(g) Capitalization. The capitalization of the Company is as set forth in the SEC Reports. The Company has not issued any capital stock since December 31, 2020, other than pursuant to the exercise of employee stock options under the Company’s stock option plans, the issuance of shares of Common Stock to employees pursuant to the Company’s employee stock purchase plans and pursuant to the conversion and/or exercise of Common Stock Equivalents outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except as a result of the purchase and sale of the Securities, there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or the capital stock of any Subsidiary. The issuance and sale of the Securities will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Underwriters). There are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or “phantom stock” plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. The authorized shares of the Company conform in all material respects to all statements relating thereto contained in the Registration Statement and the Prospectus. The offers and sales of the Company’s securities were at all relevant times either registered under the Securities Act and the applicable state securities or Blue Sky laws or, based in part on the representations and warranties of the purchasers, exempt from such registration requirements. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company’s capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company’s stockholders.

(h) SEC Reports; Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Prospectus and the Prospectus Supplement, being collectively referred to herein as the “SEC Reports”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved (“GAAP”), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments. The agreements and documents described in the Registration Statement, the Prospectus, the Prospectus Supplement and the SEC Reports conform to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act and the rules and regulations thereunder to be described in the Registration Statement, the Prospectus, the Prospectus Supplement or the SEC Reports or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company is a party or by which it is or may be bound or affected and (i) that is referred to in the Registration Statement, the Prospectus, the Prospectus Supplement or the SEC Reports, or (ii) is material to the Company’s business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company and, to the Company’s knowledge, the other parties thereto, in accordance with its terms, except (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefore may be brought. None of such agreements or instruments has been assigned by the Company, and neither the Company nor, to the best of the Company’s knowledge, any other party is in default thereunder and, to the best of the Company’s knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. To the best of the Company’s knowledge, performance by the Company of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of its assets or businesses, including, without limitation, those relating to environmental laws and regulations.

(i) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company’s financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock, (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans and (vi) no officer or director of the Company has resigned from any position with the Company. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least 1 Trading Day prior to the date that this representation is made. Unless otherwise disclosed in an SEC Report filed prior to the date hereof, the Company has not: (i) issued any securities or incurred any liability or obligation, direct or contingent, for borrowed money; or (ii) declared or paid any dividend or made any other distribution on or in respect to its capital stock.

(j) Litigation. There is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an “Action”) which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(l) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(m) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the SEC Reports, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect (each, a "Material Permit"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit. The disclosures in the Registration Statement concerning the effects of Federal, State, local and all foreign regulation on the Company's business as currently contemplated are correct in all material respects.

(n) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to, or have valid and marketable rights to lease or otherwise use, all real property and all personal property that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP, and the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(o) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the SEC Reports and which the failure to do so could have a Material Adverse Effect (collectively, the "Intellectual Property Rights"). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(p) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

(q) Transactions With Affiliates and Employees. Except as set forth in the SEC Reports, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from, any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(r) Sarbanes-Oxley; Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. The Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms. The Company's certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(s) Certain Fees. Except as set forth in the Prospectus Supplement, no brokerage or finder's fees or commissions are or will be payable by the Company, any Subsidiary or Affiliate of the Company to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. To the Company's knowledge, there are no other arrangements, agreements or understandings of the Company or, to the Company's knowledge, any of its stockholders that may affect the Underwriters' compensation, as determined by FINRA. The Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder's fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the twelve months prior to the Execution Date. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein.

(t) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(u) Registration Rights. No Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

(v) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. The Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees of the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(w) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable as a result of the Underwriters and the Company fulfilling their obligations or exercising their rights under the Transaction Documents.

(x) Disclosure: 10b-5. The Registration Statement (and any further documents to be filed with the Commission) contains all exhibits and schedules as required by the Securities Act. Each of the Registration Statement and any post-effective amendment thereto, if any, at the time it became effective, complied in all material respects with the Securities Act and the Exchange Act and the applicable rules and regulations under the Securities Act and did not and, as amended or supplemented, if applicable, will not, contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Preliminary Prospectus, Prospectus and the Prospectus Supplement, each as of its respective date, comply in all material respects with the Securities Act and the Exchange Act and the applicable rules and regulations. Each Preliminary Prospectus and the Prospectus, as amended or supplemented, did not and will not contain as of the date thereof any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The SEC Reports, when they were filed with the Commission, conformed in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, and none of such documents, when they were filed with the Commission, contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein (with respect to the SEC Reports incorporated by reference in the Preliminary Prospectus or Prospectus), in light of the circumstances under which they were made not misleading; and any further documents so filed and incorporated by reference in the Preliminary Prospectus or Prospectus, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, as applicable, and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made not misleading. No post-effective amendment to the Registration Statement reflecting any facts or events arising after the date thereof which represent, individually or in the aggregate, a fundamental change in the information set forth therein is required to be filed with the Commission. There are no documents required to be filed with the Commission in connection with the transaction contemplated hereby that (x) have not been filed as required pursuant to the Securities Act or (y) will not be filed within the requisite time period. There are no contracts or other documents required to be described in the Preliminary Prospectus or Prospectus, or to be filed as exhibits or schedules to the Registration Statement, which have not been described or filed as required. The press releases disseminated by the Company during the twelve months preceding the date of this Agreement taken as a whole do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made and when made, not misleading.

(y) No Integrated Offering. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(z) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. The SEC Reports sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(aa) Tax Status. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim. The provisions for taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. The term “taxes” mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term “returns” means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

(bb) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA. The Company has taken reasonable steps to ensure that its accounting controls and procedures are sufficient to cause the Company to comply in all material respects with the FCPA.

(cc) Accountants. To the knowledge and belief of the Company, the Company Auditor (i) is an independent registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company’s Annual Report for the fiscal year ending December 31, 2021. The Company Auditor has not, during the periods covered by the financial statements included in the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

(dd) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration (“FDA”) under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder (“FDCA”) that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a “Pharmaceutical Product”), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company’s knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(ee) Stock Option Plans. Each stock option granted by the Company under the Company’s stock option plan was granted (i) in accordance with the terms of the Company’s stock option plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company’s stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(ff) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department.

(gg) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon the Representative's request.

(hh) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the "BHCA") and to regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve"). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent (25%) or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(ii) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"), and no Action or Proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

(jj) D&O Questionnaires. To the Company's knowledge, all information contained in the questionnaires completed by each of the Company's directors and officers immediately prior to the Offering and in the Lock-Up Agreement provided to the Underwriters is true and correct in all respects and the Company has not become aware of any information which would cause the information disclosed in such questionnaires become inaccurate and incorrect.

(kk) FINRA Affiliation. To the Company's knowledge, no officer, director or any beneficial owner of 5% or more of the Company's unregistered securities has any direct or indirect affiliation or association with any FINRA member (as determined in accordance with the rules and regulations of FINRA) that is participating in the Offering. The Company will advise the Representative and SHLLP if it learns that any officer, director or owner of 5% or more of the Company's outstanding shares of Common Stock or Common Stock Equivalents is or becomes an affiliate or associated person of a FINRA member firm.

(ll) Officers' Certificate. Any certificate signed by any duly authorized officer of the Company and delivered to the Representative or SHLLP shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

(mm) Board of Directors. The Board of Directors is comprised of the persons set forth under the heading of the Prospectus captioned "Management." The qualifications of the persons serving as board members and the overall composition of the Board of Directors comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder applicable to the Company and the rules of the Trading Market. At least one member of the Board of Directors qualifies as a "financial expert" as such term is defined under the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder and the rules of the Trading Market. In addition, at least a majority of the persons serving on the Board of Directors qualify as "independent" as defined under the rules of the Trading Market.

(nn) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect.

ARTICLE IV.
OTHER AGREEMENTS OF THE PARTIES

4.1 Amendments to Registration Statement. The Company has delivered, or will as promptly as practicable deliver, to the Underwriters complete conformed copies of the Registration Statement and of each consent and certificate of experts, as applicable, filed as a part thereof, and conformed copies of the Registration Statement (without exhibits), the Prospectus and the Prospectus Supplement, as amended or supplemented, in such quantities and at such places as an Underwriter reasonably requests. Neither the Company nor any of its directors and officers has distributed and none of them will distribute, prior to the Closing Date, any offering material in connection with the offering and sale of the Securities other than the Prospectus, the Prospectus Supplement, the Registration Statement, and copies of the documents incorporated by reference therein. The Company shall not file any such amendment or supplement to which the Representative shall reasonably object in writing.

4.2 Federal Securities Laws.

(a) Compliance. During the time when a Prospectus is required to be delivered under the Securities Act, the Company will use its best efforts to comply with all requirements imposed upon it by the Securities Act and the rules and regulations thereunder and the Exchange Act and the rules and regulations thereunder, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Securities in accordance with the provisions hereof and the Prospectus. If at any time when a Prospectus relating to the Securities is required to be delivered under the Securities Act, any event shall have occurred as a result of which, in the opinion of counsel for the Company or counsel for the Underwriters, the Prospectus, as then amended or supplemented, includes an untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, or if it is necessary at any time to amend the Prospectus to comply with the Securities Act, the Company will notify the Underwriters promptly and prepare and file with the Commission, subject to Section 4.1 hereof, an appropriate amendment or supplement in accordance with Section 10 of the Securities Act.

(b) Filing of Final Prospectus Supplement. The Company will file the Prospectus Supplement (in form and substance satisfactory to the Representative) with the Commission pursuant to the requirements of Rule 424.

(c) Exchange Act Registration. For a period of three years from the Execution Date, the Company will use its best efforts to maintain the registration of the Common Stock and Warrants under the Exchange Act. The Company will not deregister the Common Stock or the Warrants under the Exchange Act without the prior written consent of the Representative.

(d) Free Writing Prospectuses. The Company represents and agrees that it has not made and will not make any offer relating to the Securities that would constitute an issuer free writing prospectus, as defined in Rule 433 of the rules and regulations under the Securities Act, without the prior written consent of the Representative. Any such free writing prospectus consented to by the Representative is herein referred to as a "Permitted Free Writing Prospectus." The Company represents that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus" as defined in rule and regulations under the Securities Act, and has complied and will comply with the applicable requirements of Rule 433 of the Securities Act, including timely Commission filing where required, legending and record keeping.

4.3 Delivery to the Underwriters of Prospectuses. The Company will deliver to the Underwriters, without charge, from time to time during the period when the Prospectus is required to be delivered under the Securities Act or the Exchange Act such number of copies of each Prospectus as the Underwriters may reasonably request and, as soon as the Registration Statement or any amendment or supplement thereto becomes effective, deliver to you two original executed Registration Statements, including exhibits, and all post-effective amendments thereto and copies of all exhibits filed therewith or incorporated therein by reference and all original executed consents of certified experts.

4.4 Effectiveness and Events Requiring Notice to the Underwriters. The Company will use its best efforts to cause the Registration Statement to remain effective with a current prospectus until the later of nine (9) months from the Execution Date and the date on which the Warrants are no longer outstanding, and will notify the Underwriters and holders of the Warrants immediately and confirm the notice in writing: (i) of the effectiveness of the Registration Statement and any amendment thereto; (ii) of the issuance by the Commission of any stop order or of the initiation, or the threatening, of any proceeding for that purpose; (iii) of the issuance by any state securities commission of any proceedings for the suspension of the qualification of the Securities for offering or sale in any jurisdiction or of the initiation, or the threatening, of any proceeding for that purpose; (iv) of the mailing and delivery to the Commission for filing of any amendment or supplement to the Registration Statement or Prospectus; (v) of the receipt of any comments or request for any additional information from the Commission; and (vi) of the happening of any event during the period described in this Section 4.4 that, in the judgment of the Company, makes any statement of a material fact made in the Registration Statement or the Prospectus untrue or that requires the making of any changes in the Registration Statement or the Prospectus in order to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Commission or any state securities commission shall enter a stop order or suspend such qualification at any time, the Company will make every reasonable effort to obtain promptly the lifting of such order.

4.5 Review of Financial Statements. For a period of five (5) years from the Execution Date, the Company, at its expense, shall cause its regularly engaged independent registered public accountants to review (but not audit) the Company's financial statements for each of the first three fiscal quarters prior to the announcement of quarterly financial information.

4.6 Reports to the Underwriters Expenses of the Offering

(a) Periodic Reports, etc. For a period of three years from the Execution Date, the Company will furnish to the Underwriters copies of such financial statements and other periodic and special reports as the Company from time to time furnishes generally to holders of any class of its securities and also promptly furnish to the Underwriters: (i) a copy of each periodic report the Company shall be required to file with the Commission; (ii) a copy of every press release and every news item and article with respect to the Company or its affairs which was released by the Company; (iii) a copy of each Form 8-K prepared and filed by the Company; (iv) a copy of each registration statement filed by the Company under the Securities Act; (v) such additional documents and information with respect to the Company and the affairs of any future Subsidiaries of the Company as the Representative may from time to time reasonably request; provided that the Underwriters shall each sign, if requested by the Company, a Regulation FD compliant confidentiality agreement which is reasonably acceptable to the Representative in connection with such Underwriter's receipt of such information. Documents filed with the Commission pursuant to its EDGAR system shall be deemed to have been delivered to the Underwriters pursuant to this Section.

(b) Transfer Sheets. For a period of three (3) years from the Execution Date, the Company shall retain the Transfer Agent or a transfer and registrar agent acceptable to the Representative and will furnish to the Underwriters at the Company's sole cost and expense such transfer sheets of the Company's securities as an Underwriter may reasonably request, including the daily and monthly consolidated transfer sheets of the Transfer Agent and the DTC.

(c) Trading Reports. During such time as the Closing Shares, Option Shares and Warrant Shares are listed on the Trading Market, the Company shall provide to the Underwriters, at the Company's expense, such reports published by the Trading Market relating to price and trading of such shares, as the Underwriters shall reasonably request.

(d) General Expenses Related to the Offering. The Company hereby agrees to pay on each of the Closing Date and each Option Closing Date, if any, to the extent not paid at the Closing Date, all expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to: (a) all filing fees and communication expenses relating to the registration of the Securities to be sold in the Offering (including the Option Securities) with the Commission; (b) all FINRA Public Offering Filing System fees associated with the review of the Offering by FINRA; all fees and expenses relating to the listing of such Closing Shares, Option Shares and Warrant Shares on the Trading Market and such other stock exchanges as the Company and the Representative together determine; (c) all fees, expenses and disbursements relating to the registration or qualification of such Securities under the "blue sky" securities laws of such states and other foreign jurisdictions as the Representative may reasonably designate (including, without limitation, all filing and registration fees, and the fees and expenses of Blue Sky counsel, it being agreed that the Company will make a payment of \$25,000 to such counsel on the Closing Date); (d) the costs of all mailing and printing of the underwriting documents (including, without limitation, the Underwriting Agreement, any Blue Sky Surveys and, if appropriate, any Agreement Among Underwriters, Selected Dealers' Agreement, Underwriters' Questionnaire and Power of Attorney), Registration Statements, Prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representative may reasonably deem necessary; (e) the costs and expenses of the Company's public relations firm; (f) the costs of preparing, printing and delivering the Securities; (g) fees and expenses of the Transfer Agent for the Securities (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company); (h) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Underwriters; (i) the fees and expenses of the Company's accountants; (j) the fees and expenses of the Company's legal counsel and other agents and representatives; (k) the Underwriters' costs of mailing prospectuses to prospective investors; (l) the costs associated with advertising the Offering in the national editions of the Wall Street Journal and New York Times after the Closing Date; (m) the fees and expenses of SHLLP; (n) all fees, expenses and disbursements relating to background checks of the Company's officers and directors in an amount not to exceed \$5,000 per individual; (o) the cost for the Underwriters' use of i-Deal's book-building, prospectus tracking and compliance software (or other similar software) for the Offering; and (p) the Underwriters' actual "road show" expenses for the Offering; provided that the Company's obligation to reimburse the Underwriters for their reimbursable fees and expenses shall be limited in the aggregate to \$125,000 (less the \$10,000 advanced by the Company to the Underwriters to date). The Underwriters may also deduct from the net proceeds of the Offering payable to the Company on the Closing Date, or each Option Closing Date, if any, the expenses set forth herein to be paid by the Company to the Underwriters.

4.7 Application of Net Proceeds. The Company will apply the net proceeds from the Offering received by it in a manner consistent with the application described under the caption "Use of Proceeds" in the Prospectus.

4.8 Delivery of Earnings Statements to Security Holders. The Company will make generally available to its security holders as soon as practicable, but not later than the first day of the fifteenth full calendar month following the Execution Date, an earnings statement (which need not be certified by independent public or independent certified public accountants unless required by the Securities Act or the Rules and Regulations under the Securities Act, but which shall satisfy the provisions of Rule 158(a) under Section 11(a) of the Securities Act) covering a period of at least twelve consecutive months beginning after the Execution Date.

4.9 Stabilization. Neither the Company, nor, to its knowledge, any of its employees, directors or shareholders (without the consent of the Representative) has taken or will take, directly or indirectly, any action designed to or that has constituted or that might reasonably be expected to cause or result in, under the Exchange Act, or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities.

4.10 Internal Controls. The Company will maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary in order to permit preparation of financial statements in accordance with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

4.11 Accountants. The Company shall continue to retain a nationally recognized independent certified public accounting firm for a period of at least three years after the Execution Date. The Underwriters acknowledge that the Company Auditor is acceptable to the Underwriters.

4.12 FINRA. The Company shall advise the Underwriters (who shall make an appropriate filing with FINRA) if it is aware that any 5% or greater shareholder of the Company becomes an affiliate or associated person of an Underwriter.

4.13 No Fiduciary Duties. The Company acknowledges and agrees that the Underwriters' responsibility to the Company is solely contractual and commercial in nature, based on arms-length negotiations and that neither the Underwriters nor their affiliates or any selected dealer shall be deemed to be acting in a fiduciary capacity, or otherwise owes any fiduciary duty to the Company or any of its affiliates in connection with the Offering and the other transactions contemplated by this Agreement. Notwithstanding anything in this Agreement to the contrary, the Company acknowledges that the Underwriters may have financial interests in the success of the Offering that are not limited to the difference between the price to the public and the purchase price paid to the Company by the Underwriters for the shares and the Underwriters have no obligation to disclose, or account to the Company for, any of such additional financial interests. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against the Underwriters with respect to any breach or alleged breach of fiduciary duty.

4.14 Warrant Shares. If all or any portion of a Warrant is exercised at a time when there is an effective registration statement to cover the issuance of the Warrant Shares or if the Warrant is exercised via cashless exercise, the Warrant Shares issued pursuant to any such exercise shall be issued free of all restrictive legends. If at any time following the date hereof the Registration Statement (or any subsequent registration statement registering the sale or resale of the Warrant Shares) is not effective or is not otherwise available for the sale of the Warrant Shares, the Company shall immediately notify the holders of the Warrants in writing that such registration statement is not then effective and thereafter shall promptly notify such holders when the registration statement is effective again and available for the sale of the Warrant Shares (it being understood and agreed that the foregoing shall not limit the ability of the Company to issue, or any holder thereof to sell, any of the Warrant Shares in compliance with applicable federal and state securities laws).

4.15 Board Composition and Board Designations. The Company shall ensure that: (i) the qualifications of the persons serving as board members and the overall composition of the Board of Directors comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder and with the listing requirements of the Trading Market and (ii) if applicable, at least one member of the Board of Directors qualifies as a “financial expert” as such term is defined under the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder.

4.16 Securities Laws Disclosure; Publicity. At the request of the Representative, by 8:00 a.m. (New York City time) on the date hereof, the Company shall issue a press release disclosing the material terms of the Offering. The Company and the Representative shall consult with each other in issuing any other press releases with respect to the Offering, and neither the Company nor any Underwriter shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of such Underwriter, or without the prior consent of such Underwriter, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. The Company will not issue press releases or engage in any other publicity, without the Representative’s prior written consent, for a period ending at 5:00 p.m. (New York City time) on the first business day following the 45th day following the Closing Date, other than normal and customary releases issued in the ordinary course of the Company’s business.

4.17 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Underwriter of the Securities is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Underwriter of Securities could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities.

4.18 Reservation of Common Stock. As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue Option Shares pursuant to the Over-Allotment Option and Warrant Shares pursuant to any exercise of the Warrants.

4.19 Listing of Common Stock. The Company hereby agrees to use best efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Closing Shares, Option Shares and Warrant Shares on the Nasdaq Capital Market and promptly secure the listing of all of the Closing Shares, Option Shares and Warrant Shares on such Trading Market. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Closing Shares, Option Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Closing Shares, Option Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on a Trading Market and will comply in all respects with the Company’s reporting, filing and other obligations under the bylaws or rules of the Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer.

4.20 Subsequent Equity Sales.

(a) From the date hereof until _____ **2022 [twelve months from the execution date]**, neither the Company nor any Subsidiary shall issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents.

(b) From the date hereof until _____, the Company shall be prohibited from effecting or entering into an agreement to effect any issuance by the Company or any of its Subsidiaries of Common Stock or Common Stock Equivalents (or a combination of units thereof) involving a Variable Rate Transaction. "Variable Rate Transaction" means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into, or effects a transaction under, any agreement, including, but not limited to, an equity line of credit, whereby the Company may issue securities at a future determined price. Any Underwriter shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(c) Notwithstanding the foregoing, this Section 4.21 shall not apply in respect of an Exempt Issuance, except that no Variable Rate Transaction shall be an Exempt Issuance.

4.21 Capital Changes. Until _____ [twelve months from the execution date], the Company shall not undertake a reverse or forward stock split or reclassification of the Common Stock without the prior written consent of the Representative.

4.22 Secondary Market Trading and Standard & Poor's. The Company will apply to be included in Standard & Poor's Daily News and Corporation Records Corporate Descriptions for a period of five (5) years immediately after the Execution Date.

4.23 Financial Public Relations Firm. As of the Execution Date, the Company shall have retained a financial public relations firm reasonably acceptable to the Representative and the Company, which shall initially be Barwicki Investor Relations, which firm will be experienced in assisting issuers in public offerings of securities and in their relations with their security holders, and shall retain such firm or another firm reasonably acceptable to the Representative for a period of not less than two (2) years after the Execution Date.

4.24 Research Independence. The Company acknowledges that each Underwriter's research analysts and research departments, if any, are required to be independent from their respective investment banking divisions and are subject to certain regulations and internal policies, and that such Underwriter's research analysts may hold and make statements or investment recommendations and/or publish research reports with respect to the Company and/or the offering that differ from the views of its investment bankers. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against such Underwriter with respect to any conflict of interest that may arise from the fact that the views expressed by their independent research analysts and research departments may be different from or inconsistent with the views or advice communicated to the Company by such Underwriter's investment banking divisions. The Company acknowledges that the Representative is a full service securities firm and as such from time to time, subject to applicable securities laws, may effect transactions for its own account or the account of its customers and hold long or short position in debt or equity securities of the Company.

**ARTICLE V.
DEFAULT BY UNDERWRITERS**

If on the Closing Date or any Option Closing Date, if any, any Underwriter shall fail to purchase and pay for the portion of the Closing Securities or Option Securities, as the case may be, which such Underwriter has agreed to purchase and pay for on such date (otherwise than by reason of any default on the part of the Company), the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, shall use their reasonable efforts to procure within 36 hours thereafter one or more of the other Underwriters, or any others, to purchase from the Company such amounts as may be agreed upon and upon the terms set forth herein, the Closing Securities or Option Securities, as the case may be, which the defaulting Underwriter or Underwriters failed to purchase. If during such 36 hours the Representative shall not have procured such other Underwriters, or any others, to purchase the Closing Securities or Option Securities, as the case may be, agreed to be purchased by the defaulting Underwriter or Underwriters, then (a) if the aggregate number of Closing Securities or Option Securities, as the case may be, with respect to which such default shall occur does not exceed 10% of the Closing Securities or Option Securities, as the case may be, covered hereby, the other Underwriters shall be obligated, severally, in proportion to the respective numbers of Closing Securities or Option Securities, as the case may be, which they are obligated to purchase hereunder, to purchase the Closing Securities or Option Securities, as the case may be, which such defaulting Underwriter or Underwriters failed to purchase, or (b) if the aggregate number of Closing Securities or Option Securities, as the case may be, with respect to which such default shall occur exceeds 10% of the Closing Securities or Option Securities, as the case may be, covered hereby, the Company or the Representative will have the right to terminate this Agreement without liability on the part of the non-defaulting Underwriters or of the Company except to the extent provided in Article VI hereof. In the event of a default by any Underwriter or Underwriters, as set forth in this Article V, the applicable Closing Date may be postponed for such period, not exceeding seven days, as the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, may determine in order that the required changes in the Prospectus or in any other documents or arrangements may be effected. The term "Underwriter" includes any Person substituted for a defaulting Underwriter. Any action taken under this Section shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

**ARTICLE VI.
INDEMNIFICATION**

6.1 Indemnification of the Underwriters. Subject to the conditions set forth below, the Company agrees to indemnify and hold harmless the Underwriters, and each dealer selected by each Underwriter that participates in the offer and sale of the Securities (each a "Selected Dealer") and each of their respective directors, officers and employees and each Person, if any, who controls such Underwriter or any Selected Dealer ("Controlling Person") within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, against any and all loss, liability, claim, damage and expense whatsoever (including but not limited to any and all documented legal or other expenses reasonably incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, whether arising out of any action between such Underwriter and the Company or between such Underwriter and any third party or otherwise) to which they or any of them may become subject under the Securities Act, the Exchange Act or any other statute or at common law or otherwise or under the laws of foreign countries, arising out of or based upon any untrue statement or alleged untrue statement of a material fact contained in (i) any Preliminary Prospectus, if any, the Registration Statement or the Prospectus (as from time to time each may be amended and supplemented); (ii) any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Securities, including any "road show" or investor presentations made to investors by the Company (whether in person or electronically); or (iii) any application or other document or written communication (in this Article VI, collectively called "application") executed by the Company or based upon written information furnished by the Company in any jurisdiction in order to qualify the Securities under the securities laws thereof or filed with the Commission, any state securities commission or agency, Trading Market or any securities exchange; or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, unless such statement or omission was made in reliance upon and in conformity with written information furnished to the Company with respect to the applicable Underwriter by or on behalf of such Underwriter expressly for use in any Preliminary Prospectus, if any, the Registration Statement or Prospectus, or any amendment or supplement thereto, or in any application, as the case may be. With respect to any untrue statement or omission or alleged untrue statement or omission made in the Preliminary Prospectus, if any, the indemnity agreement contained in this Section 6.1 shall not inure to the benefit of an Underwriter to the extent that any loss, liability, claim, damage or expense of such Underwriter results from the fact that a copy of the Prospectus was not given or sent to the Person asserting any such loss, liability, claim or damage at or prior to the written confirmation of sale of the Securities to such Person as required by the Securities Act and the rules and regulations thereunder, and if the untrue statement or omission has been corrected in the Prospectus, unless such failure to deliver the Prospectus was a result of non-compliance by the Company with its obligations under this Agreement. The Company agrees promptly to notify each Underwriter of the commencement of any litigation or proceedings against the Company or any of its officers, directors or Controlling Persons in connection with the issue and sale of the Public Securities or in connection with the Registration Statement or Prospectus.

6.2 Procedure. If any action is brought against an Underwriter, a Selected Dealer or a Controlling Person in respect of which indemnity may be sought against the Company pursuant to Section 6.1, such Underwriter, such Selected Dealer or Controlling Person, as the case may be, shall promptly notify the Company in writing of the institution of such action and the Company shall assume the defense of such action, including the employment and reasonable and documented fees of counsel (subject to the reasonable approval of such Underwriter or such Selected Dealer, as the case may be) and payment of actual, reasonable and documented expenses. Such Underwriter, such Selected Dealer or Controlling Person shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such Underwriter, such Selected Dealer or Controlling Person unless (i) the employment of such counsel at the expense of the Company shall have been authorized in writing by the Company in connection with the defense of such action, or (ii) the Company shall not have employed counsel to have charge of the defense of such action, or (iii) such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to those available to the Company (in which case the Company shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), in any of which events the reasonable fees and expenses of not more than one additional firm of attorneys selected by such Underwriter (in addition to local counsel), Selected Dealer and/or Controlling Person shall be borne by the Company. Notwithstanding anything to the contrary contained herein, if any Underwriter, Selected Dealer or Controlling Person shall assume the defense of such action as provided above, the Company shall have the right to approve the terms of any settlement of such action which approval shall not be unreasonably withheld.

6.3 Indemnification of the Company. Each Underwriter severally and not jointly agrees to indemnify and hold harmless the Company, its directors, officers and employees and agents who control the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the foregoing indemnity from the Company to such Underwriter, as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions made in any Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or in any application, in reliance upon, and in strict conformity with, written information furnished to the Company with respect to such Underwriter by or on behalf of such Underwriter expressly for use in such Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or in any such application. In case any action shall be brought against the Company or any other Person so indemnified based on any Preliminary Prospectus, if any, the Registration Statement or Prospectus or any amendment or supplement thereto or any application, and in respect of which indemnity may be sought against such Underwriter, such Underwriter shall have the rights and duties given to the Company, and the Company and each other Person so indemnified shall have the rights and duties given to such Underwriter by the provisions of this Article VI. Notwithstanding the provisions of this Section 6.3, no Underwriter shall be required to indemnify the Company for any amount in excess of the underwriting discounts and commissions applicable to the Securities purchased by such Underwriter. The Underwriters' obligations in this Section 6.3 to indemnify the Company are several in proportion to their respective underwriting obligations and not joint.

6.4 Contribution.

(a) Contribution Rights. In order to provide for just and equitable contribution under the Securities Act in any case in which (i) any Person entitled to indemnification under this Article VI makes a claim for indemnification pursuant hereto but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Article VI provides for indemnification in such case, or (ii) contribution under the Securities Act, the Exchange Act or otherwise may be required on the part of any such Person in circumstances for which indemnification is provided under this Article VI, then, and in each such case, the Company and each Underwriter, severally and not jointly, shall contribute to the aggregate losses, liabilities, claims, damages and expenses of the nature contemplated by said indemnity agreement incurred by the Company and such Underwriter, as incurred, in such proportions that such Underwriter is responsible for that portion represented by the percentage that the underwriting discount appearing on the cover page of the Prospectus bears to the initial offering price appearing thereon and the Company is responsible for the balance; provided, that, no Person guilty of a fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation. For purposes of this Section, each director, officer and employee of such Underwriter or the Company, as applicable, and each Person, if any, who controls such Underwriter or the Company, as applicable, within the meaning of Section 15 of the Securities Act shall have the same rights to contribution as such Underwriter or the Company, as applicable. Notwithstanding the provisions of this Section 6.4, no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions applicable to the Securities purchased by such Underwriter. The Underwriters' obligations in this Section 6.4 to contribute are several in proportion to their respective underwriting obligations and not joint.

(b) Contribution Procedure. Within fifteen days after receipt by any party to this Agreement (or its representative) of notice of the commencement of any action, suit or proceeding, such party will, if a claim for contribution in respect thereof is to be made against another party ("contributing party"), notify the contributing party of the commencement thereof, but the failure to so notify the contributing party will not relieve it from any liability which it may have to any other party other than for contribution hereunder. In case any such action, suit or proceeding is brought against any party, and such party notifies a contributing party or its representative of the commencement thereof within the aforesaid fifteen days, the contributing party will be entitled to participate therein with the notifying party and any other contributing party similarly notified. Any such contributing party shall not be liable to any party seeking contribution on account of any settlement of any claim, action or proceeding affected by such party seeking contribution without the written consent of such contributing party. The contribution provisions contained in this Section 6.4 are intended to supersede, to the extent permitted by law, any right to contribution under the Securities Act, the Exchange Act or otherwise available.

**ARTICLE VII.
MISCELLANEOUS**

7.1 Termination.

(a) **Termination Right.** The Representative shall have the right to terminate this Agreement at any time prior to any Closing Date, (i) if any domestic or international event or act or occurrence has materially disrupted, or in its opinion will in the immediate future materially disrupt, general securities markets in the United States; or (ii) if trading on any Trading Market shall have been suspended or materially limited, or minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required by FINRA or by order of the Commission or any other government authority having jurisdiction, or (iii) if the United States shall have become involved in a new war or an increase in major hostilities, or (iv) if a banking moratorium has been declared by a New York State or federal authority, or (v) if a moratorium on foreign exchange trading has been declared which materially adversely impacts the United States securities markets, or (vi) if the Company shall have sustained a material loss by fire, flood, accident, hurricane, earthquake, theft, sabotage or other calamity or malicious act which, whether or not such loss shall have been insured, will, in the Representative's opinion, make it inadvisable to proceed with the delivery of the Securities, or (vii) if the Company is in material breach of any of its representations, warranties or covenants hereunder, or (viii) if the Representative shall have become aware after the date hereof of such a material adverse change in the conditions or prospects of the Company, or such adverse material change in general market conditions as in the Representative's judgment would make it impracticable to proceed with the offering, sale and/or delivery of the Securities or to enforce contracts made by the Underwriters for the sale of the Securities.

(b) **Expenses.** In the event this Agreement shall be terminated pursuant to Section 7.1(a), within the time specified herein or any extensions thereof pursuant to the terms herein, the Company shall be obligated to pay to the Representative its actual and accountable out of pocket expenses related to the transactions contemplated herein then due and payable, including the fees and disbursements of SHLLP up to \$100,000 (provided, however, that such expense cap in no way limits or impairs the indemnification and contribution provisions of this Agreement).

(c) **Indemnification.** Notwithstanding any contrary provision contained in this Agreement, any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Article VI shall not be in any way effected by such election or termination or failure to carry out the terms of this Agreement or any part hereof.

7.2 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, the Prospectus and the Prospectus Supplement, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

7.3 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or e-mail attachment at the email address set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or e-mail attachment at the e-mail address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto.

7.4 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and the Representative. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right.

7.5 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

7.6 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns.

7.7 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal Proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any Action or Proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such Action or Proceeding is improper or is an inconvenient venue for such Proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such Action or Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an Action or Proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Article VI, the prevailing party in such Action or Proceeding shall be reimbursed by the other party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Action or Proceeding.

7.8 Survival. The representations and warranties contained herein shall survive the Closing and the Option Closing, if any, and the delivery of the Securities.

7.9 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.

7.10 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

7.11 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, the Underwriters and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any Action for specific performance of any such obligation the defense that a remedy at law would be adequate.

7.12 Saturdays, Sundays, Holidays, etc If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

7.13 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

7.14 WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVE FOREVER ANY RIGHT TO TRIAL BY JURY.

(Signature Pages Follow)

If the foregoing correctly sets forth the understanding between the Underwriters and the Company, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement among the Company and the several Underwriters in accordance with its terms.

Very truly yours,

GT BIOPHARMA, INC.

By: _____
Name:
Title:

Address for Notice:

Anthony J. Cataldo
Chief Executive Officer
GT BIOPHARMA, INC.
9350 Wilshire Blvd. Suite 203
Beverly Hills, CA 90212

Copy to:

Roger W. Bivans
Baker & McKenzie LLP
1900 N. Pearl Street, Suite 1500
Dallas, TX 75201, USA

Accepted on the date first above written.

ROTH CAPITAL PARTNERS, LLC
As the Representative of the several underwriters,
if any, named in Schedule I hereto
888 San Clemente Drive
Newport Beach, CA 92660

By: _____
Name:
Title:

Address for Notice:

[NAME & TITLE]
ROTH CAPITAL PARTNERS, LLC
888 San Clemente Drive
Newport Beach, CA 92660

Copy to:

Ralph V. De Martino
Schiff Hardin LLP
901 K Street NW, Suite 700
Washington, DC 20001

SCHEDULE I

Schedule of Underwriters

<u>Underwriters</u>	<u>Closing Shares</u>	<u>Closing Pre-Funded Warrants</u>	<u>Closing Warrants</u>	<u>Closing Purchase Price</u>
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Total

EXHIBIT E

LOCK-UP AGREEMENT

February __, 2021

Roth Capital Partners, LLC
888 San Clemente Drive
Newport Beach, CA 92660

Re: **GT Biopharma, Inc.** (the “Company”)

Ladies and Gentlemen:

The undersigned is an owner of record or beneficially of certain shares of the Company’s common stock of the Company, \$0.001 par value per share or (“**Common Stock**”), or securities convertible into, exchangeable, or exercisable for Common Stock (“**Securities**”). The Company proposes to enter into an underwriting agreement (the “**Underwriting Agreement**”) with you as representative of the underwriters (the “**Representative**”), with respect to a public offering of the Company’s Common Stock (the “**Offering**”). The undersigned acknowledges that the Offering will be of benefit to the undersigned. The undersigned also acknowledges that you and each underwriter to be named in the Underwriting Agreement will rely on the representations and agreements of the undersigned contained in this letter in connection with entering into the Underwriting Agreement and performing your and their obligations thereunder. Capitalized terms used herein and not otherwise defined shall have the meanings set forth in the Underwriting Agreement.

In consideration of the foregoing and as an inducement to the underwriters, the undersigned hereby agrees that the undersigned will not, without your prior written consent (which consent may be withheld in your sole discretion), directly or indirectly, sell, offer to sell, contract to sell, or grant any option for the sale (including without limitation any short sale), grant any security interest in, pledge, hypothecate, hedge, establish an open “put equivalent position” within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (collectively, the “**Exchange Act**”) or otherwise dispose of or enter into any transaction which is designed to, or could be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise by the Company or any affiliate of the Company or any person in privity with the Company or any affiliate of the Company) (collectively, a “**Disposition**”) of any shares of Common Stock or any Securities currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the undersigned, or publicly announce the undersigned’s intention to do any of the foregoing (*provided, however*, that the undersigned may (i) complete one or more gift transfers of Securities to immediate family member(s) (as defined in Item 404(a) of Regulation S-K under the Exchange Act) who agree in writing to be similarly bound for the remainder of the Lock-up Period (as defined below) or (ii) transfer Securities to one or more trusts for bona fide estate planning purposes, in each case without prior written consent and upon three (3) business days’ written notice to you), for a period commencing on the date hereof and continuing through the close of trading on the date one hundred and eighty (180) days following the Closing Date, as defined in the Underwriting Agreement, subject to adjustment as discussed below (the “**Lock-up Period**”).

The foregoing restrictions have been expressly agreed to preclude the holder of shares of Common Stock and/or the Securities from engaging in any hedging or other transaction which is designed to or reasonably expected to lead to or result in a Disposition of shares of Common Stock or Securities during the Lock-up Period, even if such shares of Common Stock or Securities would be disposed of by someone other than such holder. Such prohibited hedging or other transactions would include, without limitation, any short sale (whether or not against the box) or any purchase, sale, or grant of any right (including, without limitation, any put or call option) with respect to any shares of Common Stock or Securities or with respect to any security (other than a broad-based market basket or index) that includes, relates to, or derives any significant part of its value from shares of Common Stock or Securities.

The undersigned also agrees and consents to the entry of stop transfer instructions with the Company’s transfer agent and registrar against the transfer of shares of Common Stock or Securities held by the undersigned except in compliance with the foregoing restrictions.

The undersigned understands that the underwriters are entering into the Underwriting Agreement and proceeding with the Offering in reliance upon this Lock-Up Agreement.

This agreement is irrevocable and will be binding on the undersigned and the respective successors, heirs, personal representatives, and assigns of the undersigned.

This Lock-up Agreement will be deemed to have been made and delivered in the State of New York, and both the binding provisions of this Agreement and the transactions contemplated hereby will be governed as to validity, interpretation, construction, effect and in all other respects by the internal laws of the State of New York, without regard to the conflict of laws principles thereof. The undersigned: (i) agrees that any legal suit, action or proceeding arising out of or relating to this Lock-up Agreement will be instituted exclusively in the courts located in the City of New York, State of New York, (ii) waives any objection which it may have or hereafter to the venue of any such suit, action or proceeding, and (iii) irrevocably consents to the exclusive jurisdiction of the state and federal courts located in the City of New York, State of New York, in any such suit, action or proceeding, waiving any, and agreeing not to assert any, basis for seeking transfer or removal of such action to any other court, whether federal or state, unless the New York court in which such action or proceeding was commenced first declines jurisdiction. The undersigned further agrees to accept and acknowledge service of any and all process which may be served in any such suit, action or proceeding in such courts and agrees that service of process upon the undersigned mailed by certified mail to the undersigned’s address will be deemed in every respect effective service of process upon the undersigned. Nothing in this Lock-up Agreement shall constitute an obligation to purchase shares of Common Stock, or Securities of the Company. Whether or not the Offering actually occurs depends on a number of factors, including market conditions. Any Offering will only be made pursuant to the Underwriting Agreement, the terms of which are subject to negotiation among the Company and the Representative.

[Signature Page Follows]

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement and that, upon request, the undersigned will execute any additional documents necessary in connection with the enforcement hereof. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

Very truly yours,

Printed Name of Holder

By: _____
Signature

Printed Name of Person Signing
*(and indicate capacity of person signing if
signing as custodian, trustee, or on behalf
of an entity)*



Baker & McKenzie LLP

1900 North Pearl Street, Suite
1500 Dallas, Texas 75201 United StatesTel: +1 214 978 3000
Fax: +1 214 978 3099
www.bakermckenzie.com**Asia Pacific**Bangkok
Beijing
Brisbane
Hanoi
Ho Chi Minh City
Hong Kong
Jakarta
Kuala Lumpur**
Manila
Melbourne
Seoul
Shanghai
Singapore
Sydney
Taipei
Tokyo
Yangon

February 8, 2021

GT Biopharma, Inc.
9350 Wilshire Blvd. Suite 203
Beverly Hills, CA 90212RE: Registration Statement on Form S-1 for GT Biopharma,
Inc.**Europe, Middle East**Abu Dhabi
Amman
Amsterdam
Aristeia
Berlin
Beirut
Barcelona
Berlin
Brussels
Budapest
Cairo
Casablanca
Doha
Dubai
Düsseldorf
Frankfurt/Main
Geneva
Hamburg
Jakarta**
Johannesburg
Kryn
London
Luxembourg
Madrid
Miami
Moscow
Munich
Paris
Prague
Riyadh**
Rome
St. Petersburg
Stockholm
Vienna
Warsaw
Zurich

Ladies and Gentlemen:

We are acting as special securities counsel to GT Biopharma, Inc., a Delaware corporation (the "Company"), in connection with the Company's Registration Statement on Form S-1 (as amended or supplemented, the "Registration Statement") filed under the U.S. Securities Act of 1933, as amended (the "Securities Act"), with the U.S. Securities and Exchange Commission (the "SEC") on or about the date hereof relating to the offering of up to \$24,250,000 of securities (the "Securities") consisting of: (i) units (the "Units"), each consisting of one share of common stock (the "Common Stock") and a warrant to purchase one share of common stock (the "Common Warrants"); (ii) pre-funded units (the "Pre-Funded Units"), each consisting of a pre-funded warrant to purchase one share of Common Stock and one Common Warrant, to purchasers whose ownership would exceed of 4.99% (or, at the election of the purchaser, 9.99%) of the Company's outstanding common stock following the consummation of the offering; (iii) a warrant (the "Underwriters' Warrant") to purchase a number of shares of Common Stock equal to 5% of the number of shares of Common Stock underlying the Units sold in the offering to be issued by the Company to the underwriters set forth in the Registration Statement; and (iv) the shares of Common Stock issuable upon exercise of the Common Warrants, the Pre-Funded Warrants and the Underwriters' Warrant.

In connection therewith, we have examined originals or copies certified or otherwise identified to our satisfaction of the restated certificate of incorporation of the Company, as amended, the restated bylaws of the Company, as amended, the corporate proceedings with respect to the filing of the Registration Statement and such other corporate records, agreements, documents and instruments and certificates or comparable documents of public officials and officers and representatives of the Company as we have deemed necessary or appropriate for the expression of the opinions contained herein.

In rendering the opinions contained herein, we have assumed the genuineness of all signatures on all documents examined by us, the legal capacity of all natural persons signing such documents, the due authority of all parties signing such documents, the authenticity of all documents submitted to us as originals and the conformity to the originals of all documents submitted to us as copies.

The AmericasBogota
Brasilia**
Buenos Aires
Caracas
Chicago
Dallas
Guadalajara
Houston
Jamaica
Lima
Mexico City
Miami
Manorrey
New York
Palo Alto
Pinar del Rio**
Rio de Janeiro**
San Francisco
Santiago
Sao Paulo**
Tijuana
Toronto
Valencia
Washington, DC* Associated Firm
** In cooperation with
Trench, Rossi & Weisbach
Advogados

Based upon and subject to the foregoing qualifications, assumptions and limitations and the further limitations set forth below, we are of the opinion that:

1. The Securities have been duly and validly authorized and, when such Securities are issued and paid for in accordance with terms of the Registration Statement and the underwriting agreement in respect thereof, will be validly issued, fully paid and non-assessable.
2. The shares of Common Stock that may be issued from time to time upon the exercise of the Common Warrants, the Pre-Funded Warrants and the Underwriters' Warrant have been duly and validly authorized and, when such shares of Common Stock are issued and paid for in accordance with terms of the the Common Warrants, the Pre-Funded Warrants and the Underwriters' Warrant, as applicable, assuming no change in the applicable law or facts, will be validly issued, fully paid and non-assessable.

We express no opinion to the extent that, notwithstanding its current reservation of shares of common stock for future issuance, future issuances of securities of the Company and/or adjustments to outstanding securities of the Company cause the Common Warrants to be convertible into more shares of the common stock than the number that then remain authorized but unissued.

The opinions expressed above are limited to the General Corporation Law of the State of Delaware and the federal laws of the United States of America. We do not purport to cover herein the application of the securities or "Blue Sky" laws of the various states.

This opinion letter is limited to the matters stated herein, and no opinion is implied or may be inferred beyond the matters expressly stated. We hereby consent to the use of our opinion as herein set forth as an exhibit to the Registration Statement and to the use of our name under the caption "Legal Matters" in the prospectus forming a part of the Registration Statement. In giving this consent, we do not hereby admit that we come within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the SEC promulgated thereunder or Item 509 of Regulation S-K.

Very truly yours,

/s/ BAKER & McKENZIE LLP

BAKER & McKENZIE LLP

BOARD SERVICE AGREEMENT

GT Biopharma, Inc., (“GT” or the “Company”) appoints, as of January 13, 2021, Rajesh Shrotriya (“Director”) to its board of directors for an initial term of two years, and as may be extended under the Company’s bylaws.

1. Commencement Date. January 13, 2021

2. Initial Board Position. Director shall serve as a member of the board of directors of the Company. Director will also serve as a member of the Audit Committee and member of the Nominating Committee through the term of this agreement. Director will perform all activities as reasonably expected of such position throughout the term of this agreement.

3. Term. The Director’s term shall commence as of the Commencement Date and shall continue for a period of two years.

4. Compensation.

a. Company shall pay the Director an annual stipend of \$20,000.00 for Director compensation, an additional \$5,000 annually as a member of the Audit Committee, due quarterly (first quarter payment will be pro-rata reflecting the seven weeks remaining in the quarter after the January 13th start date) and reimbursement of all reasonable expenses for service of her duties. Said fee shall cover all services including attendance at board and telephonic meetings and service as committee chair and/or member. Director shall be paid quarterly on the first day of each quarter with the exception of the first payment which will be on or before April 1, 2021.

b. The Company will grant Director a stock award of common stock of the Company equal to 1.00% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the company’s National Exchange financing date. Such stock shall vest in three equal tranches with the first tranche vesting January 13, 2021 upon joining the board, the second tranche vesting on January 13, 2022 and the final tranche vesting on January 13, 2023. In the event of a change of control transaction, such stock award shall immediately accelerate and vest and the Company shall pay the Director fair value of such shares in cash exchange therefore.

c. A formal board compensation plan will be put into effect that will specify annual equity grants for board members going forward.

5. Indemnification. The Company agrees to defend, indemnify and hold harmless the Director with respect to any claim made, or action, suit or proceeding instituted, against the Director including the reasonable costs and expenses of defense thereof, that is based upon or arises out of any services performed by the Director under this Agreement to the full extent that Directors of the Company may be indemnified under the By-laws of the Company, except if such claim, action or proceeding arises from the gross negligence of the Director. The Director will be named as insured under Company’s director and officer’s insurance policy.

IN WITNESS WHEREOF, the parties have executed this Agreement on the date set forth above.

GT Biopharma, Inc.,

Signature: /s/ Anthony
Cataldo

Name: Anthony Cataldo, Chairman and Chief Executive Officer

Director: Rajesh Shrotriya

Signature: /s/ Rajesh
Shrotriya

BOARD SERVICE AGREEMENT

GT Biopharma, Inc., ("GT" or the "Company") appoints, as of January 13, 2021, Michael Breen ("Director") to its board of directors for an initial term of two years, and as may be extended under the Company's bylaws.

1. Commencement Date. January 13, 2021

2. Initial Board Position. Director shall serve as a member of the board of directors of the Company. Chair of the Audit Committee and member of the Nominating Committee through the term of this agreement. Director will perform all activities as reasonably expected of such position throughout the term of this agreement.

3. Term. The Director's term shall commence as of the Commencement Date and shall continue for a period of two years.

4. Compensation.

a. Company shall pay the Director an annual stipend of \$20,000.00 for Director compensation, an additional \$5,000 annually as a member of the Audit Committee, due quarterly (first quarter payment will be pro-rata reflecting the seven weeks remaining in the quarter after the January 13th start date) and reimbursement of all reasonable expenses for service of her duties. Said fee shall cover all services including attendance at board and telephonic meetings and service as committee chair and/or member. Director shall be paid quarterly on the first day of each quarter with the exception of the first payment which will be on or before April 1, 2021.

b. The Company will grant Director a stock award of common stock of the Company equal to 1.00% of the number of fully diluted shares of common stock of the Company calculated on the fully diluted equity of the Company upon the company's National Exchange financing date. Such stock shall vest in three equal tranches with the first tranche vesting January 13, 2021 upon joining the board, the second tranche vesting on January 13, 2022 and the final tranche vesting on January 13, 2023. In the event of a change of control transaction, such stock award shall immediately accelerate and vest and the Company shall pay the Director fair value of such shares in cash exchange therefore.

c. A formal board compensation plan will be put into effect that will specify annual equity grants for board members going forward.

5. Indemnification. The Company agrees to defend, indemnify and hold harmless the Director with respect to any claim made, or action, suit or proceeding instituted, against the Director including the reasonable costs and expenses of defense thereof, that is based upon or arises out of any services performed by the Director under this Agreement to the full extent that Directors of the Company may be indemnified under the By-laws of the Company, except if such claim, action or proceeding arises from the gross negligence of the Director. The Director will be named as insured under Company's director and officer's insurance policy.

IN WITNESS WHEREOF, the parties have executed this Agreement on the date set forth above.

GT Biopharma, Inc.,

Signature: /s/ Anthony Cataldo

Name: Anthony Cataldo, Chairman and Chief Executive Officer

Director: Michael Breen

Signature: /s/ Michael Breen

AMENDMENT TO CONVERTIBLE NOTE

This Amendment to Convertible Note (this "Amendment") is entered into as of January 31, 2021 (the "Effective Date"), by and between GT Biopharma, Inc., a Delaware corporation (the "Borrower") and Alto Opportunity Master Fund, SPC - Segregated Master Portfolio B (the "Holder") and together with the Borrower, the "Parties") with respect to that certain Convertible Note Due January 31, 2021, dated December 22, 2020, in the original principal amount of \$500,000 (the "Note"). Any capitalized term used in this Amendment and not otherwise defined shall have the meaning ascribed to it in the Note.

RECITALS

- A. The Borrower promised to pay to the Holder the principal amount of the Note on the Maturity Date (as defined and set forth in the Note).
- B. The Maturity Date as set forth in the Note was set at January 31, 2021.
- C. The Company has requested that the Maturity Date be extended to February 15, 2021, and the Holder is willing to do so on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises and the mutual agreements therein, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

Section 1. Extension of Maturity Date. The Maturity Date shall be changed to February 15, 2021, effective as of the Effective Date.

Section 2. No Other Modification. The amendment set forth in Section 1 is effective only for the express purposes set forth herein, is limited precisely as written and shall not constitute or be deemed to constitute an amendment, waiver or modification of, or consent to any deviation from, the terms and conditions of the Note, except as expressly set forth herein, and shall not prejudice any right or remedy which the Holder may now have or may have in the future under or in connection with the Note. Except as expressly set forth herein, the Note shall remain in full force and effect and is hereby confirmed and ratified in all respects.

Section 3. Incorporation by Reference. The terms and provisions of Section 9 (*Miscellaneous*) of the Note are hereby incorporated by reference and shall apply to this Amendment *mutatis mutandis* as if fully set forth herein.

[Signature page follows]

IN WITNESS WHEREOF, the Parties have caused this Amendment to be executed by their duly authorized representatives as of the Effective Date.

GT BIOPHARMA, INC.

By: /s/ Michael Handelman
Name: Michael Handelman
Title: Chief Financial Officer

ALTO OPPORTUNITY MASTER FUND, SPC - SEGREGATED MASTER PORTFOLIO B

By: /s/ Waqas
Khatri
Name: Waqas Khatri
Title: Director

Signature Page to Amendment to Convertible Note

SECURITIES PURCHASE AGREEMENT

This Securities Purchase Agreement (this "Agreement") is dated as of _____, 2020, between GT Biopharma, Inc., a Delaware corporation and includes any successor Company thereto (the "Company"), and each purchaser identified on the signature pages hereto (each, including its successors and permitted assigns, a "Purchaser" and collectively, the "Purchasers").

WHEREAS, subject to the terms and conditions set forth in this Agreement and pursuant to Section 4(a)(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder, the Company desires to issue and sell to each Purchaser, and each Purchaser, severally and not jointly, desires to purchase in not more than two closings from the Company, securities of the Company as more fully described in this Agreement (the "Offering").

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Company and each Purchaser agree as follows:

**ARTICLE I.
DEFINITIONS**

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement: (a) capitalized terms that are not otherwise defined herein have the meanings given to such terms in the Notes (as defined herein), and (b) the following terms have the meanings set forth in this Section 1.1:

"Accredited Investor" shall have the meaning ascribed to such term in Section 3.2(c).

"Acquiring Person" shall have the meaning ascribed to such term in Section 4.7.

"Action" shall have the meaning ascribed to such term in Section 3.1(j).

"Affiliate" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

"Applicable Law" shall mean any law, rule or regulation of any governmental authority or jurisdiction applicable to any party to this Agreement, as the case may be.

"Board of Directors" means the board of directors of the Company.

"Business Day" means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are required by law or other governmental action to close.

"Buy-In" shall have the meaning ascribed to such term in Section 4.1(h).

"Closing" means the closing of the purchase and sale of the Securities pursuant to Section 2.1.

“Closing Date” means, with respect to any Closing, the date of such Closing.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Conversion Price” shall have the meaning ascribed to such term in the Notes.

“Debentures” means those certain 10% Senior Convertible Debentures of the Company issued on August 2, 2018, September 7, 2018, September 24, 2018, May 22, 2019, August 16, 2019, December 18, 2019, January 30, 2020 and the Senior Convertible Notes issued on February 4, 2019.

“DGCL” means the Delaware General Corporation Law.

“Disclosure Schedules” means the Disclosure Schedules of the Company delivered concurrently herewith.

“Disqualification Event” shall have the meaning ascribed to such term in Section 3.1(o).

“Effective Date” means the earliest of the date that (a) a Registration Statement has been declared effective by the Commission with respect to all of the Underlying Shares (as defined herein) and has been continuously effective for not less than sixty (60) Business Days, or (b) (i) all of the Underlying Shares have been sold pursuant to Rule 144, or (ii) may be sold by the holders thereof (other than Affiliates of the Company) pursuant to Rule 144 without the requirement for the Company to be in compliance with the current public information required under Rule 144 and without volume or manner-of-sale restrictions, and (c) Company counsel has delivered to the Transfer Agent and Purchasers a standing written unqualified opinion that resales may then be made by such holders of the Underlying Shares (other than Affiliates of the Company) pursuant to an effective Registration Statement or the exemption described in (b)(ii) above, which opinion shall be in form and substance reasonably acceptable to such Purchasers.

“End Date” means the first date that (i) less than 10% of the aggregate amount of Note principal is outstanding, and (ii) no Event of Default (as defined in the Note) nor an event which with the passage of time or the giving of notice could become an Event of Default is pending.

“Equity Line of Credit” shall have the meaning ascribed to such term in Section 4.13.

“Event of Default” shall have the meaning ascribed to such term in the Note.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Exempt Issuance” means the issuance of (a) shares of Common Stock or options to employees, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose, by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose and only as disclosed on Schedule 3.1(g), (b) securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities and any term thereof have not been amended since the date of this Agreement to increase the number of such securities or to decrease the issue price, exercise price, exchange price or conversion price of such securities and which securities and the principal terms thereof are set forth on Schedule 3.1(g), and described in the SEC Reports, (c) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall be intended to provide to the Company substantial additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities, (d) as set forth on Schedule 3.1(g), and (e) securities issued or issuable to the Purchasers and their assigns pursuant to this Agreement, the Notes and other Transaction Documents including without limitation, Section 4.16 and Section 4.22 herein, or upon exercise, conversion or exchange of any such securities.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“FDA” shall have the meaning ascribed to such term in Section 3.1(jj).

“GAAP” shall have the meaning ascribed to such term in Section 3.1(h).

“Indebtedness” shall have the meaning ascribed to such term in Section 3.1(aa).

“Intellectual Property Rights” shall have the meaning ascribed to such term in Section 3.1(o).

“Issuer Covered Person” means the Company, any of its predecessors, any affiliated issuer, any director, executive officer, other officer of the Company participating in the Offering, any beneficial owner of 20% or more of the Company’s outstanding voting equity securities, calculated on the basis of voting power, and any promoter (as that term is defined in Rule 405 under the Securities Act) connected with the Company in any capacity at the time of sale.

“Legend Removal Date” shall have the meaning ascribed to such term in Section 4.1(d).

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Listing Default” shall have the meaning ascribed to such term in Section 4.11(b).

“Majority in Interest” shall have the meaning ascribed to such term in Section 5.5.

“Material Adverse Effect” shall have the meaning assigned to such term in Section 3.1(b).

“Material Permits” shall have the meaning ascribed to such term in Section 3.1(m).

“Maximum Rate” shall have the meaning ascribed to such term in Section 5.17.

“Money Laundering Laws” shall have the meaning ascribed to such term in Section 3.1(qq).

“Notes” means the convertible notes issuable pursuant to this Agreement, in the form of Exhibit A hereto.

“OFAC” shall have the meaning ascribed to such term in Section 3.1(nn).

“Participation Maximum” shall have the meaning ascribed to such term in Section 4.16(a).

“Permitted Indebtedness” means (a) the Indebtedness evidenced by the Notes and the Debentures all as set forth on Schedule 3.1(aa), (b) any liabilities for borrowed money or amounts owed not in excess of \$10,000 in the aggregate (other than trade accounts payable incurred in the ordinary course of business), (c) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company’s consolidated balance sheet (or the notes thereto) not affecting more than \$10,000 in the aggregate, except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; (d) the present value of any lease payments not in excess of \$100,000 due under leases required to be capitalized in accordance with GAAP; and (e) any liabilities for borrowed money that are junior to the Debentures pursuant to an intercreditor agreement acceptable to Purchasers, and the holders of which are not granted any security interest.

“Permitted Lien” means the individual and collective reference to the following: (a) Liens for taxes, assessments and other governmental charges or levies not yet due or Liens for taxes, assessments and other governmental charges or levies being contested in good faith and by appropriate proceedings for which adequate reserves (in the good faith judgment of the management of the Company) have been established in accordance with GAAP, (b) Liens imposed by law which were incurred in the ordinary course of the Company’s business, such as carriers’, warehousemen’s and mechanics’ Liens, statutory landlords’ Liens, and other similar Liens arising in the ordinary course of the Company’s business, and which (x) do not individually or in the aggregate materially detract from the value of such property or assets or materially impair the use thereof in the operation of the business of the Company and its consolidated Subsidiaries or (y) are being contested in good faith by appropriate proceedings, which proceedings have the effect of preventing for the foreseeable future the forfeiture or sale of the property or asset subject to such Liens, and (c) Liens in connection with Permitted Indebtedness under clauses (a), (b) and (c) thereunder.

“Person” means an individual, corporation or Company, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Pre-Notice” shall have the meaning ascribed to such term in Section 4.16(b).

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Pro-Rata Portion” shall have the meaning ascribed to such term in Section 4.16(e).

“Public Information Failure” shall have the meaning ascribed to such term in Section 4.3(b).

“Public Information Failure Payments” shall have the meaning ascribed to such term in Section 4.3(b).

“Purchaser Party” shall have the meaning ascribed to such term in Section 4.10.

“Registration Rights Agreement” means the Registration Rights Agreement, dated the date hereof, among the Company and the Purchasers, in the form of Exhibit B attached hereto.

“Registration Statement” means a registration statement declared effective by the Commission allowing the public resale of not less than all of the Underlying Shares by the Purchaser, at the time such registration statement is effective and the prospectus contained therein is current.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Required Minimum” means, as of any date, 150% of the maximum aggregate number of shares of Common Stock then issued or potentially issuable in the future pursuant to the Transaction Documents, including any Underlying Shares issuable upon conversion in full of all Notes, ignoring any conversion or exercise limits set forth therein.

“Rule 144” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(h).

“Securities” means the Notes and the Underlying Shares.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Short Sales” means “short sales” as defined in Rule 200 of Regulation SHO under the Exchange Act and all types of direct and indirect stock pledges, forward sale contracts, options, puts, calls, swaps and similar arrangements (including on a total return basis) whether such transactions are made through U.S. or non-U.S. broker dealers or foreign regulated brokers.

“Stock Option Plans” means the Stock Option Plan of the Company in effect as the date of this Agreement, the principal terms of which have been disclosed in the SEC Reports.

“Subscription Amount” means, as to each Purchaser, the aggregate amount to be paid for the Notes purchased hereunder at the Closing as specified below such Purchaser’s name on the signature page of this Agreement and next to the heading “Subscription Amount,” in United States dollars and in immediately available funds.

“Subsequent Financing” shall have the meaning ascribed to such term in Section 4.16(a).

“Subsequent Financing Notice” shall have the meaning ascribed to such term in Section 4.16(b).

“Subsidiary” means with respect to any entity at any date, any direct or indirect Person, limited or general partnership, limited liability company, trust, estate, association, joint venture or other business entity of which (A) more than 50% of (i) the outstanding capital stock having (in the absence of contingencies) ordinary voting power to elect a majority of the board of directors or other managing body of such entity, (ii) in the case of a partnership or limited liability company, the interest in the capital or profits of such partnership or limited liability company or (iii) in the case of a trust, estate, association, joint venture or other entity, the beneficial interest in such trust, estate, association or other entity business is, at the time of determination, owned or controlled directly or indirectly through one or more intermediaries, by such entity, or (B) is under the actual control of the Company.

“Termination Date” means [].

“Trading Day” means a day on which the principal Trading Market is open for trading for three or more hours, or if there is no applicable Trading Market, Trading Day shall mean Business Day.

“Trading Market” means the first listed of any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, the OTC Bulletin Board, the OTCQB, or the OTCQX (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Notes, the Registration Rights Agreement, all exhibits and schedules thereto and hereto and any other documents or agreements executed by any party hereto in connection with the transactions contemplated hereunder.

“Transfer Agent” means Computershare, the current transfer agent of the Company, with a mailing address of 350 Indiana Street, Suite 800 Golden, Colorado 80401, and a facsimile number of (303) 262-0610, and any successor transfer agent of the Company.

“Underlying Shares” means the shares of Common Stock issued and issuable upon conversion of the Notes and issued and issuable in lieu of the cash payment of interest on the Notes in accordance with the terms of the Notes and any other shares of Common Stock issued or issuable to a Purchaser in connection with or pursuant to the Securities or Transaction Documents.

“Unlegended Shares” shall have the meaning ascribed to such term in Section 4.1(d).

“Variable Priced Equity Linked Instruments” shall have the meaning ascribed to such term in Section 4.13.

“Variable Rate Transaction” shall have the meaning ascribed to such term in Section 4.13.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Stock is not then listed or quoted for trading on a Trading Market but is then reported on the OTC Pink Marketplace maintained by the OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the volume weighted average price of the Common Stock on the first such facility (or a similar organization or agency succeeding to its functions of reporting prices), or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected by the Company, the fees and expenses of which shall be paid by the Company.

ARTICLE II. PURCHASE AND SALE

2.1 Purchase and Sale of Notes.

(a) Subject to the terms and conditions of this Agreement, each Purchaser agrees to purchase and the Company agrees to sell and issue to each Purchaser at the Closing (as defined below) the principal amount of Notes of the Company as is set forth opposite such Purchaser’s name on such Purchaser’s signature page hereto. The Notes issued to the Purchasers pursuant to this Agreement (including any notes issued at the Initial Closing and any Additional Notes, as defined below) shall be referred to in this Agreement as the “Notes.” Each Note shall be in the form attached hereto as Exhibit A hereto.

(b) The initial purchase and sale of the Notes shall take place remotely via the electronic exchange of documents and signatures on the Business Day on which all of the Transaction Documents have been executed and delivered by the applicable parties thereto, and all conditions precedent to (i) the Purchasers’ obligation to pay the Subscription Amount at such Closing, and (ii) the Company’s obligations to deliver the Securities to be issued and sold at such Closing, in each case, have been satisfied or waived, but in no event later than the tenth Business Day following the date hereof (such initial closing is referred to herein as the “Initial Closing”).

(c) After the Initial Closing, the Company may sell, in one or more closings and on the terms and conditions contained in this Agreement, Notes in the aggregate principal amount of up to \$6,000,000 (collectively, the “Additional Notes”), to one or more purchasers (the “Additional Purchasers”) reasonably acceptable to the Company, provided that (A) such subsequent sale is consummated prior to May 31, 2020 (the “Termination Date”), or such date as the Company and a Majority in Interest may mutually agree upon; and (B) each Additional Purchaser shall become a party to the Transaction Documents by executing and delivering a counterpart signature page to each of the Transaction Documents. Signature pages shall be added to this Agreement to reflect the amount of Additional Notes purchased at each such closing (an “Additional Closing”) and together with the Initial Closing, each, a “Closing”) and the parties purchasing such Additional Notes.

(d) At each Closing, the payment by a Purchaser of such Purchaser’s Subscription Amount may be made via wire transfer or a certified check in immediately available funds to the Company.

NO MINIMUM AMOUNT OF NOTES MUST BE SOLD IN ORDER FOR THE COMPANY TO ACCEPT ANY SUBSCRIPTIONS, AND ALL NET PROCEEDS OF THE OFFERING WILL BE IMMEDIATELY AVAILABLE FOR COMPANY PURPOSES UPON CLOSING.

2.2 Deliveries.

(a) On or prior to the Closing Date, the Company shall deliver or cause to be delivered to each Purchaser the following:

(i) this Agreement duly executed by the Company;

(ii) a Note with a principal amount as set forth on the signature page hereto equal to each Purchaser’s Subscription Amount, registered in the name of such Purchaser;

(iii) the Registration Rights Agreement duly executed by the Company;

(iv) a certificate executed on behalf of the Company by its Principal Executive Officer or Chief Executive Officer (each as defined in the Exchange Act) of the Company, dated as of the Closing Date, in which such officer shall certify that the conditions set forth in Section 2.3(b) have been fulfilled; and

(v) a certificate executed on behalf of the Company by its Secretary’s certificate containing (i) copies of the text of the resolutions by which the corporate action on the part of the Company necessary to approve this Agreement and the other Transaction Documents and the transactions and actions contemplated hereby and thereby, which shall be accompanied by a certificate of the corporate secretary or assistant corporate secretary of Company dated as of the Closing Date certifying to the Purchasers that such resolutions were duly adopted and have not been amended or rescinded, (ii) an incumbency certificate dated as of the Closing Date executed on behalf of Company by its corporate secretary or one of its assistant corporate secretaries certifying the office of each officer of Company executing this Agreement, or any other agreement, certificate or other instrument executed pursuant hereto, and (iii) copies of (A) the Company’s Certificate of Incorporation and bylaws in effect on the Closing Date, and (B) the certificate evidencing the good standing of Company as of a day within five (5) Business Days prior to the Closing Date.

(b) On or prior to the Closing Date, each Purchaser shall deliver or cause to be delivered to the Company the following:

(i) this Agreement duly executed by such Purchaser;

(ii) such Purchaser’s Subscription Amount;

(iii) Accredited Investor Questionnaire duly executed by each Purchaser; and

(iv) the Registration Rights Agreement duly executed by each Purchaser.

2.3 Closing Conditions

(a) The obligations of the Company hereunder to effect the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (determined without regard to any materiality, Material Adverse Effect or other similar qualifiers therein) on the date of this Agreement and the Closing Date of the representations and warranties of the Purchasers contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

(ii) all obligations, covenants and agreements of each Purchaser under this Agreement required to be performed at or prior to the Closing Date shall have been performed in all material respects; and

(iii) the delivery by each Purchaser of the items set forth in Section 2.2(b) of this Agreement.

(b) The respective obligations of a Purchaser hereunder to effect the Closing, unless waived by such Purchaser, are subject to the following conditions being met:

(i) the accuracy in all material respects (determined without regard to any materiality, Material Adverse Effect or other similar qualifiers therein) on the date of this Agreement and Closing Date of the representations and warranties of the Company contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

(ii) all Required Approvals, obligations, covenants and agreements of the Company under the Transaction Documents required to be performed or obtained at or prior to the Closing Date shall have been performed or obtained;

(iii) the delivery by the Company of the items set forth in Section 2.2(a) of this Agreement;

(iv) there shall have been no Material Adverse Effect with respect to the Company since the date hereof; and

(v) from the date hereof to the Closing Date, and, at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, or minimum prices shall not have been established on securities whose trades are reported by such service, or on any Trading Market, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of such Purchaser, makes it impracticable or inadvisable to purchase the Securities at the Closing.

**ARTICLE III.
REPRESENTATIONS AND WARRANTIES**

3.1 Representations and Warranties of the Company. Except as set forth in the SEC Reports or the Disclosure Schedules, which Disclosure Schedules shall be deemed a part hereof and shall qualify any representation made herein only to the extent of the disclosure contained in the corresponding or cross-referenced section of the Disclosure Schedules, the Company hereby makes the following representations and warranties to each Purchaser:

(a) Subsidiaries. All of the direct and indirect Subsidiaries of the Company and the Company's ownership interests therein are set forth on Schedule 3.1(a). The Company owns, directly or indirectly, the capital stock or other equity interests of each Subsidiary set forth on Schedule 3.1(a), free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of pre-emptive and similar rights to subscribe for or purchase securities.

(b) Organization and Qualification. The Company and each Subsidiary is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and each Subsidiary is duly qualified to conduct business and is in good standing as a foreign Person or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, would not reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, or condition (financial or otherwise) of the Company and each Subsidiary, taken as a whole, or (iii) a material adverse effect on the Company's ability to perform in any material respect on a timely basis its obligations under any Transaction Document (any of (i), (ii) or (iii), a "Material Adverse Effect") and, no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except: (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by Applicable Law.

(d) No Conflicts. The execution, delivery and performance by the Company and all Persons other than the Purchasers of this Agreement and the other Transaction Documents, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby to which it is a party do not and will not: (i) conflict with or violate any provision of the Company's or any Subsidiary's or such other Person's certificate or articles of incorporation, bylaws or other organizational or charter documents, (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, acceleration, adjustment, exchange, reset, exercise or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt, equity or other instrument (evidencing Company or Subsidiary equity, debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary or such other Person is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clause (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filings required pursuant to Section 4.6 of this Agreement, (ii) the notice and/or application(s) to each applicable Trading Market for the issuance and sale of the Securities and the listing of the Underlying Shares for trading thereon in the time and manner required thereby and (iii) the filing of Form D with the Commission and such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

(f) Issuance of the Securities. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents. The Underlying Shares, when issued in accordance with the terms of the Transaction Documents, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents.

(g) Capitalization. Except as set forth on Schedule 3.1(g), the Company has not issued any capital stock since its most recently filed annual report on Form 10-K. Except as set forth on Schedule 3.1(g), no Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except as disclosed on Schedule 3.1(g), there are no outstanding options, employee or incentive stock option plans, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire any shares of Common Stock, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents. Except as set forth on Schedule 3.1(g), the issuance and sale of the Securities will not obligate the Company to issue shares of Common Stock or other securities to any Person (other than the Purchasers) and will not result in a right of any holder of Company securities to adjust the exercise, conversion, exchange or reset price under any of such securities. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in material compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. Except as contemplated by Section 3.1(e), no further approval or authorization of any stockholder, the Board of Directors or other Person is required for the issuance and sale of the Securities and the Company's compliance with the terms of the Transaction Documents. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders. Except as disclosed on Schedule 3.1(g), the Company is not a party to any Variable Rate Transaction and as of Closing, there will not be outstanding any Equity Line of Credit nor Variable Priced Equity Linked Instruments as of the Closing.

(h) SEC Reports; Financial Statements. Except as set forth on Schedule 3.1(h), the Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the three years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, being collectively referred to herein as the "SEC Reports") on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The Company has never been an issuer subject to Rule 144(i) under the Securities Act. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved ("GAAP"), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

(i) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as set forth on Schedule 3.1(i) or as specifically disclosed in a subsequent SEC Report filed prior to the date hereof: (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement or as set forth on Schedule 3.1(i), no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, properties, operations, assets or financial condition, that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one (1) Trading Day prior to the date that this representation is made.

(j) Litigation. Except as set forth in Schedule 3.1(j), there is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an "Action") which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. Except as set forth on Schedule 3.1(k), the Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(l) Compliance. Except as set forth on Schedule 3.1(l), neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(m) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(n) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and, the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(o) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights as described in the SEC Reports as necessary or required for use in connection with their respective businesses and which the failure to so have could have a Material Adverse Effect (collectively, the "Intellectual Property Rights"). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person, except as could not have or reasonably be expected to not have a Material Adverse Effect. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(p) Insurance. The Company and each Subsidiary maintain insurance coverage for Product/Human Clinical Trial Liability, Professional Liability, General Liability, Property and Directors and Officers.

(q) Transactions With Affiliates and Employees. Except as set forth in the SEC Reports and on Schedule 3.1(q), none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from providing for the borrowing of money from or lending of money to, or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$60,000 other than for: (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(r) Sarbanes-Oxley: Internal Accounting Controls. The Company and the Subsidiaries are not in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. The Company and the Subsidiaries currently do not maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(s) Certain Fees. No brokerage or finder's fees or commissions are or will be payable by the Company or any Subsidiaries to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. The Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.

(t) Private Placement. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, no registration under the Securities Act is required for the offer and sale of the Securities by the Company to the Purchasers as contemplated hereby. The issuance and sale of the Securities hereunder does not contravene the rules and regulations of the Trading Market.

(u) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(v) Registration Rights. No Person has any right to cause the Company to effect the registration under the Securities Act of any securities of the Company or any Subsidiaries other than as set forth on Schedule 3.1(v).

(w) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. The Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(x) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company's issuance of the Securities and the Purchasers' ownership of the Securities.

(y) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, the Company confirms that neither it nor any other Person acting on its behalf has provided any of the Purchasers or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information. The Company understands and confirms that the Purchasers will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Purchasers regarding the Company and its Subsidiaries, their respective businesses and the transactions contemplated hereby, including the Disclosure Schedules to this Agreement, is true and correct and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading. The Company acknowledges and agrees that no Purchaser makes or has made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 3.2 hereof.

(z) No Integrated Offering. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of (i) the Securities Act which would require the registration of any such securities under the Securities Act, or (ii) any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(a a) Indebtedness. Schedule 3.1(aa) sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$10,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$10,000 due under leases required to be capitalized in accordance with GAAP.

(bb) Solvency. Based on the consolidated financial condition of the Company and Subsidiaries as of the Closing Date, and the Company's good faith estimate of the fair market value of its assets, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder: (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. Schedule 3.1(bb) sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$50,000 in the aggregate (including trade accounts payable and other liabilities incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(cc) Tax Status. Except as set forth on Schedule 3.1(cc) and for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

(dd) No General Solicitation. Neither the Company nor any person acting on behalf of the Company has offered or sold any of the Securities by any form of general solicitation or general advertising. The Company has offered the Securities for sale only to the Purchasers and certain other “accredited investors” within the meaning of Rule 501 under the Securities Act.

(ee) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has: (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law or (iv) violated in any material respect any provision of FCPA.

(ff) Accountants. The Company’s accounting firm is set forth on Schedule 3.1(ff) of the Disclosure Schedules. To the knowledge and belief of the Company, such accounting firm: (i) is a registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company’s Annual Report for the fiscal year ending December 31, 2018.

(gg) Seniority. As of the Closing Date, except as set forth on Schedule 3.1(gg), no Indebtedness or other claim against the Company is senior to the Debentures and Notes in right of payment, whether with respect to interest or upon liquidation or dissolution, or otherwise, other than indebtedness secured by purchase money security interests (which is senior only as to underlying assets covered thereby) and capital lease obligations (which is senior only as to the property covered thereby).

(hh) No Disagreements with Accountants and Lawyers. There are no disagreements of any kind presently existing, or reasonably anticipated by the Company to arise, between the Company and the accountants and lawyers formerly or presently employed by the Company.

(ii) Acknowledgment Regarding Purchasers’ Purchase of Securities. The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm’s length purchaser with respect to the Transaction Documents and the transactions contemplated thereby. The Company further acknowledges that no Purchaser is acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated thereby and any advice given by any Purchaser or any of their respective representatives or agents in connection with the Transaction Documents and the transactions contemplated thereby is merely incidental to the Purchasers’ purchase of the Securities. The Company further represents to each Purchaser that the Company’s decision to enter into this Agreement and the other Transaction Documents has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.

(jj) Acknowledgment Regarding Purchaser’s Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for Sections 3.2(f) and 4.15 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or “derivative” securities based on securities issued by the Company or to hold the Securities for any specified term, (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or “derivative” transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company’s publicly-traded securities, (iii) any Purchaser, and counter-parties in “derivative” transactions to which any such Purchaser is a party, directly or indirectly, may presently have a “short” position in the Common Stock and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm’s length counter-party in any “derivative” transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Securities are outstanding, including, without limitation, during the periods that the value of the Underlying Shares deliverable with respect to Securities are being determined, and (z) such hedging activities (if any) could reduce the value of the existing stockholders’ equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.

(kk) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Securities, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Company's placement agent in connection with the placement of the Securities.

(ll) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration ("FDA") under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder ("FDCA") that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a "Pharmaceutical Product"), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company's knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(mm) Stock Option Plans. Each stock option granted by the Company under the Company's stock option plan was granted (i) in accordance with the terms of the Company's stock option plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company's stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(nn) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").

(oo) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon Purchaser's request.

(pp) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the "BHCA") and to regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve"). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(qq) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the “Money Laundering Laws”), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

(rr) Other Covered Persons. The Company is not aware of any person (other than any Issuer Covered Person) that has been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with the sale of any Regulation D Securities.

(ss) Notice of Disqualification Events. The Company will notify the Purchasers in writing, prior to the Closing Date of (i) any Disqualification Event relating to any Issuer Covered Person and (ii) any event that would, with the passage of time, become a Disqualification Event relating to any Issuer Covered Person.

(tt) Survival. The foregoing representations and warranties shall survive the Closing.

3.2 Representations and Warranties of the Purchasers. Each Purchaser, for itself and for no other Purchaser, hereby represents and warrants as of the date hereof and as of the Closing Date to the Company as follows (unless as of a specific date therein):

(a) Organization; Authority. Such Purchaser is either an individual or an entity duly incorporated or formed, validly existing and in good standing under the laws of the jurisdiction of its incorporation or formation with full right, corporate, partnership, limited liability company or similar power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of the Transaction Documents and performance by such Purchaser of the transactions contemplated by the Transaction Documents have been duly authorized by all necessary corporate, partnership, limited liability company or similar action, as applicable, on the part of such Purchaser. Each Transaction Document to which it is a party has been duly executed by such Purchaser, and when delivered by such Purchaser in accordance with the terms hereof, will constitute the valid and legally binding obligation of such Purchaser, enforceable against it in accordance with its terms, except: (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors’ rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by Applicable Law.

(b) Understandings or Arrangements. Such Purchaser understands that the Securities are “restricted securities” and have not been registered under the Securities Act or any applicable state securities law and is acquiring the Securities as principal for its own account and not with a view to or for distributing or reselling such Securities or any part thereof in violation of the Securities Act or any applicable state securities law, has no present intention of distributing any of such Securities in violation of the Securities Act or any applicable state securities law and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities in violation of the Securities Act or any applicable state securities law (this representation and warranty not limiting such Purchaser’s right to sell the Securities pursuant to any registration statement or otherwise in compliance with applicable federal and state securities laws). Such Purchaser is acquiring the Securities hereunder in the ordinary course of its business.

(c) Purchaser Status. At the time such Purchaser was offered the Securities, it was, and as of the date hereof it is, and on each date on which it converts any Notes it will be either: (i) an accredited investor (“Accredited Investor”) as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7) or (a)(8) under the Securities Act or (ii) a “qualified institutional buyer” as defined in Rule 144A(a) under the Securities Act. Such Purchaser is not required to be registered as a broker-dealer under Section 15 of the Exchange Act. Such Purchaser has the authority and is duly and legally qualified to purchase and own the Securities. Such Purchaser is able to bear the risk of such investment for an indefinite period and to afford a complete loss thereof. The information set forth on the signature pages hereto regarding such Purchaser is true and complete in all respects. Except as disclosed, such Purchaser has had no position, office or other material relationship within the past three years with the Company or Persons (as defined below) known to such Purchaser to be affiliates of the Company, and is not a member of the Financial Industry Regulatory Authority or an “associated person” (as such term is defined under the FINRA Membership and Registration Rules Section 1011).

(d) Experience of Such Purchaser. Such Purchaser, either alone or together with its representatives, has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Securities, and has so evaluated the merits and risks of such investment. Such Purchaser is able to bear the economic risk of an investment in the Securities and, at the present time, is able to afford a complete loss of such investment.

(e) Information on Company. Such Purchaser has been furnished with or has had access to the SEC Reports and Disclosure Schedules. Purchasers are not deemed to have any knowledge of any information not included in the SEC Reports and Disclosure Schedules unless such information is delivered in the manner described in the next sentence. In addition, such Purchaser may have received in writing from the Company such other information concerning its operations, financial condition and other matters as such Purchaser has requested, identified thereon as OTHER WRITTEN INFORMATION (such other information is collectively, the “*Other Written Information*”), and considered all factors such Purchaser deems material in deciding on the advisability of investing in the Securities. Such Purchaser was afforded (i) the opportunity to ask such questions as such Purchaser deemed necessary of, and to receive answers from, representatives of the Company concerning the merits and risks of acquiring the Securities; (ii) the right of access to information about the Company and its financial condition, results of operations, business, properties, management and prospects sufficient to enable such Purchaser to evaluate the Securities; and (iii) the opportunity to obtain such additional information that the Company possesses or can acquire without unreasonable effort or expense that is necessary to make an informed investment decision with respect to acquiring the Securities.

(f) Compliance with Securities Act; Reliance on Exemptions. Such Purchaser understands and agrees that the Securities have not been registered under the Securities Act or any applicable state securities laws, by reason of their issuance in a transaction that does not require registration under the Securities Act, and that such Securities must be held indefinitely unless a subsequent disposition is registered under the Securities Act or any applicable state securities laws or is exempt from such registration. Such Purchaser understands and agrees that the Securities are being offered and sold to such Purchaser in reliance on specific exemptions from the registration requirements of United States federal and state securities laws and regulations and that the Company is relying in part upon the truth and accuracy of, and such Purchaser’s compliance with, the representations, warranties, agreements, acknowledgments and understandings of such Purchaser set forth herein in order to determine the availability of such exemptions and the eligibility of such Purchaser to acquire the Securities.

(g) Communication of Offer. Such Purchaser is not purchasing the Securities as a result of any “general solicitation” or “general advertising,” as such terms are defined in Regulation D, which includes, but is not limited to, any advertisement, article, notice or other communication regarding the Securities published in any newspaper, magazine or similar media or on the internet or broadcast over television, radio or the internet or presented at any seminar or any other general solicitation or general advertisement.

(h) No Governmental Review. Such Purchaser understands that no United States federal or state agency or any other governmental or state agency has passed on or made recommendations or endorsement of the Securities or the suitability of the investment in the Securities nor have such authorities passed upon or endorsed the merits of the Offering.

(i) No Conflicts. The execution, delivery and performance of this Agreement and performance under the other Transaction Documents and the consummation by such Purchaser of the transactions contemplated hereby and thereby or relating hereto or thereto do not and will not (i) result in a violation of such Purchaser’s charter documents, bylaws or other organizational documents, if applicable, (ii) conflict with nor constitute a default (or an event which with notice or lapse of time or both would become a default) under any agreement to which such Purchaser is a party, nor (iii) result in a violation of any law, rule, or regulation, or any order, judgment or decree of any court or governmental agency applicable to such Purchaser or its properties (except for such conflicts, defaults and violations as would not, individually or in the aggregate, have a material adverse effect on such Purchaser). Such Purchaser is not required to obtain any consent, authorization or order of, or make any filing or registration with, any court or governmental agency in order for it to execute, deliver or perform any of its obligations under this Agreement or perform under the other Transaction Documents nor to purchase the Securities in accordance with the terms hereof, provided that for purposes of the representation made in this sentence, such Purchaser is assuming and relying upon the accuracy of the relevant representations and agreements of the Company herein.

(j) Certain Transactions and Confidentiality. Other than consummating the transactions contemplated hereunder, such Purchaser has not directly or indirectly, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, executed any purchases or sales, including Short Sales, of the securities of the Company during the period commencing as of the time that such Purchaser first received a written term sheet from the Company or any other Person representing the Company setting forth the material terms of the transactions contemplated hereby and ending immediately prior to the execution hereof.

(k) Survival. The foregoing representations and warranties shall survive the Closing.

The Company acknowledges and agrees that the representations contained in Section 3.2 shall not modify, amend or affect such Purchaser’s right to rely on the Company’s representations and warranties contained in this Agreement or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transaction contemplated hereby.

ARTICLE IV.
OTHER AGREEMENTS OF THE PARTIES

4.1 (a) Transfer Restrictions. The Securities may only be disposed of in compliance with state and federal securities laws. In connection with any transfer of Securities other than pursuant to an effective registration statement or Rule 144, to the Company or to an Affiliate of a Purchaser or in connection with a pledge as contemplated in Section 4.1(c), the Company may require the transferor thereof to provide to the Company, at the Company's expense, an opinion of counsel selected by the transferor and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Securities under the Securities Act. As a condition of such transfer, any such transferee shall agree in writing to be bound by the terms of this Agreement and shall have the rights and obligations of a Purchaser under this Agreement and the other Transaction Documents.

(b) Legend. The Purchasers agree to the imprinting, so long as is required by this Section 4.1, of a legend on any of the Securities in the following form:

[NEITHER] THIS SECURITY [NOR THE SECURITIES INTO WHICH THIS SECURITY IS [EXERCISABLE] [CONVERTIBLE]] HAS [NOT] BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO THE COMPANY. THIS SECURITY [AND THE SECURITIES ISSUABLE UPON [EXERCISE] [CONVERSION] OF THIS SECURITY] MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN ACCREDITED INVESTOR AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

(c) Pledge. The Company acknowledges and agrees that a Purchaser may from time to time pledge pursuant to a bona fide margin agreement with a registered broker-dealer or grant a security interest in some or all of the Securities to a financial institution that is an Accredited Investor and who agrees to be bound by the provisions of this Agreement and, if required under the terms of such arrangement, such Purchaser may transfer pledge or secure Securities to the pledgees or secured parties. Such a pledge or transfer would not be subject to approval of the Company and no legal opinion of legal counsel of the pledgee, secured party or pledgor shall be required in connection therewith. Further, no notice shall be required of such pledge. At the appropriate Purchaser's expense, the Company will execute and deliver such reasonable documentation as a pledgee or secured party of Securities may reasonably request in connection with a pledge or transfer of the Securities, including, if the Securities are subject to registration pursuant to Section 4.26 hereof, the preparation and filing of any required prospectus supplement under Rule 424(b)(3) under the Securities Act or other applicable provision of the Securities Act to appropriately amend the list of selling stockholders thereunder.

(d) Legend Removal. Certificates evidencing the Underlying Shares shall not contain any legend ("Unlegended Shares") (including the legend set forth in Section 4.1(b) hereof): (i) while a registration statement covering the resale of such security is effective under the Securities Act, (ii) following any sale of such Underlying Shares pursuant to Rule 144, (iii) if such Underlying Shares are eligible for sale under Rule 144 (in the case of a non-Affiliate of the Company), without the requirement for the Company to be in compliance with the current public information required under Rule 144 as to such Underlying Shares and without volume or manner-of-sale restrictions or (iv) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission). The Company shall cause its counsel, at the expense of the Company, to issue a legal opinion to the Transfer Agent promptly after the Effective Date if required by the Transfer Agent to effect the removal of the legend hereunder. If all or any Notes are converted at a time when there is an effective registration statement to cover the resale of the Underlying Shares, or if such Underlying Shares may be sold under Rule 144 or if such legend is not otherwise required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission) then such Underlying Shares shall be issued free of all legends. The Company agrees that following such time as such legend is no longer required under this Section 4.1(c), it will, no later than two (2) Trading Days following the delivery by a Purchaser to the Company or the Transfer Agent of a certificate representing Underlying Shares, as applicable, issued with a restrictive legend (such second (2nd) Trading Day, the "Legend Removal Date"), deliver or cause to be delivered to such Purchaser a certificate representing such shares that is free from all restrictive and other legends. The Company may not make any notation on its records or give instructions to the Transfer Agent that enlarge the restrictions on transfer set forth in this Section 4. Certificates for Underlying Shares subject to legend removal hereunder shall be transmitted by the Transfer Agent to the Purchaser by crediting the account of the Purchaser's prime broker with the Depository Trust Company System as directed by such Purchaser.

(e) Legend Removal Default. In addition to such Purchaser's other available remedies, provided the conditions for legend removal set forth in Section 4.1(d) exist, the Company shall pay to a Purchaser, in cash, as partial liquidated damages and not as a penalty, for each \$1,000 of Underlying Shares (based on the higher of the actual purchase price or VWAP of the Common Stock on the date such Securities are submitted to the Transfer Agent) delivered for removal of the restrictive legend and subject to Section 4.1(d), \$10 per Trading Day for each Trading Day after the Legend Removal Date (increasing to \$20 per Trading Day after the fifth Trading Day) until such certificate is delivered without a legend. Nothing herein shall limit such Purchaser's right to pursue actual damages for the Company's failure to deliver certificates representing any Securities as required by the Transaction Documents, and such Purchaser shall have the right to pursue all remedies available to it at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief.

(f) DWAC. In lieu of delivering physical certificates representing the Unlegended Shares, upon request of a Purchaser, so long as the certificates therefor do not bear a legend and the Purchaser is not obligated to return such certificate for the placement of a legend thereon, the Company shall cause its transfer agent to electronically transmit the Unlegended Shares by crediting the account of Purchaser's prime broker with the Depository Trust Company through its Deposit Withdrawal At Custodian system, provided that the Company's Common Stock is DTC eligible and the Company's transfer agent participates in the Deposit Withdrawal at Custodian system. Such delivery must be made on or before the Legend Removal Date.

(g) Injunction. In the event a Purchaser shall request delivery of Unlegended Shares as described in this Section 4.1 and the Company is required to deliver such Unlegended Shares, the Company may not refuse to deliver Unlegended Shares based on any claim that such Purchaser or anyone associated or affiliated with such Purchaser has not complied with Purchaser's obligations under the Transaction Documents, or for any other reason, unless, an injunction or temporary restraining order from a court, on notice, restraining and or enjoining delivery of such Unlegended Shares shall have been sought and obtained by the Company and the Company has posted a surety bond for the benefit of such Purchaser in the amount of the greater of (i) 120% of the amount of the aggregate purchase price of the Underlying Shares to be subject to the injunction or temporary restraining order, or (ii) the VWAP of the Common Stock on the Trading Day before the issue date of the injunction multiplied by the number of Unlegended Shares to be subject to the injunction, which bond shall remain in effect until the completion of arbitration/litigation of the dispute and the proceeds of which shall be payable to such Purchaser to the extent Purchaser obtains judgment in Purchaser's favor.

(h) Buy-In. In addition to any other rights available to Purchaser, if the Company fails to deliver to a Purchaser Unlegended Shares as required pursuant to this Agreement and after the Legend Removal Date the Purchaser, or a broker on the Purchaser's behalf, purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by such Purchaser of the shares of Common Stock which the Purchaser was entitled to receive in unlegended form from the Company (a "Buy-In"), then the Company shall promptly pay in cash to the Purchaser (in addition to any remedies available to or elected by the Purchaser) the amount, if any, by which (A) the Purchaser's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (B) the aggregate purchase price of the shares of Common Stock delivered to the Company for reissuance as Unlegended Shares together with interest thereon at a rate of 15% per annum accruing until such amount and any accrued interest thereon is paid in full (which amount shall be paid as liquidated damages and not as a penalty). For example, if a Purchaser purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to \$10,000 of purchase price of Underlying Shares delivered to the Company for reissuance as Unlegended Shares, the Company shall be required to pay the Purchaser \$1,000, plus interest, if any. The Purchaser shall provide the Company written notice indicating the amounts payable to the Purchaser in respect of the Buy-In.

4.2 Acknowledgment of Dilution. The Company acknowledges that the issuance of the Securities may result in dilution of the outstanding shares of Common Stock, which dilution may be substantial under certain market conditions. The Company further acknowledges that its obligations under the Transaction Documents, including, without limitation, its obligation to issue the Underlying Shares pursuant to the Transaction Documents, are unconditional and absolute and not subject to any right of set off, counterclaim, delay or reduction, regardless of the effect of any such dilution or any claim the Company may have against any Purchaser and regardless of the dilutive effect that such issuance may have on the ownership of the other stockholders of the Company.

4.3 Furnishing of Information; Public Information

(a) Until no Purchaser owns Securities, the Company covenants to file all periodic reports with the Commission pursuant to the Exchange Act and maintain the registration of the Common Stock under Section 12(b) or 12(g) of the Exchange Act after such time as the Company initially becomes subject to such requirements and to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to the Exchange Act and timely file all reports that would be required to be filed by an issuer subject to Section 12(b) or 12(g) of the Exchange Act even if the Company is not then subject to the reporting requirements of the Exchange Act.

(b) At any time commencing on the Closing Date, and ending at such time that all of the Securities may be sold by non-Affiliates of the Company without the requirement for the Company to be in compliance with Rule 144(c)(1) and otherwise without restriction or limitation pursuant to Rule 144, if the Company shall fail for any reason to satisfy the current public information requirement under Rule 144(c) (a “Public Information Failure”) then, in addition to such Purchaser’s other available remedies, the Company shall pay to a Purchaser, in cash, as partial liquidated damages and not as a penalty, by reason of any such delay in or impairment of its ability to sell the Securities, an amount in cash equal to 2.0% of the aggregate principal amount of Notes outstanding and accrued interest thereon, and aggregate Conversion Price of Underlying Shares (with respect to the Notes) held by such Purchaser on the day of a Public Information Failure and on every thirtieth (30th) day (pro-rated for periods totaling less than thirty days) thereafter until the earlier of (a) the date such Public Information Failure is cured and (b) such time that such public information is no longer required for the Purchasers to transfer the Underlying Shares pursuant to Rule 144. The payments to which a Purchaser shall be entitled pursuant to this Section 4.3(b) are referred to herein as “Public Information Failure Payments.” Public Information Failure Payments shall be paid on the earlier of (i) the last day of the calendar month during which such Public Information Failure Payments are incurred and (ii) the third (3rd) Business Day after the event or failure giving rise to the Public Information Failure Payments is cured. In the event the Company fails to make Public Information Failure Payments in a timely manner, such Public Information Failure Payments shall bear interest at the rate of 1.5% per month (prorated for partial months) until paid in full. Nothing herein shall limit such Purchaser’s right to pursue actual damages for the Public Information Failure, and such Purchaser shall have the right to pursue all remedies available to it at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief.

4.4 Integration. The Company shall not sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Securities in a manner that would require the registration under the Securities Act of the sale of the Securities or that would be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any Trading Market such that it would require shareholder approval prior to the closing of such other transaction or to effectuate such other transaction unless shareholder approval is obtained before the earlier of the closing of such subsequent transaction or effectuation of such other transaction.

4.5 Conversion Procedures. The form of Notice of Conversion included in the Notes set forth the totality of the procedures required of the Purchasers in order to convert the Notes. No additional legal opinion, other information or instructions shall be required of the Purchasers to convert their Notes. The Company shall honor conversions of the Notes and shall deliver Underlying Shares in accordance with the terms, conditions and time periods set forth in the Transaction Documents.

4.6 Securities Laws Disclosure; Publicity. The Company shall, by 9:30 a.m. (New York City time) on the first Trading Day following each Closing Date, file a Current Report on Form 8-K including the Transaction Documents as exhibits thereto with the Commission within the time required by the Exchange Act (“Form 8-K”). From and after the filing of the Form 8-K, the Company represents to the Purchaser that it shall have publicly disclosed all material, non-public information delivered to the Purchaser by the Company or any of its Subsidiaries, or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. The Company and Purchaser shall consult with each other in issuing any press releases with respect to the transactions contemplated hereby, and neither the Company nor Purchaser shall issue any press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of Purchaser, or without the prior consent of Purchaser, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. Notwithstanding the foregoing, the Company shall not publicly disclose the name of Purchaser, or include the name of Purchaser in any filing with the Commission or any regulatory agency or Trading Market unless the name of Purchaser is already included in the body of the Transaction Documents, without the prior written consent of Purchaser, except: (a) as required by federal securities law in connection with the filing of final Transaction Documents with the Commission and (b) to the extent such disclosure is required by law or Trading Market regulations, in which case the Company shall provide the Purchaser with prior notice of such disclosure permitted under this clause (b). The Company may file a Form 10-Q in lieu of the Form 8-K provided such filing contains the content required to be included in the Form 8-K and the Form 10-Q is filed not later than the Trading Day after the Closing Date.

4.7 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Purchaser is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Purchaser could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities under the Transaction Documents or under any other agreement between the Company and the Purchasers.

4.8 Non-Public Information. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents and as required hereunder, the Company covenants and agrees that neither it, nor any other Person acting on its behalf, will provide any Purchaser or its agents or counsel with any information that the Company believes constitutes material non-public information, unless prior thereto such Purchaser shall have entered into a written agreement with the Company regarding the confidentiality and use of such information. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

4.9 Use of Proceeds. The Company shall use the net proceeds from the sale of the Securities hereunder substantially for the purposes set forth on Schedule 4.9 hereto and shall not use such proceeds: (a) for the satisfaction of any portion of the Company's debt except as disclosed on Schedule 4.9 (other than payment of trade payables in the ordinary course of the Company's business and consistent with prior practices), (b) for the redemption of any Common Stock or Common Stock Equivalents, (c) for the settlement of any outstanding litigation or (d) in violation of FCPA or OFAC regulations.

4.10 Indemnification of Purchasers. Subject to the provisions of this Section 4.10, the Company will indemnify and hold each Purchaser and its directors, officers, shareholders, members, partners, employees and agents (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title), each Person who controls such Purchaser (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, shareholders, agents, members, partners or employees (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title) of such controlling persons (each, a "Purchaser Party") harmless from any and all losses, liabilities, obligations, claims, contingencies, damages, costs and expenses, including all judgments, amounts paid in settlements, court costs and reasonable attorneys' fees and costs of investigation that any such Purchaser Party may suffer or incur as a result of or relating to (a) any breach of any of the representations, warranties, covenants or agreements made by the Company in this Agreement or in the other Transaction Documents or (b) any action instituted against Purchaser Parties in any capacity, or any of them or their respective Affiliates, by any stockholder of the Company who is not an Affiliate of such Purchaser Party, with respect to any of the transactions contemplated by the Transaction Documents (unless such action is based upon a breach of such Purchaser Party's representations, warranties or covenants under the Transaction Documents or any agreements or understandings such Purchaser Party may have with any such stockholder or any violations by such Purchaser Party of state or federal securities laws or any conduct by such Purchaser Party which constitutes fraud, gross negligence, willful misconduct or malfeasance). If any action shall be brought against any Purchaser Party in respect of which indemnity may be sought pursuant to this Agreement, such Purchaser Party shall promptly notify the Company in writing, and the Company shall have the right to assume the defense thereof with counsel of its own choosing reasonably acceptable to the Purchaser Party. Any Purchaser Party shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Purchaser Party except to the extent that (i) the employment thereof has been specifically authorized by the Company in writing, (ii) the Company has failed after a reasonable period of time to assume such defense and to employ counsel or (iii) in such action there is, in the reasonable opinion of counsel, a material conflict on any material issue between the position of the Company and the position of such Purchaser Party, in which case the Company shall be responsible for the reasonable fees and expenses of no more than one such separate counsel. The Company will not be liable to any Purchaser Party under this Agreement (y) for any settlement by a Purchaser Party effected without the Company's prior written consent, which shall not be unreasonably withheld or delayed; or (z) to the extent, but only to the extent that a loss, claim, damage or liability is attributable to any Purchaser Party's breach of its material representations, warranties or covenants under the Transaction Documents. The indemnification required by this Section 4.10 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or are incurred. The indemnity agreements contained herein shall be in addition to any cause of action or similar right of any Purchaser Party against the Company or others and any liabilities the Company may be subject to pursuant to law.

4.11 Reservation and Listing of Securities.

(a) As of the date hereof, the Company, ignoring any conversion or exercise limitations, has reserved for each Purchaser and the Company shall continue to reserve and keep available at all times, the "Required Minimum", free of pre-emptive rights. If, on any date, the number of authorized but unissued (and otherwise unreserved) shares of Common Stock is less than the Required Minimum on such date (an "Authorized Share Failure"), then the Board of Directors shall use commercially reasonable efforts to amend the Company's articles of incorporation to increase the number of authorized but unissued shares of Common Stock to at least the Required Minimum plus such other amount as may be required for the Company's other purposes, and reserve the Required Minimum on behalf of the Purchaser, as soon as possible and in any event not later than the 60th day after such date. Notwithstanding the foregoing, the occurrence of an Authorized Share Failure is an Event of Default.

(b) The Company shall, if applicable: (i) in the time and manner required by the principal Trading Market, prepare and file with such Trading Market an additional shares listing application covering a number of shares of Common Stock at least equal to the Required Minimum on the date of such application, (ii) take all steps necessary to cause such shares of Common Stock to be approved for listing or quotation on such Trading Market as soon as possible thereafter, (iii) provide to the Purchasers evidence of such listing or quotation and (iv) maintain the listing or quotation of such Common Stock on any date at least equal to the Required Minimum on such date on such Trading Market or another Trading Market. The Company will then take all action necessary to continue the listing or quotation and trading of its Common Stock on a Trading Market until the later of (i) at least six (6) years after the Closing Date, and (ii) for so long as the Notes are outstanding, and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of the Trading Market. In the event the aforescribed listing is not continuously maintained for six (6) years after the Closing Date and for so long as Notes are outstanding (a "Listing Default"), then in addition to any other rights the Purchasers may have hereunder or under applicable law, on the first day of a Listing Default and on each monthly anniversary of each such Listing Default date (if the applicable Listing Default shall not have been cured by such date) until the applicable Listing Default is cured, the Company shall pay to each Purchaser an amount in cash, as partial liquidated damages and not as a penalty, equal to 2% of the aggregate Subscription Amount of Notes, and Conversion Price of the Conversion Shares held by such Purchaser on the day of a Listing Default and on every thirtieth day (pro-rated for periods less than thirty days) thereafter until the date such Listing Default is cured. If the Company fails to pay any liquidated damages pursuant to this Section in a timely manner, the Company will pay interest thereon at a rate of 1.5% per month (pro-rated for partial months) to the Purchaser.

4.12 Form D: Blue Sky Filings. The Company agrees to timely file a Form D with respect to the Securities as required under Regulation D and to provide a copy thereof, promptly upon request of any Purchaser. The Company shall take such action as the Company shall reasonably determine is necessary in order to obtain an exemption for, or to qualify the Securities for, sale to the Purchasers at a Closing under Applicable Law, including "Blue Sky" laws of the states of the United States, and shall provide evidence of such actions promptly upon request of any Purchaser.

4.13 Subsequent Equity Sales. From the date hereof until the End Date, the Company and each Subsidiary will not, without the consent of a Majority in Interest, enter into any Equity Line of Credit or similar agreement, issue or agree to issue floating or Variable Priced Equity Linked Instruments nor issue or agree to issue any of the foregoing or equity with price reset rights (subject to adjustment for stock splits, distributions, dividends, recapitalizations and the like) (collectively, a "Variable Rate Transaction"). For purposes hereof, "Equity Line of Credit" shall include any transaction involving a written agreement between the Company and an investor or underwriter whereby the Company has the right to "put" its securities to the investor or underwriter over an agreed period of time and at an agreed price or price formula, and "Variable Priced Equity Linked Instruments" shall include: (A) any debt or equity securities which are convertible into, exercisable or exchangeable for, or carry the right to receive additional shares of Common Stock or Common Stock Equivalents or any of the foregoing at a price that can be reduced either (1) at any conversion, exercise or exchange rate or other price that is based upon and/or varies with the trading prices of or quotations for Common Stock at any time after the initial issuance of such debt or equity security, or (2) with a fixed conversion, exercise or exchange price that is subject to being reset at some future date at any time after the initial issuance of such debt or equity security due to a change in the market price of the Company's Common Stock since date of initial issuance, or upon the issuance of any debt, equity or Common Stock Equivalent, and (B) any amortizing convertible security which amortizes prior to its maturity date, where the Company is required or has the option to (or any investor in such transaction has the option to require the Company to) make such amortization payments in shares of Common Stock which are valued at a price that is based upon and/or varies with the trading prices of or quotations for Common Stock at any time after the initial issuance of such debt or equity security (whether or not such payments in stock are subject to certain equity conditions). For purposes of determining the total consideration for a convertible instrument (including a right to purchase equity of the Company) issued, subject to an original issue or similar discount or which principal amount is directly or indirectly increased after issuance, the consideration will be deemed to be the actual net cash amount received by the Company in consideration of the original issuance of such convertible instrument. Until the End Date, the Company will not, without the consent of a Majority in Interest, issue any Common Stock or Common Stock Equivalents nor issue or amend the terms of any securities or Common Stock Equivalents or of any agreement outstanding or in effect as of the date of this Agreement pursuant to which same were or may be acquired without the consent of a Majority in Interest, if the result of such issuance or amendment would be at an effective price per share of Common Stock less than the Conversion Price in effect at the time of such issuance or amendment; all subject to adjustment as described in Section 5.23 hereof. The restrictions and limitations in this Section 4.13 are in addition to and shall apply whether or not a Purchaser exercises its rights pursuant to Section 4.16 and Section 4.22.

4.14 Equal Treatment of Purchasers. No consideration (including any modification of any Transaction Document) shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of any of this Agreement unless the same consideration is also offered on a ratable basis to all of the parties to this Agreement. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of Securities or otherwise.

4.15 Capital Changes. Until the one (1) year anniversary of the Closing Date, the Company shall not undertake a reverse or forward stock split or reclassification of the Common Stock without five (5) days prior written notice to the Purchasers. In no event will the Company increase the par value of the Common Stock to an amount greater than the Conversion Price, then in effect.

4.16 Participation in Future Financing

(a) Until the End Date, upon any proposed issuance by the Company or any of its Subsidiaries of Common Stock, Common Stock Equivalents, Indebtedness or a combination thereof, other than (i) a rights offering to all holders of Common Stock which does not include extending such rights offering to holders of Notes, or (ii) an Exempt Issuance (each a “Subsequent Financing”), the Purchasers shall have the right to participate in up to an amount of the Subsequent Financing equal to 100% of the Subsequent Financing (the “Participation Maximum”) pro rata to each other in proportion to their Subscription Amounts on the same terms, conditions and price provided for in the Subsequent Financing, unless the Subsequent Financing is an underwritten public offering, in which case the Company shall notify each Purchaser of such public offering when it is lawful for the Company to do so, but no Purchaser shall be entitled to purchase any particular amount of such public offering without the approval of the lead underwriter of such underwritten public offering.

(b) At least ten (10) Trading Days prior to the closing of the Subsequent Financing, the Company shall deliver to each Purchaser a written notice of its intention to effect a Subsequent Financing (“Pre-Notice”), which Pre-Notice shall ask such Purchaser if it wants to review the details of such financing (such additional notice, a “Subsequent Financing Notice”). Upon the request of a Purchaser, and only upon a request by such Purchaser, for a Subsequent Financing Notice, the Company shall promptly, but no later than one (1) Trading Day after such request, deliver a Subsequent Financing Notice to such Purchaser. The requesting Purchaser shall be deemed to have acknowledged that the Subsequent Financing Notice may contain material non-public information. The Subsequent Financing Notice shall describe in reasonable detail the proposed terms of such Subsequent Financing, the amount of proceeds intended to be raised thereunder and the Person or Persons through or with whom such Subsequent Financing is proposed to be effected and shall include a term sheet or similar document relating thereto as an attachment.

(c) Any Purchaser desiring to participate in such Subsequent Financing must provide written notice to the Company by not later than 5:30 p.m. (New York City time) on the tenth (10th) Trading Day after all of the Purchasers have received the Pre-Notice that the Purchaser is willing to participate in the Subsequent Financing, the amount of such Purchaser’s participation, and representing and warranting that such Purchaser has such funds ready, willing, and available for investment on the terms set forth in the Subsequent Financing Notice. If the Company receives no such notice from a Purchaser as of such tenth (10th) Trading Day, such Purchaser shall be deemed to have notified the Company that it does not elect to participate.

(d) If by 5:30 p.m. (New York City time) on the fifteenth (15th) Trading Day after all of the Purchasers have received the Pre-Notice, notifications by the Purchasers of their willingness to participate in the Subsequent Financing (or to cause their designees to participate) is, in the aggregate, less than the total amount of the Participation Maximum of the Subsequent Financing, then the Company may affect the remaining portion of such Subsequent Financing on the terms and with the Persons set forth in the Subsequent Financing Notice and the Purchasers shall simultaneously affect their portion of such Subsequent Financing as set forth in their notifications to the Company consistent with the terms set forth in the Subsequent Financing Notice.

(e) If by 5:30 p.m. (New York City time) on the fifth (5th) Trading Day after all of the Purchasers have received the Pre-Notice, the Company receives responses to a Subsequent Financing Notice from Purchasers seeking to purchase more than the aggregate amount of the Participation Maximum, each such Purchaser shall have the right to purchase its Pro Rata Portion (as defined below) of the Participation Maximum. “Pro Rata Portion” means the ratio of (x) the principal amount of Notes purchased hereunder by a Purchaser participating under this Section 4.16 and (y) the sum of the aggregate principal amounts of Notes purchased hereunder by all Purchasers participating under this Section 4.16.

(f) The Company must provide the Purchasers with a second Subsequent Financing Notice, and the Purchasers will again have the right of participation set forth above in this Section 4.16, if the Subsequent Financing subject to the initial Subsequent Financing Notice is not consummated for any reason on the terms set forth in such Subsequent Financing Notice within sixty (60) Trading Days after the date of the initial Subsequent Financing Notice.

(g) The Company and each Purchaser agree that if any Purchaser elects to participate in the Subsequent Financing, the transaction documents related to the Subsequent Financing shall not include any term or provision whereby such Purchaser shall be required to agree to any restrictions on trading as to any of the Securities purchased hereunder (for avoidance of doubt, the securities purchased in the Subsequent Financing shall not be considered securities purchased hereunder) or be required to consent to any amendment to or termination of, or grant any waiver, release or the like under or in connection with, this Agreement, without the prior written consent of such Purchaser.

(h) Notwithstanding anything to the contrary in this Section 4.16 and unless otherwise agreed to by such Purchaser, the Company shall either confirm in writing to such Purchaser that the transaction with respect to the Subsequent Financing has been abandoned or shall publicly disclose its intention to issue the securities in the Subsequent Financing, in either case in such a manner such that such Purchaser will not be in possession of any material, non-public information, by the seventeenth (17th) Trading Day following delivery of the Subsequent Financing Notice. If by such seventeenth (17th) Trading Day, no public disclosure regarding a transaction with respect to the Subsequent Financing has been made, and no notice regarding the abandonment of such transaction has been received by such Purchaser, such transaction shall be deemed to have been abandoned and such Purchaser shall not be deemed to be in possession of any material, non-public information with respect to the Company or any of its Subsidiaries.

4.17 Purchaser's Exercise Limitations. The Company shall not effect exercise of the rights granted in Sections 4.16 and 4.22 of this Agreement, and a Purchaser shall not have the right to exercise any portion of such rights granted in Sections 4.16 and 4.22 only to the extent that after giving effect to such exercise, the Purchaser, would beneficially own in excess of the Beneficial Ownership Limitation (as defined in the Note), applied in the manner set forth in the Note. In such event the right by Purchaser to benefit from such rights or receive shares in excess of the Beneficial Ownership Limitation shall be held in abeyance until such times as such excess shares shall not exceed the Beneficial Ownership Limitation, provided the Purchaser complies with the Purchaser's other obligations in connection with the exercise by Purchaser of its rights pursuant to Sections 4.16 and 4.22, and with respect to Section 4.16, provided that the Company receives the purchase price for any purchased securities in compliance with the terms of such Subsequent Financing.

4.18 Maintenance of Property/Insurance. The Company shall and shall cause each Subsidiary to keep all of its property, which is necessary or useful to the conduct of its business, in good working order and condition, ordinary wear and tear excepted and insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary for the businesses of the Company and Subsidiary.

4.19 Preservation of Corporate Existence. The Company shall preserve and maintain its corporate existence, rights, privileges and franchises in the jurisdiction of its incorporation, and qualify and remain qualified, as a foreign entity in each jurisdiction in which such qualification is necessary in view of its business or operations and where the failure to qualify or remain qualified might reasonably have a Material Adverse Effect upon the financial condition, business or operations of the Company taken as a whole.

4.20 DTC Program. At all times that Notes are outstanding after the listing required by Section 4.11(b) is completed, the Company shall employ as the transfer agent for its Common Stock and Underlying Shares a participant in the Depository Trust Company Automated Securities Transfer Program and cause the Common Stock and Underlying Shares to be transferable pursuant to such program.

4.21 Reimbursement. If any Purchaser becomes involved in any capacity in any Proceeding by or against any Person who is a stockholder of the Company (except as a result of sales, pledges, margin sales and similar transactions by such Purchaser to or with any current stockholder), solely as a result of such Purchaser's acquisition of the Securities under this Agreement, the Company will reimburse such Purchaser for its reasonable legal and other expenses (including the cost of any investigation preparation and travel in connection therewith) incurred in connection therewith, as such expenses are incurred. The reimbursement obligations of the Company under this paragraph shall be in addition to any liability which the Company may otherwise have, shall extend upon the same terms and conditions to any Affiliates of the Purchasers who are actually named in such action, proceeding or investigation, and partners, directors, agents, employees and controlling persons (if any), as the case may be, of the Purchasers and any such Affiliate, and shall be binding upon and inure to the benefit of any successors, assigns, heirs and personal representatives of the Company, the Purchasers and any such Affiliate and any such Person. The Company also agrees that neither the Purchasers nor any such Affiliates, partners, directors, agents, employees or controlling persons shall have any liability to the Company or any Person asserting claims on behalf of or in right of the Company solely as a result of acquiring the Securities under this Agreement.

4.22 Most Favored Nation Provision. From the date hereof and for so long as a Purchaser holds any Securities, in the event that the Company issues or sells any Common Stock or Common Stock Equivalents, if a Purchaser then holding outstanding Securities reasonably believes that any of the terms and conditions appurtenant to such issuance or sale are more favorable to such investors than are the terms and conditions granted to the Purchasers hereunder, upon notice to the Company by such Purchaser within five (5) Trading Days after disclosure of such issuance or sale, the Company shall amend the terms of this transaction as to such Purchaser only so as to give such Purchaser the benefit of such more favorable terms or conditions. This Section 4.22 shall not apply with respect to an Exempt Issuance. The Company shall provide each Purchaser with notice of any such issuance or sale not later than ten (10) Trading Days before such issuance or sale.

4.23 Indebtedness. For so long as any Note is outstanding, the Company will not incur any Indebtedness other than Permitted Indebtedness.

4.24 Notice of Disqualification Events. The Company will notify the Purchasers in writing, prior to the Closing Date of (i) any Disqualification Event relating to any Issuer Covered Person and (ii) any event that would, with the passage of time, become a Disqualification Event relating to any Issuer Covered Person not otherwise disclosed herein or in the SEC Reports.

4.25 Duration of Undertakings. Unless otherwise stated in this Article IV, all of the Company's undertakings, obligations and responsibilities set forth in Article IV of this Agreement shall remain in effect for so long as any Securities remain outstanding.

4.26 Registration Rights. On or before the 30th calendar day following the Initial Closing, the Company shall file a registration statement on Form S-1 (the "Resale S-1") providing for the resale by the Purchasers of the Underlying Shares determinable as of the date such registration statement is first filed (or such lesser number of Underlying Shares as permitted by the SEC) pursuant to the terms of the Registration Rights Agreement.

ARTICLE V. MISCELLANEOUS

5.1 Termination. This Agreement may be terminated by any Purchaser, as to such Purchaser's obligations hereunder only and without any effect whatsoever on the obligations between the Company and the other Purchasers, by written notice to the other parties, if the final Closing has not been consummated on or before August 31, 2019; provided, however, that such termination will not affect the right of any party to sue for any breach by any other party (or parties).

5.2 Fees and Expenses. Except as expressly set forth in the Transaction Documents and on Schedule 3.1(s), each party shall pay the fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of this Agreement. The Company shall pay all Transfer Agent fees (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company and any conversion or exercise notice delivered by a Purchaser), stamp taxes and other taxes and duties levied in connection with the delivery of any Securities to the Purchasers. All of the Purchasers acknowledge that they have been advised to seek the advice of their own attorneys.

5.3 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

5.4 Notices. All notices, demands, requests, consents, approvals, and other communications required or permitted hereunder shall be in writing and, unless otherwise specified herein, shall be (i) personally served, (ii) deposited in the mail, registered or certified, return receipt requested, postage prepaid, (iii) delivered by reputable air courier service with charges prepaid, or (iv) transmitted by hand delivery, telegram, or facsimile, addressed as set forth below or to such other address as such party shall have specified most recently by written notice. Any notice or other communication required or permitted to be given hereunder shall be deemed effective (a) upon hand delivery or delivery by facsimile, with accurate confirmation generated by the transmitting facsimile machine, at the address or number designated below (if delivered on a business day during normal business hours where such notice is to be received), or the first business day following such delivery (if delivered other than on a business day during normal business hours where such notice is to be received) or (b) on the second business day following the date of mailing by express courier service, fully prepaid, addressed to such address, or upon actual receipt of such mailing, whichever shall first occur. The addresses for such communications shall be: (i) if to the Company, to: GT Biopharma, Inc., 9350 Wilshire Blvd, Suite 203, Beverly Hills, CA 90212, Attn: Chief Executive Officer, with a copy to (which shall not constitute notice): Gary R. Henrie, Esq., P.O. Box 107, Nauvoo, IL 62354, email: grhlaw@hotmail.com, and (ii) if to the Purchasers, to: the addresses and fax numbers indicated on the signature pages hereto.

5.5 Amendments; Waivers. No provision of this Agreement or any other Transaction Document may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and the Purchasers holding at least a majority in interest of the affected Securities then outstanding or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right.

5.6 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

5.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Company may not assign this Agreement or any rights or obligations hereunder without the prior written consent of each Purchaser (other than by merger). Following a Closing, any Purchaser may assign any or all of its rights under this Agreement to any Person to whom such Purchaser assigns or transfers any Securities, provided that such transferee agrees in writing to be bound, with respect to the transferred Securities, by the provisions of the Transaction Documents that apply to the "Purchasers."

5.8 No Third-Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, except as otherwise set forth in Section 4.10.

5.9 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any action, suit or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action or proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Section 4.10, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

5.11 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.

5.12 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

5.13 Rescission and Withdrawal Right. Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) any of the other Transaction Documents, whenever any Purchaser exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Purchaser may, at any time prior to the Company's performance of such obligations, rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights; provided, however, that in the case of a rescission of a conversion of a Note, the applicable Purchaser shall be required to return any shares of Common Stock subject to any such rescinded conversion.

5.14 Replacement of Securities. If any certificate or instrument evidencing any Securities is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof (in the case of mutilation), or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction. The applicant for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs (including customary indemnity) associated with the issuance of such replacement Securities.

5.15 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, each of the Purchasers and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any action for specific performance of any such obligation the defense that a remedy at law would be adequate.

5.16 Payment Set Aside. To the extent that the Company makes a payment or payments to any Purchaser pursuant to any Transaction Document or a Purchaser enforces or exercises its rights thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

5.17 Usury. To the extent it may lawfully do so, the Company hereby agrees not to insist upon or plead or in any manner whatsoever claim, and will resist any and all efforts to be compelled to take the benefit or advantage of, usury laws wherever enacted, now or at any time hereafter in force, in connection with any claim, action or proceeding that may be brought by any Purchaser in order to enforce any right or remedy under any Transaction Document. Notwithstanding any provision to the contrary contained in any Transaction Document, it is expressly agreed and provided that the total liability of the Company under the Transaction Documents for payments in the nature of interest shall not exceed the maximum lawful rate authorized under Applicable Law (the "Maximum Rate"), and, without limiting the foregoing, in no event shall any rate of interest or default interest, or both of them, when aggregated with any other sums in the nature of interest that the Company may be obligated to pay under the Transaction Documents exceed such Maximum Rate. It is agreed that if the maximum contract rate of interest allowed by law and applicable to the Transaction Documents is increased or decreased by statute or any official governmental action subsequent to the date hereof, the new maximum contract rate of interest allowed by law will be the Maximum Rate applicable to the Transaction Documents from the Closing Date thereof forward, unless such application is precluded by Applicable Law. If under any circumstances whatsoever, interest in excess of the Maximum Rate is paid by the Company to any Purchaser with respect to indebtedness evidenced by the Transaction Documents, such excess shall be applied by such Purchaser to the unpaid principal balance of any such indebtedness or be refunded to the Company, the manner of handling such excess to be at such Purchaser's election.

5.18 Independent Nature of Purchasers' Obligations and Rights. The obligations of each Purchaser under any Transaction Document are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance or non-performance of the obligations of any other Purchaser under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. Each Purchaser shall be entitled to independently protect and enforce its rights, including, without limitation, the rights arising out of this Agreement or out of the other Transaction Documents, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose. Each Purchaser has been represented by its own separate legal counsel in its review and negotiation of the Transaction Documents. The Company has elected to provide all Purchasers with the same terms and Transaction Documents for the convenience of the Company and not because it was required or requested to do so by any of the Purchasers. It is expressly understood and agreed that each provision contained in this Agreement and in each other Transaction Document is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers.

5.19 Liquidated Damages. The Company's obligations to pay any partial liquidated damages or other amounts owing under the Transaction Documents is a continuing obligation of the Company and shall not terminate until all unpaid partial liquidated damages and other amounts have been paid notwithstanding the fact that the instrument or security pursuant to which such partial liquidated damages or other amounts are due and payable shall have been canceled.

5.20 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day or Trading Day, as the case may be, then such action may be taken or such right may be exercised on the next succeeding Business Day or Trading Day, as the case may be.

5.21 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

5.22 **WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY.**

5.23 Equitable Adjustment. Trading volume amounts, price/volume amounts, the amount of shares of Common Stock identified in this Agreement, Conversion Price, Underlying Shares and similar figures in the Transaction Documents shall be equitably adjusted (but without duplication) to offset the effect of stock splits, similar events and as otherwise described in this Agreement and Note.

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties hereto have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

GT BIOPHARMA, INC.

Address for Notice:

9350 Wilshire Blvd, Suite 203
Beverly Hills, CA 90212

By: _____
Name: Michael Handelman
Title: Chief Financial Officer

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SIGNATURE PAGE FOR PURCHASER FOLLOWS]

[PURCHASER SIGNATURE PAGE TO GT BIOPHARMA, INC.
SECURITIES PURCHASE AGREEMENT]

IN WITNESS WHEREOF, the undersigned have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

Name of Purchaser: _____

Signature of Authorized Signatory of Purchaser: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Email Address of Authorized Signatory: _____

Facsimile Number of Authorized Signatory: _____

State of Residence of Purchaser: _____

Address for Notice to Purchaser:

Address for Delivery of Securities to Purchaser (if not same as address for notice):

Cash Subscription Amount: US\$ _____

Total Note principal amount: _____

EIN Number, if applicable, will be provided under separate cover

Date: _____

[SIGNATURE PAGES CONTINUE]

CLOSING STATEMENT

Pursuant to the attached Securities Purchase Agreement, dated as of the date hereto, the purchasers shall purchase \$_____ of Debentures from GT Biopharma, Inc., a Delaware corporation (the "Company"). All funds will be wired into an account maintained by the Company. All funds will be disbursed in accordance with this Closing Statement.

Disbursement Date:

_____, 2020

I. PURCHASE PRICE

Gross Proceeds to be Received	\$0
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II. DISBURSEMENTS

\$0.00

\$0.00

\$0.00

\$0.00

Total Amount Disbursed:

EXHIBITS AND SCHEDULES

Exhibit A
Form of Note

Schedule 3.1(a)
Schedule 3.1(g)
Schedule 3.1(h)
Schedule 3.1(i)
Schedule 3.1(j)
Schedule 3.1(k)
Schedule 3.1(l)
Schedule 3.1(q)
Schedule 3.1(s)
Schedule 3.1(aa)
Schedule 3.1(bb)
Schedule 3.1(cc)
Schedule 3.1(ff)
Schedule 3.1(gg)
Schedule 4.9

NEITHER THIS SECURITY NOR THE SECURITIES INTO WHICH THIS SECURITY IS CONVERTIBLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO BORROWER. THIS SECURITY AND THE SECURITIES ISSUABLE UPON CONVERSION OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

Original Issue Date: []

Principal Amount: \$ _____

Original Conversion Price (subject to adjustment herein): \$0.20

CONVERTIBLE NOTE
DUE []

THIS CONVERTIBLE NOTE is one of a series of duly authorized and validly issued Notes of **GT BIOPHARMA, INC.**, a Delaware corporation, (the "Borrower"), having its principal place of business at 9350 Wilshire Blvd, Suite 203, Beverly Hills, CA 90212, due [] (this note, the "Note" and, collectively with the other notes of such series, the "Notes").

FOR VALUE RECEIVED, Borrower promises to pay to _____ or its registered assigns (the "Holder"), with an address at: _____, or shall have paid pursuant to the terms hereunder, the principal sum of _____ (\$ _____) on [] (the "Maturity Date") or such earlier date as this Note is required or permitted to be repaid as provided hereunder, and to pay interest, if any, to the Holder on the aggregate unconverted and then outstanding principal amount of this Note in accordance with the provisions hereof.

This Note is subject to the following additional provisions:

Section 1. Definitions. For the purposes hereof, in addition to the terms defined elsewhere in this Note, (a) capitalized terms not otherwise defined herein shall have the meanings set forth in the Purchase Agreement and (b) the following terms shall have the following meanings:

"Alternate Consideration" shall have the meaning set forth in Section 5(f).

"Bankruptcy Event" means any of the following events: (a) Borrower or any Subsidiary thereof commences a case or other proceeding under any bankruptcy, reorganization, arrangement, adjustment of debt, relief of debtors, dissolution, insolvency or liquidation or similar law of any jurisdiction relating to Borrower or any Subsidiary thereof, (b) there is commenced against Borrower or any Subsidiary thereof any such case or proceeding that is not dismissed within 60 days after commencement, (c) Borrower or any Subsidiary thereof is adjudicated insolvent or bankrupt or any order of relief or other order approving any such case or proceeding is entered, (d) Borrower or any Subsidiary thereof suffers any appointment of any custodian or the like for it or any substantial part of its property that is not discharged or stayed within 60 calendar days after such appointment, (e) Borrower or any Subsidiary thereof makes a general assignment for the benefit of creditors, (f) Borrower or any Subsidiary thereof calls a meeting of its creditors with a view to arranging a composition, adjustment or restructuring of its debts or (g) Borrower or any Subsidiary thereof, by any act or failure to act, expressly indicates its consent to, approval of or acquiescence in any of the foregoing or takes any corporate or other action for the purpose of effecting any of the foregoing.

"Beneficial Ownership Limitation" shall have the meaning set forth in Section 4(e).

"Business Day" means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are required by law or other governmental action to close.

“Buy-In” shall have the meaning set forth in Section 4(d)(v).

“Change of Control Transaction” means, other than by means of conversion or exercise of the Notes and the Securities issued together with the Notes, the occurrence after the date hereof of any of (a) an acquisition after the date hereof by an individual or legal entity or “group” (as described in Rule 13d-5(b)(1) promulgated under the Exchange Act) of effective control (whether through legal or beneficial ownership of capital stock of Borrower, by contract or otherwise) of in excess of 50% of the voting securities of Borrower, (b) Borrower merges into or consolidates with any other Person, or any Person merges into or consolidates with Borrower and, after giving effect to such transaction, the stockholders of Borrower immediately prior to such transaction own less than 50% of the aggregate voting power of Borrower or the successor entity of such transaction, (c) Borrower sells or transfers all or substantially all of its assets to another Person and the stockholders of Borrower immediately prior to such transaction own less than 50% of the aggregate voting power of the acquiring entity immediately after the transaction, (d) a replacement at one time or within a three year period of more than one-half of the members of the Board of Directors which is not approved by a majority of those individuals who are members of the Board of Directors on the Original Issue Date (or by those individuals who are serving as members of the Board of Directors on any date whose nomination to the Board of Directors was approved by a majority of the members of the Board of Directors who are members on the date hereof), or (e) the execution by Borrower of an agreement to which Borrower is a party or by which it is bound, providing for any of the events set forth in clauses (a) through (d) above.

“Conversion” shall have the meaning ascribed to such term in Section 4.

“Conversion Date” shall have the meaning set forth in Section 4(a).

“Conversion Price” shall have the meaning set forth in Section 4(c).

“Conversion Shares” means, collectively, the shares of Common Stock issuable upon conversion of this Note in accordance with the terms hereof.

“Debentures” means those certain 10% Senior Convertible Debentures of the Borrower issued on August 2, 2018, September 7, 2018, September 24, 2018, December 19, 2019, January 30, 2020, April 20, 2020, May 7, 2020, June 1, 2020, July 7, 2020, November 9, 2020 and the Senior Convertible Notes issued on February 4, 2019.

“Dilutive Issuance” shall have the meaning set forth in Section 5(f).

“Equity Conditions” means, during the period in question, (a) Borrower shall have duly honored all conversions scheduled to occur or occurring by virtue of one or more Notices of Conversion of the applicable Holder on or prior to the dates so requested or required, if any, (b) Borrower shall have paid all liquidated damages and other amounts owing to the applicable Holder in respect of this Note and the other Transaction Documents, (c) all of the Underlying Shares (and shares issuable in lieu of cash payments of interest) may be resold by Persons other than Affiliates of the Borrower pursuant to Rule 144 without volume or manner-of-sale restrictions or current public information requirements as confirmed by counsel to Borrower in a written opinion letter to such effect, addressed and acceptable to the Borrower’s Transfer Agent and the affected Holders, (d) the Common Stock is listed or quoted for trading on a Trading Market (and Borrower believes, in good faith, that trading of the Common Stock on a Trading Market will continue uninterrupted for the foreseeable future), (e) there is a sufficient number of authorized, but unissued and otherwise unreserved, shares of Common Stock for the issuance of all of the shares then issuable pursuant to the Transaction Documents, (f) an Event of Default has not occurred, whether or not such Event of Default has been cured, (g) there is no existing event which, with the passage of time or the giving of notice, would constitute an Event of Default, (h) the issuance of the shares in question to the applicable Holder would not exceed the Beneficial Ownership Limitation, (i) there has been no public announcement of a pending or proposed Fundamental Transaction or Change of Control Transaction that has not been consummated, (j) the applicable Holder, if not an Affiliate of the Borrower is not in possession of any information provided by Borrower that constitutes, or may constitute, material non-public information, and (k) a Public Information Failure has not occurred.

“Event of Default” shall have the meaning set forth in Section 8(a).

“Fundamental Transaction” shall have the meaning set forth in Section 5(f).

“Interest Payment Date” shall have the meaning set forth in Section 2(1).

“Majority in Interest” means, at any given time, the Holders then holding at least 51% in principal amount of the then outstanding Notes and Other Notes which must include Alpha Capital Anstalt and Bristol Investment Fund Ltd. of the component of the affected Securities then outstanding.

“Mandatory Default Amount” means the sum of (a) the greater of (i) the outstanding principal amount of this Note divided by the Conversion Price on the date the Mandatory Default Amount is either (A) demanded (if demand or notice is required to create an Event of Default) or otherwise due or (B) paid in full, whichever has a lower Conversion Price, multiplied by the VWAP on the date the Mandatory Default Amount is either (x) demanded (if demand or notice is required to create an Event of Default) or otherwise due or (y) paid in full, whichever has a higher VWAP, or (ii) 130% of the outstanding principal amount of this Note and (b) all other amounts, costs, expenses and liquidated damages due in respect of this Note.

“New York Courts” shall have the meaning set forth in Section 10(d).

“Note Register” shall have the meaning set forth in Section 2(c).

“Notice of Conversion” shall have the meaning set forth in Section 4(a).

“Original Issue Date” means the date of the first issuance of the Notes, regardless of any transfers of any Note and regardless of the number of instruments which may be issued to evidence such Notes.

“Other Holders” means holders of Other Notes.

“Other Notes” means Notes nearly identical to this Note issued to other Holders pursuant to the Purchase Agreement.

“Permitted Indebtedness” shall have the meaning provided in the Purchase Agreement.

“Permitted Lien” shall have the meaning provided in the Purchase Agreement.

“Purchase Agreement” means the Securities Purchase Agreement, dated as of [] 2019 among Borrower and the original Holders, as amended, modified or supplemented from time to time in accordance with its terms.

“Registration Statement” shall have the meaning set forth in the Purchase Agreement and Registration Rights Agreement.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Delivery Date” shall have the meaning set forth in Section 4(d)(ii).

“Successor Entity” shall have the meaning set forth in Section 5(f).

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, the OTC Bulletin Board, the OTCQB, the OTCQX or the OTC Pink Marketplace (or any successors to any of the foregoing).

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if any of the Nasdaq markets or exchanges is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the OTC Bulletin Board, (c) if the Common Stock is not then listed or quoted for trading on the OTC Bulletin Board and if prices for the Common Stock are then reported on the OTCQX, OTCQB or OTC Pink Marketplace maintained by the OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the volume weighted average price of the Common Stock on the first such facility (or a similar organization or agency succeeding to its functions of reporting prices), or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Majority in Interest and reasonably acceptable to Borrower, the fees and expenses of which shall be paid by Borrower.

Section 2. Interest and General Provisions.

a) Payment of Interest in Cash or Kind. The Borrower shall pay interest to the Holder on the aggregate unconverted and then outstanding principal amount of this Note at the rate of 10% per annum, payable on each Conversion Date (as to that principal amount then being converted), and on the Maturity Date (each such date, an “Interest Payment Date”) (if any Interest Payment Date is not a Business Day, then the applicable payment shall be due on the next succeeding Business Day), in cash or, at the Holder’s option, in duly authorized, validly issued, fully paid and non-assessable shares of Common Stock based on the Conversion Price then in effect. Borrower may not pay any interest in shares of Common Stock in excess of the Beneficial Ownership Limitation when applicable, unless waived by Holder. Following the occurrence and during the continuance of an Event of Default, then from the first date of such occurrence, the annual interest rate on this Note shall be eighteen percent (18%). Such interest shall be due and payable on the Maturity Date, whether by acceleration or otherwise.

b) Payment Grace Period. Except as described in this Note, the Borrower shall not have any grace period to pay any monetary amounts due under this Note.

c) Conversion Privileges. The Conversion Rights set forth in Section 4 shall remain in full force and effect immediately from the date hereof and until the Note is paid in full regardless of the occurrence of an Event of Default. This Note shall be payable in full on the Maturity Date, unless previously converted into Common Stock in accordance with Section 4 hereof.

d) Application of Payments. Interest on this Note shall be calculated on the basis of a 360-day year and the actual number of days elapsed. Payments made in connection with this Note shall be applied first to amounts due hereunder other than principal and interest, thereafter to interest and finally to principal.

e) Pari Passu. Except as otherwise set forth herein, all payments made on this Note and the Other Notes and all actions taken by the Borrower with respect to this Note and the Other Notes, shall be made and taken *pari passu* with respect to this Note and the Other Notes. Notwithstanding anything to the contrary contained herein or in the Transaction Documents, it shall not be considered non-pari passu for a Holder or Other Holder to elect to receive interest paid in Common Stock or for Borrower to actually pay interest in Common Stock to such electing Holder or Other Holder.

f) Manner and Place of Payment. Principal and interest on this Note and other payments in connection with this Note shall be payable at the Holder’s offices as designated above in lawful money of the United States of America in immediately available funds without set-off, deduction or counterclaim. Upon assignment of the interest of Holder in this Note, Borrower shall instead make its payment pursuant to the assignee’s instructions upon receipt of written notice thereof. Except as set forth herein, this Note may not be prepaid or mandatorily converted without the consent of the Holder.

g) Prepayment. Except as otherwise set forth in this Note, the Borrower may not prepay any portion of the principal amount of this Note without the prior written consent of the Holder.

Section 3. Registration of Transfers and Exchanges.

a) Different Denominations. This Note is exchangeable for an equal aggregate principal amount of Notes of different authorized denominations, as requested by the Holder surrendering the same. No service charge will be payable for such registration of transfer or exchange.

b) Investment Representations. This Note has been issued subject to certain investment representations of the original Holder set forth in the Purchase Agreement and may be transferred or exchanged only in compliance with the Purchase Agreement and applicable federal and state securities laws and regulations.

c) Reliance on Note Register. Prior to due presentment for transfer to Borrower of this Note, Borrower and any agent of Borrower may treat the Person in whose name this Note is duly registered on the Note Register as the owner hereof for the purpose of receiving payment as herein provided and for all other purposes, whether or not this Note is overdue, and neither Borrower nor any such agent shall be affected by notice to the contrary.

Section 4. Conversion.

a) Voluntary Conversion. At any time after the Original Issue Date until this Note is no longer outstanding, this Note including interest accrued hereon shall be convertible, in whole or in part, into shares of Common Stock at the option of the Holder, at any time and from time to time (subject to the conversion limitations set forth in Section 4(e) hereof). The Holder shall effect conversions by delivering to Borrower a Notice of Conversion, the form of which is attached hereto as Annex A (each, a "Notice of Conversion"), specifying therein the principal amount of this Note and accrued interest, if any, to be converted and the date on which such conversion shall be effected (such date, the "Conversion Date"). If no Conversion Date is specified in a Notice of Conversion, the Conversion Date shall be the date that such Notice of Conversion is deemed delivered hereunder. To effect conversions hereunder, the Holder shall not be required to physically surrender this Note to Borrower unless the entire principal amount of this Note has been so converted. Conversions hereunder shall have the effect of lowering the outstanding principal amount of this Note in an amount equal to the applicable conversion. The Holder and Borrower shall maintain records showing the principal amount(s) converted and the date of such conversion(s). Borrower may deliver an objection to any Notice of Conversion within one (1) Business Day of delivery of such Notice of Conversion. In the event of any dispute or discrepancy, the records of the Holder shall be controlling and determinative in the absence of manifest error. **The Holder, and any assignee by acceptance of this Note, acknowledges and agrees that, by reason of the provisions of this paragraph, following conversion of a portion of this Note, the unpaid and unconverted principal amount of this Note may be less than the amount stated on the face hereof.**

b) Mandatory Conversion. In the event the Borrower is successful in obtaining the Second Raise as defined in Section 5.e), the Holder agrees to convert on the final closing date of the Second Raise (the "Second Raise Closing Date"), all money owed to the Borrower pursuant to this Note, whether in principal, interest or fees, into shares of the Borrower's Common Stock.

c) Conversion Price. The conversion price for the principal and interest, if any, in connection with voluntary conversions by the Holder shall be **\$0.20** per share of Common Stock, subject to adjustment herein (the "Conversion Price"). The conversion price for a mandatory conversion pursuant to Section 4.b) shall be the lesser of (i) the Conversion Price in effect on the Second Date Closing Date, or (ii) 75% of the lowest per share price at which Common Stock may be issued in connection with any conversion rights associated with the Second Raise.

d) Mechanics of Conversion.

i. Conversion Shares Issuable Upon Conversion of Principal Amount. The number of Conversion Shares issuable upon a conversion hereunder shall be determined by the quotient obtained by dividing (x) the outstanding principal amount of this Note to be converted plus interest, if any, elected by the Holder to be converted by (y) the Conversion Price.

ii. Delivery of Certificate Upon Conversion. In connection with sales of the Underlying Shares, not later than two (2) Trading Days after each Conversion Date (the "Share Delivery Date"), Borrower shall deliver, or cause to be delivered, to the Holder a certificate or certificates representing the Conversion Shares which, on or after the earlier of the one year or six month anniversary of the Original Issue Date in accordance with Rule 144, shall be free of restrictive legends and trading restrictions (other than those which may then be required by the Purchase Agreement) representing the number of Conversion Shares being acquired upon the conversion of this Note. Borrower shall use its best efforts to deliver any certificate or certificates required to be delivered by Borrower under this Section 4(d) electronically through the Depository Trust Company or another established clearing corporation performing similar functions.

iii. Failure to Deliver Certificates. If, in the case of any Notice of Conversion, such certificate or certificates are not delivered to or as directed by the applicable Holder by the Share Delivery Date, the Holder shall be entitled to elect by written notice to Borrower at any time on or before its receipt of such certificate or certificates, to rescind such Conversion, in which event Borrower shall promptly return to the Holder any original Note delivered to Borrower and the Holder shall promptly return to Borrower the Common Stock certificates issued to such Holder pursuant to the rescinded Conversion Notice.

iv. Obligation Absolute; Partial Liquidated Damages. Borrower's obligations to issue and deliver the Conversion Shares upon conversion of this Note in accordance with the terms hereof are absolute and unconditional, irrespective of any action or inaction by the Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination, or any breach or alleged breach by the Holder or any other Person of any obligation to Borrower or any violation or alleged violation of law by the Holder or any other Person, and irrespective of any other circumstance which might otherwise limit such obligation of Borrower to the Holder in connection with the issuance of such Conversion Shares; provided, however, that such delivery shall not operate as a waiver by Borrower of any such action Borrower may have against the Holder. In the event the Holder of this Note shall elect to convert any or all of the outstanding principal amount hereof, Borrower may not refuse conversion based on any claim that the Holder or anyone associated or affiliated with the Holder has been engaged in any violation of law, agreement or for any other reason, unless an injunction from a court, on notice to Holder, restraining and or enjoining conversion of all or part of this Note shall have been sought and obtained, and Borrower posts a surety bond for the benefit of the Holder in the amount of 150% of the outstanding principal amount of this Note, which is subject to the injunction, which bond shall remain in effect until the completion of arbitration/litigation of the underlying dispute and the proceeds of which shall be payable to the Holder to the extent it obtains judgment. In the absence of such injunction, Borrower shall issue Conversion Shares or, if applicable, cash, upon a properly noticed conversion. If Borrower fails for any reason to deliver to the Holder such certificate or certificates pursuant to Section 4(d)(ii) by the Share Delivery Date, Borrower shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of principal amount being converted, \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth (5th) Trading Day after such liquidated damages being to accrue) for each Trading Day after such Share Delivery Date until such certificates are delivered or Holder rescinds such conversion. Nothing herein shall limit a Holder's right to pursue actual damages or declare an Event of Default pursuant to Section 8 hereof for Borrower's failure to deliver Conversion Shares within the period specified herein and the Holder shall have the right to pursue all remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief. The exercise of any such rights shall not prohibit the Holder from seeking to enforce damages pursuant to any other Section hereof or under applicable law.

v. Compensation for Buy-In on Failure to Timely Deliver Certificates Upon Conversion In addition to any other rights available to the Holder, if Borrower fails for any reason to deliver to the Holder such certificate or certificates by the Share Delivery Date pursuant to Section 4(d)(ii), and if after such Share Delivery Date the Holder is required by its brokerage firm to purchase (in an open market transaction or otherwise), or the Holder or Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Conversion Shares which the Holder was entitled to receive upon the conversion relating to such Share Delivery Date (a "Buy-In"), then Borrower shall (A) pay in cash to the Holder (in addition to any other remedies available to or elected by the Holder) the amount, if any, by which (x) the Holder's total purchase price (including any brokerage commissions) for the Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that the Holder was entitled to receive from the conversion at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions) and (B) at the option of the Holder, either reissue (if surrendered) this Note in a principal amount equal to the principal amount of the attempted conversion (in which case such conversion shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued if Borrower had timely complied with its delivery requirements under Section 4(d)(ii). For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted conversion of this Note with respect to which the actual sale price of the Conversion Shares (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000 under clause (A) of the immediately preceding sentence, Borrower shall be required to pay the Holder \$1,000. The Holder shall provide Borrower written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of Borrower, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to Borrower's failure to timely deliver certificates representing shares of Common Stock upon conversion of this Note as required pursuant to the terms hereof.

vi. Reservation of Shares Issuable Upon Conversion. Borrower covenants that it will at all times reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of this Note as herein provided, free from preemptive rights or any other actual contingent purchase rights of Persons other than the Holder (and the other holders of the Notes), not less than 150% of the aggregate number of shares of the Common Stock as shall (subject to the terms and conditions set forth in the Purchase Agreement) be issuable (taking into account the adjustments and restrictions of Section 5) upon the conversion of the then outstanding principal amount of this Note and interest which has accrued and would accrue on such principal amount assuming such principal amount was not converted through the Maturity Date. Borrower covenants that all shares of Common Stock that shall be so issuable shall, upon issue, be duly authorized, validly issued, fully paid and nonassessable.

vii. Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the conversion of this Note. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such conversion, Borrower shall at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Conversion Price or round up to the next whole share.

viii. Transfer Taxes and Expenses. The issuance of certificates for shares of the Common Stock on conversion of this Note shall be made without charge to the Holder hereof for any documentary stamp or similar taxes that may be payable in respect of the issue or delivery of such certificates, provided that, Borrower shall not be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of any such certificate upon conversion in a name other than that of the Holder of this Note so converted and Borrower shall not be required to issue or deliver such certificates unless or until the Person or Persons requesting the issuance thereof shall have paid to Borrower the amount of such tax or shall have established to the satisfaction of Borrower that such tax has been paid. Borrower shall pay all Transfer Agent fees required for same-day processing of any Notice of Conversion.

e) Holder's Conversion Limitations. Borrower shall not effect any conversion of this Note, and a Holder shall not have the right to convert any portion of this Note, to the extent that after giving effect to the conversion set forth on the applicable Notice of Conversion, the Holder (together with the Holder's Affiliates, and any Persons acting as a group together with the Holder or any of the Holder's Affiliates) would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates shall include the number of shares of Common Stock issuable upon conversion of this Note with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon (i) conversion of the remaining, unconverted principal amount of this Note beneficially owned by the Holder or any of its Affiliates and (ii) exercise or conversion of the unexercised or unconverted portion of any other securities of Borrower subject to a limitation on conversion or exercise analogous to the limitation contained herein (including, without limitation, any other Notes) beneficially owned by the Holder or any of its Affiliates. Except as set forth in the preceding sentence, for purposes of this Section 4.e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. To the extent that the limitation contained in this Section 4.e) applies, the determination of whether this Note is convertible (in relation to other securities owned by the Holder together with any Affiliates) and of which principal amount of this Note is convertible shall be in the sole discretion of the Holder, and the submission of a Notice of Conversion shall be deemed to be the Holder's determination of whether this Note may be converted (in relation to other securities owned by the Holder together with any Affiliates) and which principal amount of this Note is convertible, in each case subject to the Beneficial Ownership Limitation. To ensure compliance with this restriction, the Holder will be deemed to represent to Borrower each time it delivers a Notice of Conversion that such Notice of Conversion has not violated the restrictions set forth in this paragraph and Borrower shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 4.e), in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (i) Borrower's most recent periodic or annual report filed with the Commission, as the case may be, (ii) a more recent public announcement by Borrower, or (iii) a more recent written notice by Borrower or Borrower's transfer agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, Borrower shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of Borrower, including this Note, by the Holder or its Affiliates since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon conversion of this Note held by the Holder. The Holder may decrease the Beneficial Ownership Limitation at any time upon not less than 61 days' prior notice to Borrower, and may increase the Beneficial Ownership Limitation provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon conversion of this Note held by the Holder and the Beneficial Ownership Limitation provisions of this Section 4.e) shall continue to apply. Any such increase will not be effective until the 61st day after such notice is delivered to Borrower. The Beneficial Ownership Limitation provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 4.e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation contained herein or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Note. The provisions of this Section 4.e) notwithstanding, in the event of a mandatory conversion pursuant to Section 4.b), the mandatory conversion shall be made into shares of Common Stock up to the Beneficial Ownership Limitation amount. The balance of the mandatory conversion shall be made into shares of preferred stock of the Borrower convertible into shares of the Common Stock on a share for share basis.

Section 5. Certain Adjustments.

a) Stock Dividends and Stock Splits. If Borrower, at any time while this Note is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock on shares of Common Stock or any Common Stock Equivalents (which, for avoidance of doubt, shall not include any shares of Common Stock issued by Borrower upon conversion of the Notes), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares or (iv) issues, in the event of a reclassification of shares of the Common Stock, any shares of capital stock of Borrower, then the Conversion Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of Borrower) outstanding immediately before such event, and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to this Section shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Equity Sales. In addition to the reductions of the Conversion Price described in Section 4(c), if, at any time while this Note is outstanding, the Borrower or any Subsidiary, as applicable, sells or grants any option to purchase or sells or grants any right to reprice, or otherwise disposes of or issues (or announces any sale, grant or any option to purchase or other disposition), any Common Stock or Common Stock Equivalents entitling any Person to acquire Common Stock at an effective price per share that is lower than the then Conversion Price (such lower price, the "Base Conversion Price" and such issuances, collectively, a "Dilutive Issuance") (if the holder of the Common Stock or Common Stock Equivalents so issued shall at any time, whether by operation of purchase price adjustments, reset provisions, floating conversion, exercise or exchange prices or otherwise, or due to warrants, options or rights per share which are issued in connection with such issuance, be entitled to receive Common Stock at an effective price per share that is lower than the Conversion Price, such issuance shall be deemed to have occurred for less than the Conversion Price on such date of the Dilutive Issuance), then the Conversion Price shall be reduced to equal the Base Conversion Price, subject to adjustment for reverse and forward stock splits and the like. Such adjustment shall be made whenever such Common Stock or Common Stock Equivalents are issued. Notwithstanding the foregoing, no adjustment will be made under this Section 5(b) in respect of an Exempt Issuance. If the Borrower enters into a Variable Rate Transaction, despite the prohibition set forth in the Purchase Agreement, the Borrower shall be deemed to have issued Common Stock or Common Stock Equivalents at the lowest possible conversion price at which such securities may be converted or exercised. The Borrower shall notify the Holder in writing, no later than the Trading Day following the issuance of any Common Stock or Common Stock Equivalents subject to this Section 5(b), indicating therein the applicable issuance price, or applicable reset price, exchange price, conversion price and other pricing terms (such notice, the "Dilutive Issuance Notice"). For purposes of clarification, whether or not the Borrower provides a Dilutive Issuance Notice pursuant to this Section 5(b), upon the occurrence of any Dilutive Issuance, the Holder is entitled to receive a number of Conversion Shares based upon the Base Conversion Price on or after the date of such Dilutive Issuance, regardless of whether the Holder accurately refers to the Base Conversion Price in the Notice of Conversion.

c) Subsequent Rights Offerings. In addition to any adjustments pursuant to Sections 5(a) and (b) above, if at any time Borrower grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete conversion of this Note (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Pro Rata Distributions. During such time as this Note is outstanding, if Borrower shall declare or make any dividend whether or not permitted, or makes any other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Note, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Note (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

e) Adjustment upon \$15,000,000 Raise. This Note is part of a financing that will be followed by a second financing in the amount of \$15,000,000 (the "Second Raise"). The Second Raise may consist of the sale of Common Stock, the sale of convertible debt, and/or the issuance of warrants. Upon the closing of the Second Raise, the Conversion Price of this Note will automatically be the lesser of: (i) the Conversion Price of this Note pursuant to the terms and conditions of this Note; (ii) the price of the Common Stock sold in the Second Raise discounted by 25%; (iii) the conversion price of debt sold in the Second Raise discounted by 25%; or (iv) the exercise price of warrants issued in connection with the Second Raise discounted by 25%.

f) Fundamental Transaction. If, at any time while this Note is outstanding, (i) Borrower, directly or indirectly, in one or more related transactions effects any merger or consolidation of Borrower with or into another Person, (ii) Borrower, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by Borrower or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) Borrower, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, (v) Borrower, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent conversion of this Note, the Holder shall have the right to receive, for each Conversion Share that would have been issuable upon such conversion immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 4(e) on the conversion of this Note), the number of shares of Common Stock of the successor or acquiring corporation or of Borrower, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Note is convertible immediately prior to such Fundamental Transaction (without regard to any limitation in Section 4(e) on the conversion of this Note). For purposes of any such conversion, the determination of the Conversion Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one (1) share of Common Stock in such Fundamental Transaction, and Borrower shall apportion the Conversion Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any conversion of this Note following such Fundamental Transaction. Borrower shall cause any successor entity in a Fundamental Transaction in which Borrower is not the survivor (the "Successor Entity") to assume in writing all of the obligations of Borrower under this Note and the other Transaction Documents (as defined in the Purchase Agreement) in accordance with the provisions of this Section 5(f) pursuant to written agreements in form and substance reasonably satisfactory to the Majority in Interest (which approval shall not be unreasonably withheld, delayed or conditioned) prior to such Fundamental Transaction and shall, at the option of the holder of this Note, deliver to the Holder in exchange for this Note a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Note which is convertible for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon conversion of this Note (without regard to any limitations on the conversion of this Note) prior to such Fundamental Transaction, and with a conversion price which applies the conversion price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such conversion price being for the purpose of protecting the economic value of this Note immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Note and the other Transaction Documents referring to the "Borrower" shall refer instead to the Successor Entity), and may exercise every right and power of Borrower and shall assume all of the obligations of Borrower under this Note and the other Transaction Documents with the same effect as if such Successor Entity had been named as Borrower herein.

g) Calculations. All calculations under this Section 5 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 5, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of Borrower) issued and outstanding.

h) Notice to the Holder.

i . Adjustment to Conversion Price. Whenever the Conversion Price is adjusted pursuant to any provision of this Section 5, Borrower shall promptly deliver to each Holder a notice setting forth the Conversion Price after such adjustment and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Conversion by Holder. If (A) Borrower shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) Borrower shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) Borrower shall authorize the granting to all holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of Borrower shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which Borrower is a party, any sale or transfer of all or substantially all of the assets of Borrower, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property or (E) Borrower shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of Borrower, then, in each case, Borrower shall cause to be filed at each office or agency maintained for the purpose of conversion of this Note, and shall cause to be delivered to the Holder at its last address as it shall appear upon the Note Register, at least twenty (20) calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange, provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding Borrower or any of the Subsidiaries, Borrower shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to convert this Note during the 20-day period commencing on the date of such notice through the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

i) Reset. Provided the Holder has acquired from the Borrower a Note in the principal amount of not less than \$30,000, then for so long as this Note is outstanding, if from and after the Issue Date of this Note the Holder converts any or all of a Debenture, then with respect to an aggregate amount of such conversions of the Debenture not exceeding the initial Principal Amount of this Note, upon the occurrence of a Dilutive Issuance (as defined in the Debenture), Borrower shall issue to Holder additional shares of Common Stock (the "Additional Shares") for no additional consideration, so that the average price per share of the shares of Common Stock issued and issuable upon the aforescribed conversion of the Debenture when added to the Additional Shares shall be equal to the Base Conversion Price (as defined in the Debenture).

Section 6. Registration Rights. The Company shall file a registration statement pursuant to the terms of the Purchase Agreement and Registration Rights Agreement.

Section 7. Negative Covenants. As long as any portion of this Note remains outstanding, unless the Majority in Interest shall have otherwise given prior written consent, Borrower shall not directly or indirectly:

a) other than Permitted Indebtedness, enter into, create, incur, assume, guarantee or suffer to exist any indebtedness for borrowed money of any kind, including, but not limited to, a guarantee, on or with respect to any of its property or assets now owned or hereafter acquired or any interest therein or any income or profits therefrom;

b) other than Permitted Liens, enter into, create, incur, assume or suffer to exist any Liens of any kind, on or with respect to any of its property or assets now owned or hereafter acquired or any interest therein or any income or profits therefrom;

c) amend its charter documents, including, without limitation, its certificate of incorporation and bylaws, in any manner that materially and adversely affects any rights of the Holder, provided however, the consent of a Majority in Interest shall not be required in connection with an increase in the authorized shares by the Company;

d) repay, repurchase or offer to repay, repurchase or otherwise acquire any shares of its Common Stock or Common Stock Equivalents other than as to the Conversion Shares as permitted or required under the Transaction Documents;

e) redeem, defease, repurchase, repay or make any payments in respect of, by the payment of cash or cash equivalents (in whole or in part, whether by way of open market purchases, tender offers, private transactions or otherwise), all or any portion of any Indebtedness (other than Permitted Indebtedness or the Notes if on a pro-rata basis), whether by way of payment in respect of principal of (or premium, if any) or interest on, such Indebtedness, the foregoing restriction shall also apply to Permitted Indebtedness from and after the occurrence of an Event of Default;

- f) declare or make any dividend or other distribution of its assets or rights to acquire its assets to holders of shares of Common Stock, by way of return of capital or otherwise including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, liquidation, distribution, preferential payments in connection with any securities or debt issuances, corporate rearrangement, scheme of arrangement or other similar transaction;
- g) issue any Common Stock or Common Stock Equivalents in violation of the terms of the Purchase Agreement;
- h) enter into any transaction with any Affiliate of Borrower which would be required to be disclosed by a company subject to the reporting requirements of Section 12(g) of the Exchange Act in any public filing with the Commission, unless such transaction is made on reasonable commercial terms and expressly approved by either (i) a majority of the disinterested directors of Borrower (even if less than a quorum otherwise required for board approval) or (ii) all of the directors; or
- i) enter into any agreement with respect to any of the foregoing.

Section 8. Events of Default.

- a) “Event of Default” means, wherever used herein, any of the following events (whatever the reason for such event and whether such event shall be voluntary or involuntary or effected by operation of law or pursuant to any judgment, decree or order of any court, or any order, rule or regulation of any administrative or governmental body):
 - i. any default in the payment of (A) the principal amount of this Note, or (B) interest, liquidated damages and other amounts owing to a Holder on any Note, as and when the same shall become due and payable (whether on a Conversion Date or the Maturity Date or by acceleration or otherwise) which default, solely in the case of a default under clause (B) above, is not cured within 3 Trading Days after Borrower has become aware of such default;
 - ii. Borrower shall fail to observe or perform any other material covenant or agreement contained in the Notes (other than a breach by Borrower of its obligations to deliver shares of Common Stock to the Holder upon conversion, which breach is addressed in clause (ix) below) which failure is not cured, if possible to cure, within the earlier to occur of (A) 5 Trading Days after notice of such failure sent by the Holder or by any Other Holder to Borrower and (B) 10 Trading Days after Borrower has become aware of such failure;
 - iii. a material default or event of default (subject to any grace or cure period provided in the applicable agreement, document or instrument) shall occur under (A) any of the Transaction Documents, including but not limited to failure to strictly comply with the material provisions of the Transaction Documents, or (B) any other material agreement, lease, document or instrument to which Borrower or any Subsidiary is obligated (and not covered by clause (vi) below), which in the case of subsection (B) would reasonably be expected to have a Material Adverse Effect;
 - iv. any material representation or warranty made in this Note, any other Transaction Documents, any written statement pursuant hereto or thereto or any other report, financial statement or certificate made or delivered to the Holder or any Other Holder shall be untrue or incorrect in any material respect as of the date when made or deemed made;
 - v. Borrower or any Subsidiary shall be subject to a Bankruptcy Event;
 - vi. Borrower or any Subsidiary shall default on any of its obligations under any mortgage, credit agreement or other facility, indenture agreement, factoring agreement or other instrument under which there may be issued, or by which there may be secured or evidenced, any indebtedness for borrowed money or money due under any long term leasing or factoring arrangement that (a) involves an obligation greater than \$50,000, whether such indebtedness now exists or shall hereafter be created, and (b) results in such indebtedness becoming or being declared due and payable prior to the date on which it would otherwise become due and payable;
 - vii. Borrower shall be a party to any Change of Control Transaction or Fundamental Transaction or disposition of all or in excess of 30% of its assets in one transaction or a series of related transactions (whether or not such sale would constitute a Change of Control Transaction);
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- viii. Borrower does not meet the current public information requirements under Rule 144;
 - ix. Borrower shall fail for any reason to deliver certificates to a Holder prior to the fifth Trading Day after a Conversion Date pursuant to Section 4(d) or Borrower shall provide at any time notice to the Holder, including by way of public announcement, of Borrower's intention to not honor requests for conversions of any Notes in accordance with the terms hereof;
 - x. any Person shall materially breach any agreement delivered to the initial Holders pursuant to Section 2.2 of the Purchase Agreement, which breach is not cured within any allowed cure period;
 - xi. any monetary judgment, writ or similar final process shall be entered or filed against Borrower, or any of its respective property or other assets for more than \$50,000, and such judgment, writ or similar final process shall remain unvacated, unbonded or unstayed for a period of 90 calendar days;
 - xii. any dissolution, liquidation or winding up by Borrower, of a substantial portion of their business;
 - xiii. cessation of operations by Borrower;
 - xiv. the failure by Borrower or any material Subsidiary to maintain any material intellectual property rights, personal, real property, equipment, leases or other assets which are necessary to conduct its business (whether now or in the future) and such breach is not cured with twenty (20) days after written notice to the Borrower from the Holder;
 - xv. the occurrence of a Listing Default;
 - xvi. a Commission or judicial stop trade order or suspension from the Borrower's Principal Trading Market;
 - xvii. the restatement after the date hereof of any financial statements filed by the Borrower with the Commission for any date or period from the Original Issue Date and until this Note is no longer outstanding, if the result of such restatement would, by comparison to the unrestated financial statements, have constituted a Material Adverse Effect. For the avoidance of doubt, any restatement related to new accounting pronouncements shall not constitute a default under this Section;
 - xviii. the Borrower effectuates a reverse split of its Common Stock without five (5) days prior written notice to the Holder;
 - xix. a failure by Borrower to notify Holder of any material event of which Borrower is obligated to notify Holder pursuant to the terms of this Note or any other Transaction Document;
 - xx. a default by the Borrower of a material term, covenant, warranty or undertaking of any other agreement to which the Borrower and Holder are parties, or the occurrence of an event of default under any such other agreement to which Borrower and Holder are parties which is not cured after any required notice and/or cure period;
 - xxi. the occurrence of an Event of Default under any Other Note;
 - xxii. any material provision of any Transaction Document shall at any time for any reason (other than pursuant to the express terms thereof) cease to be valid and binding on or enforceable against the Borrower, or the validity or enforceability thereof shall be contested by Borrower, or a proceeding shall be commenced by Borrower or any governmental authority having jurisdiction over Borrower or Holder, seeking to establish the invalidity or unenforceability thereof, or Borrower shall deny in writing that it has any liability or obligation purported to be created under any Transaction Document; or
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xxiii. any default under the Registration Rights Agreement including but not limited to the timely compliance with all filing and effectiveness deadlines.

In the event more than one grace, cure or notice period is applicable to an Event of Default, then the shortest grace, cure or notice period shall be applicable thereto.

b) Remedies Upon Event of Default, Fundamental Transaction and Change of Control Transaction If any Event of Default or a Fundamental Transaction or a Change of Control Transaction occurs, the outstanding principal amount of this Note, liquidated damages and other amounts owing in respect thereof through the date of acceleration, shall become, at the Holder's election, immediately due and payable in cash at the Mandatory Default Amount. Commencing on the Maturity Date and also five (5) days after the occurrence of any Event of Default interest on this Note shall accrue at an interest rate equal to the lesser of 18% per annum or the maximum rate permitted under applicable law. Upon the payment in full of the Mandatory Default Amount, the Holder shall promptly surrender this Note to or as directed by Borrower. In connection with such acceleration described herein, the Holder need not provide, and Borrower hereby waives, any presentment, demand, protest or other notice of any kind, and the Holder may immediately and without expiration of any grace period enforce any and all of its rights and remedies hereunder and all other remedies available to it under applicable law. Such acceleration may be rescinded and annulled by Holder at any time prior to payment hereunder and the Holder shall have all rights as a holder of the Note until such time, if any, as the Holder receives full payment pursuant to this Section 8(b). No such rescission or annulment shall affect any subsequent Event of Default or impair any right consequent thereon.

Section 9. Miscellaneous.

a) Notices. All notices, demands, requests, consents, approvals, and other communications required or permitted hereunder shall be in writing and, unless otherwise specified herein, shall be (i) personally served, (ii) deposited in the mail, registered or certified, return receipt requested, postage prepaid, (iii) delivered by reputable air courier service with charges prepaid, or (iv) transmitted by hand delivery, telegram, facsimile, or electronic mail, addressed as set forth below or to such other address as such party shall have specified most recently by written notice. Any notice or other communication required or permitted to be given hereunder shall be deemed effective (a) upon hand delivery or delivery by facsimile, with accurate confirmation generated by the transmitting facsimile machine, at the address or number designated below (if delivered on a business day during normal business hours where such notice is to be received), or the first business day following such delivery (if delivered other than on a business day during normal business hours where such notice is to be received), or (b) upon receipt, when sent by electronic mail (provided confirmation of transmission is electronically generated and kept on file by the sending party), or (c) on the second business day following the date of mailing by express courier service, fully prepaid, addressed to such address, or upon actual receipt of such mailing, whichever shall first occur. The addresses for such communications shall be: (i) if to Borrower, to: GT Biopharma, Inc., 9350 Wilshire Blvd, Suite 203, Beverly Hills, CA 90212, Attn: Chief Executive Officer, with a copy to (which shall not constitute notice): Gary R. Henrie, Esq., P.O. Box 3448, Alpine, WY 83128, email: grhlaw@hotmail.com, and (ii) if to the Holder, to: the address and fax number indicated on the front page of this Note.

b) Absolute Obligation. Except as expressly provided herein, no provision of this Note shall alter or impair the obligation of Borrower, which is absolute and unconditional, to pay the principal of, liquidated damages and accrued interest, as applicable, on this Note at the time, place, and rate, and in the coin or currency, herein prescribed. This Note is a direct debt obligation of Borrower. This Note ranks pari passu with all other Notes now or hereafter issued under the terms set forth herein.

c) Lost or Mutilated Note. If this Note shall be mutilated, lost, stolen or destroyed, Borrower shall execute and deliver, in exchange and substitution for and upon cancellation of a mutilated Note, or in lieu of or in substitution for a lost, stolen or destroyed Note, a new Note for the principal amount of this Note so mutilated, lost, stolen or destroyed, but only upon receipt of evidence of such loss, theft or destruction of such Note, and of the ownership hereof, reasonably satisfactory to Borrower.

d) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Note shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflict of laws thereof. Each party agrees that all legal proceedings concerning the interpretation, enforcement and defense of the transactions contemplated by any of the Transaction Documents (whether brought against a party hereto or its respective Affiliates, directors, officers, shareholders, employees or agents) shall be commenced in the state and federal courts sitting in the City of New York, Borough of Manhattan (the "New York Courts"). Each party hereto hereby irrevocably submits to the exclusive jurisdiction of the New York Courts for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of such New York Courts, or such New York Courts are improper or inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Note and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by applicable law. Each party hereto hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Note or the transactions contemplated hereby. If any party shall commence an action or proceeding to enforce any provisions of this Note, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorneys fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding. **This Note shall be deemed an unconditional obligation of Borrower for the payment of money and, without limitation to any other remedies of Holder, may be enforced against Borrower by summary proceeding pursuant to New York Civil Procedure Law and Rules Section 3213 or any similar rule or statute in the jurisdiction where enforcement is sought. For purposes of such rule or statute, any other document or agreement to which Holder and Borrower are parties or which Borrower delivered to Holder, which may be convenient or necessary to determine Holder's rights hereunder or Borrower's obligations to Holder are deemed a part of this Note, whether or not such other document or agreement was delivered together herewith or was executed apart from this Note.**

e) Waiver. Any waiver by Borrower or the Holder of a breach of any provision of this Note shall not operate as or be construed to be a waiver of any other breach of such provision or of any breach of any other provision of this Note. The failure of Borrower or the Holder to insist upon strict adherence to any term of this Note on one or more occasions shall not be considered a waiver or deprive that party of the right thereafter to insist upon strict adherence to that term or any other term of this Note on any other occasion. Any waiver by Borrower or the Holder must be in writing.

f) Severability. If any provision of this Note is invalid, illegal or unenforceable, the balance of this Note shall remain in effect, and if any provision is inapplicable to any Person or circumstance, it shall nevertheless remain applicable to all other Persons and circumstances.

g) Usury. If it shall be found that any interest or other amount deemed interest due hereunder violates the applicable law governing usury, the applicable rate of interest due hereunder shall automatically be lowered to equal the maximum rate of interest permitted under applicable law. Borrower covenants (to the extent that it may lawfully do so) that it shall not at any time insist upon, plead, or in any manner whatsoever claim or take the benefit or advantage of, any stay, extension or usury law or other law which would prohibit or forgive Borrower from paying all or any portion of the principal of or interest on this Note as contemplated herein, wherever enacted, now or at any time hereafter in force, or which may affect the covenants or the performance of this Note, and Borrower (to the extent it may lawfully do so) hereby expressly waives all benefits or advantage of any such law, and covenants that it will not, by resort to any such law, hinder, delay or impede the execution of any power herein granted to the Holder, but will suffer and permit the execution of every such as though no such law has been enacted.

h) Next Business Day. Whenever any payment or other obligation hereunder shall be due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day.

i) Headings. The headings contained herein are for convenience only, do not constitute a part of this Note and shall not be deemed to limit or affect any of the provisions hereof.

j) Amendment. This Note may be amended and any provisions hereof may be waived by written consent of Borrower and the Majority in Interest.

k) Facsimile Signature. In the event that the Borrower's signature is delivered by facsimile transmission, PDF, electronic signature or other similar electronic means, such signature shall create a valid and binding obligation of the Borrower with the same force and effect as if such signature page were an original thereof.

(Signature Pages Follow)

IN WITNESS WHEREOF, Borrower has caused this Note to be signed in its name by an authorized officer as of [].

GT BIOPHARMA, INC.

By: _____
Name: Michael Handelman
Title: Chief Financial Officer

ANNEX A

NOTICE OF CONVERSION

The undersigned hereby elects to convert principal under the Convertible Note Due [] of GT Biopharma, Inc., a Delaware corporation (the "Company"), into shares of common stock (the "Common Stock"), of Borrower according to the conditions hereof, as of the date written below. If shares of Common Stock are to be issued in the name of a person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto and is delivering herewith such certificates and opinions as reasonably requested by Borrower in accordance therewith. No fee will be charged to the holder for any conversion, except for such transfer taxes, if any.

By the delivery of this Notice of Conversion the undersigned represents and warrants to Borrower that its ownership of the Common Stock does not exceed the amounts specified under Section 4 of this Note, as determined in accordance with Section 13(d) of the Exchange Act.

The undersigned agrees to comply with the prospectus delivery requirements under the applicable securities laws in connection with any transfer of the aforesaid shares of Common Stock.

Conversion calculations:

Date to Effect Conversion: _____

Principal Amount of Note to be Converted: \$ _____

Accrued Interest to be Converted, if any: \$ _____

Conversion Price: \$ _____

Number of shares of Common Stock to be issued: _____

Signature: _____

Name: _____

Address for Delivery of Common Stock Certificates: _____

Or

DWAC Instructions: _____

Broker No: _____

Account No: _____

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in this Registration Statement on Form S-1 of GT Biopharma, Inc. of our report dated March 27, 2020, relating to our audit of the consolidated financial statements as of and for the years ended December 31, 2019 and 2018, which appears in the Annual Report on Form 10-K of GT Biopharma, Inc. for the year ended December 31, 2019. Our report included an explanatory paragraph expressing substantial doubt about the ability of GT Biopharma, Inc. to continue as a going concern.

We also consent to the reference to our Firm under the caption "Experts" in the Prospectus, which is part of this Registration Statement.

/s/Seligson & Giannattasio, LLP
Seligson & Giannattasio, LLP

White Plains, New York
February 8, 2021
