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

FORM 10-K/A
(Amendment No. 1)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 000-50549

GTx, Inc.

(Exact name of registrant as specified in its charter)

Delaware

62-1715807

(State or other jurisdiction of
incorporation or organization)

(I.R.S. Employer Identification No.)

17 W Pontotoc Ave
Suite 100
Memphis, Tennessee

38103

(Address of principal executive offices)

(Zip Code)

(901) 523-9700

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value \$0.001 per share	The Nasdaq Stock Market, LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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

Non-accelerated filer

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 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The aggregate market value of common stock held by non-affiliates of the registrant based on the closing sales price of the registrant's common stock on June 30, 2018 as reported on The Nasdaq Capital Market was \$189,830,468.

There were 24,051,844 shares of registrant's common stock issued and outstanding as of April 26, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

None.

EXPLANATORY NOTE

GTx, Inc. (the "Company") is filing this Amendment No. 1 to its Annual Report on Form 10-K/A (the "Amendment") to amend its Annual Report on Form 10-K for the fiscal year ended December 31, 2018 (the "2018 10-K"), as filed with the Securities and Exchange Commission (the "SEC") on March 18, 2019. The principal purposes of this Amendment are to include in Part III the information that was to be incorporated by reference from the definitive proxy statement for the Company's 2019 Annual Meeting of Stockholders and to refile Exhibits 10.41 through 10.45 (the "Refiled Exhibits"), which were originally filed with the 2018 10-K, in connection with the transition to the new requirements set forth in Item 601(b) of Regulation S-K permitting registrants to omit immaterial and competitively harmful confidential information from material contracts filed pursuant to Item 601(b)(10) without the need to submit a confidential treatment request to the SEC. GTx has also withdrawn its confidential treatment request for the Refiled Exhibits. This Amendment also updates certain of the information included on the cover page of the 2018 10-K and in the list of exhibits included in Item 15. This Amendment hereby amends the cover page, Part III, Items 10 through 14, and Part IV, Item 15 of the 2018 10-K, and effects the filing of the Refiled Exhibits. In addition, as required by Rule 12b-15 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, new certifications by the Company's principal executive officer and principal financial officer are filed as exhibits to this Amendment (the "New Certifications").

No attempt has been made in this Amendment to modify or update the other disclosures presented in the 2018 10-K. This Amendment does not reflect events occurring after the filing of the original report (i.e., those events occurring after March 18, 2019) or modify or update those disclosures that may be affected by subsequent events. In this regard, except for the changes to Refiled Exhibits and the addition of the New Certifications, this Amendment does not otherwise update any exhibits as originally filed with the 2018 10-K. Accordingly, this Amendment should be read in conjunction with the 2018 10-K and the Company's other filings with the SEC.

GTx, INC.
2018 ANNUAL REPORT ON FORM 10-K
Amendment No. 1

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which are subject to the "safe harbor" created by those sections. In some cases, you can identify forward-looking statements by terms such as "anticipates," "believes," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "projects," "should," "will," "would," and similar expressions intended to identify forward-looking statements. Forward-looking statements reflect our current views with respect to future events, are based on assumptions, and are subject to risks, uncertainties and other important factors. We discuss many of these risks in Part I, Item 1A of our 2018 Annual Report on Form 10-K, as filed with the SEC on March 18, 2019 (the "2018 10-K"). Given these risks, uncertainties and other important factors, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our estimates and assumptions only as of the date of this report. You should read this report completely and with the understanding that our actual future results may be materially different from what we expect. Except as required by law, we assume no obligation to update any forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in any forward-looking statements, even if new information becomes available in the future.

BASIS OF PRESENTATION AND SPECIAL NOTE REGARDING PROPOSED MERGER

In this report, unless otherwise indicated or the context otherwise requires, all references to "GTx," "the registrant," "the company," "we," "us," and "our" refer to GTx, Inc. On March 6, 2019, GTx entered into an Agreement and Plan of Merger and Reorganization with Oncternal Therapeutics, Inc., a Delaware corporation ("Oncternal"), and Grizzly Merger Sub, Inc., a Delaware corporation and wholly-owned subsidiary of GTx ("Merger Sub"), which was subsequently amended on April 29, 2019 (as amended, the "Merger Agreement"). Upon the terms and subject to the satisfaction of the conditions described in the Merger Agreement, including approval of the transaction by GTx's stockholders and Oncternal's stockholders, Merger Sub will be merged with and into Oncternal (the "merger"), with Oncternal surviving the merger as a wholly-owned subsidiary of GTx. Subject to the terms and conditions of the Merger Agreement, at the effective time of the merger (the "Effective Time"): (i) each share of Oncternal common stock outstanding immediately prior to the Effective Time (excluding shares held by GTx, Merger Sub or Oncternal and dissenting shares) will be converted solely into the right to receive a number of shares of GTx's common stock (the "Shares") equal to the exchange ratio described below, (ii) each outstanding Oncternal stock option will be assumed by GTx, and (iii) each outstanding Oncternal warrant will be assumed by GTx. Under the exchange ratio formula in the Merger Agreement, the former Oncternal stockholders immediately before the merger are expected to own approximately 77.5% of the outstanding capital stock of GTx, and the stockholders of GTx immediately before the merger are expected to own approximately 22.5% of the outstanding capital stock of GTx, subject to certain assumptions. The exchange ratio formula excludes Oncternal's outstanding stock options and warrants and GTx's outstanding stock options, and warrants. To the extent Oncternal's outstanding stock options or warrants are exercised in the future, it will result in further dilution to GTx's stockholders. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted downward based on cash levels of the respective companies at the closing of the merger (the "Closing"). Following the Closing, James B. Breitmeyer is expected to serve as GTx's Chief Executive Officer, Richard G. Vincent is expected to serve as GTx's Chief Financial Officer, and Hazel M. Aker is expected to serve as GTx's General Counsel. Additionally, following the Closing, the board of directors of GTx (the "GTx Board") will consist of nine directors, including two designees of GTx, and is expected to be comprised of David F. Hale, James B. Breitmeyer, Michael G. Carter (GTx nominee), Daniel L. Kisner, William R. LaRue, Yanjun Liu, Xin Nakanishi, Charles P. Theuer and Robert J. Wills (GTx nominee). The Closing is subject to satisfaction or waiver of certain conditions including, among other things, (i) the required approvals by the parties' stockholders (including stockholder approval from one of Oncternal's significant stockholders, Shanghai Pharmaceutical (USA) Inc., which holds all of the outstanding shares of one series of Oncternal's preferred stock that must approve the transactions contemplated by the Merger Agreement), (ii) the accuracy of the representations and warranties, subject to certain materiality qualifications, (iii) compliance by the parties with their respective covenants, (iv) no law or order preventing the merger and related transactions, and (v) the listing of the Shares on the Nasdaq Capital Market.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Our Board of Directors

The GTx Board is divided into three classes, designated as Class I, Class II and Class III. GTx's charter documents provide that each class must consist, as nearly as possible, of one-third of the total number of directors, and each class has a three-year term. The staggered structure of the GTx Board will remain in place following completion of the merger. Pursuant to the Merger Agreement, each of the directors and officers of GTx who will not continue as directors or officers of GTx or the surviving corporation following the consummation of the merger will resign immediately prior to the Effective Time. Effective as of the Effective Time, it is anticipated that only Drs. Carter and Wills will remain on the GTx Board.

The following includes a brief biography of each current member of the GTx Board (including their respective ages as of March 31, 2019), with terms expiring as shown, with each biography including information regarding the experiences, qualifications, attributes or skills that caused the Nominating and Corporate Governance Committee and the GTx Board to determine that the applicable director should serve as a member of our Board of Directors.

Class III Directors Continuing in Office Until the 2019 Annual Meeting

Michael G. Carter, M.D., Ch.B., F.R.C.P.

Dr. Carter, age 81, was appointed as a director in May 2006 and currently serves as Chair of the Compensation Committee and as a member of both the Audit Committee and the Scientific and Development Committee. Dr. Carter was a non-executive director of Santarus, Inc. from 2004 to 2013, served as a non-executive director of Micromet AG from 2001 to 2005 and of MICROMET, Inc. from 2006 to March 2012, and served as a non-executive director of Fulcrum Pharma, PLC from 2005 to 2010. Dr. Carter was a member of the Advisory Board of Paul Capital Royalty Fund from 2005 to 2008, and was a venture partner with SV Life Sciences Advisors, LLP from 1998 to 2016. He has served as a member of the strategic advisory board of Healthcare Royalty Partners (HCRP) since September 2009 and a member of the HCRP Investment Committee since 2015. Dr. Carter was the non-executive chairman of Metris Therapeutics, Ltd., a biotechnology firm specializing in women's healthcare from 1999 to 2008. He was also a non-executive director of ONCOETHIX from June 2013 until its sale to Merck & Co., in December 2014. Dr. Carter served on the Pharmaceutical Board of I.C.I. Zeneca Pharmaceuticals, a predecessor company of AstraZeneca, and held various positions with I.C.I. Zeneca from 1984 to 1998, including International Medical Director and International Marketing Director. From 1985 to 1995, Dr. Carter served as a member of the U.K. Government's Medicines Commission. Dr. Carter is an Elected Fellow of the Royal Pharmaceutical Society, Faculty of Pharmaceutical Medicine, and of the Royal College of Physicians of Edinburgh. Dr. Carter holds a degree in pharmacy from London University (U.K.) and a medical degree from Sheffield University Medical School (U.K.). Dr. Carter brings to the GTx Board specific expertise in the development and commercialization of pharmaceutical products by both large pharmaceutical companies and small specialty biotech companies.

J. R. Hyde, III

Mr. Hyde, age 76, has served as a director since November 2000, and currently serves as a member of the Compensation Committee and the Nominating and Corporate Governance Committee. From November 2000 to March 2015, Mr. Hyde served as non-executive Chairman of our Board of Directors. In connection with Dr. Wills' assumption of duties as our Executive Chairman in March 2015, Mr. Hyde was appointed as our Lead Director. Since 1989, Mr. Hyde has been the sole stockholder and President of Pittco Holdings, Inc., a private institutional investment company. Since 1996, when Mr. Hyde made a substantial contribution to support the research of our prior CEO, Mr. Hyde has been instrumental in forming and financing GTx and is our largest stockholder. Mr. Hyde was the Chairman of the Board of Directors of AutoZone, Inc. (NYSE: AZO) from 1986 to 1997 and the Chief Executive Officer of AutoZone from 1986 to 1996. From March 2005 to June 2007, Mr. Hyde served as the non-executive chairman of the Board of Directors of AutoZone, Inc. He was also Chairman and Chief Executive Officer of Malone & Hyde, Inc., AutoZone's former parent company, from 1972 until 1988. Mr. Hyde also served as a director of FedEx Corporation (NYSE: FDX) from 1977 to 2011. As the largest stockholder of GTx and with a long history of serving as both Chairman and Chief Executive Officer of a large publicly-traded company and a member of the board of directors of other public companies, Mr. Hyde has continued to serve as a principal architect of the GTx public company governance structure, and continues to be a primary advisor to senior management on all matters of strategic importance. The GTx Board believes that Mr. Hyde's leadership role and public company experience, as well as his significant ownership interest in the company, qualifies him to serve as the Lead Director of the GTx Board.

Class I Directors Continuing in Office Until the 2020 Annual Meeting

Marc S. Hanover

Mr. Hanover, age 56, a co-founder of GTx, served as our President and Chief Operating Officer from our inception in September 1997 until his appointment as our permanent Chief Executive Officer in February 2015, and served as our acting Principal Financial Officer from December 31, 2013 until his appointment as our interim Chief Executive Officer on April 3, 2014. He also previously served as a member of our Board of Directors from September 1997 to August 2011. Prior to joining GTx, Mr. Hanover was a founder of Equity Partners International, Inc., a private equity firm in Memphis, Tennessee, and participated as a founder and investor in three healthcare companies. From 1985 to 1997, Mr. Hanover was a Senior Vice President and a member of the Executive Management Committee of National Bank of Commerce in Memphis, Tennessee. Mr. Hanover holds a B.S. in Biology from the University of Memphis and an MBA in Finance from the University of Memphis. Mr. Hanover serves as our Chief Executive Officer and he is responsible for overseeing all aspects of our business, including product development and business strategies. Accordingly, the Nominating and Corporate Governance Committee and our Board of Directors has determined that Mr. Hanover should serve as a member of our Board of Directors since he is best able to impart to our Board of Directors the business and financial acumen essential for a complete understanding by our Board of Directors of GTx's operations, strategies and developmental plans.

Garry A. Neil, M.D.

Dr. Neil, age 65, has served as a director since August 2016 and currently serves as a member of the Nominating and Corporate Governance Committee and the Board's Scientific and Development Committee. Dr. Neil joined as CSO of Aevi Genomic Medicine in September 2013. Prior to joining Aevi Genomic Medicine, Dr. Neil held a number of senior positions in the pharmaceutical industry, academia and venture capital. These include Corporate Vice President of Science & Technology at Johnson & Johnson and Group President at Johnson & Johnson Pharmaceutical Research and Development, Vice President of Research and Development at Merck KGaA/EMD Pharmaceuticals, Vice President of Clinical Research at Astra Zeneca and Astra Merck. Under his leadership a number of important new medicines for the treatment of cancer, anemia, infections, central nervous system and psychiatric disorders, pain, and genitourinary and gastrointestinal diseases gained initial or expanded approvals. Dr. Neil holds a B.S. from the University of Saskatchewan and an M.D. from the University of Saskatchewan College of Medicine. He completed postdoctoral clinical training in internal medicine and gastroenterology at the University of Toronto. Dr. Neil also completed a postdoctoral research fellowship at the Research Institute of Scripps Clinic. He is the Founding Chairman of the Pharmaceutical Industry R&D Consortium, TransCelerate Biopharmaceuticals Inc., and remains on the Board. He also serves on the Boards of Reagan Udall Foundation, GTx Pharmaceuticals, Arena Pharmaceuticals and is a past member of the Board of Foundation for the National Institutes of Health (FNIH), and the Science Management Review Board of the NIH. He is past Chairman of the Pharmaceutical Research and Manufacturers Association (PhRMA) Science and Regulatory Executive Committee and the PhRMA Foundation Board. The GTx Nominating and Corporate Governance Committee and the GTx Board finds Dr. Neil's experience and background in drug development and regulatory interactions helpful on the GTx Board.

Kenneth S. Robinson, M.D., M.Div.

Dr. Robinson, age 64, has served as a director since May 2008 and currently serves as Chair of the Nominating and Corporate Governance Committee and as a member of the Audit Committee. From 2003 through 2007, Dr. Robinson served in the cabinet of Tennessee Governor Phil Bredesen as Commissioner of Health, and in April 2009, Dr. Robinson accepted an appointment to provide executive-level public health leadership and consultation as the Health Officer of Shelby County, Tennessee, the county in which GTx is located. In February 2011, Dr. Robinson was appointed as Public Health Policy Advisor for Shelby County, Tennessee. From 1982 through 1991, Dr. Robinson taught and practiced internal medicine at Vanderbilt University School of Medicine, and from 1991 through 2003, he was an Assistant Dean at the University of Tennessee College of Medicine. Since 2015, he has served as President and CEO of United Way of the Mid-South. Dr. Robinson holds a B.A., cum laude, from Harvard University, a M.D. from Harvard Medical School, and a Master of Divinity from Vanderbilt Divinity School. As a Harvard-trained physician who has experience in overseeing the complexities of federal and state agencies' provision of healthcare to elderly and indigent patients, Dr. Robinson brings to the GTx Board expertise in governance, governmental reimbursement related issues, population health data and priorities, and the role of government in the development and delivery of healthcare services. Dr. Robinson, an African-American, adds an element of racial balance to the GTx Board and also provides a voice for GTx with state and local officials.

Class II Directors Continuing in Office Until the 2021 Annual Meeting

J. Kenneth Glass

Mr. Glass, age 72, has served as a director since March 2004, and currently serves as the Chair of the Audit Committee and also currently serves on the Compensation Committee. Mr. Glass retired as Chairman of the Board, President and Chief Executive Officer of First Horizon National Corporation (NYSE: FHN), or First Horizon, as of January 29, 2007. Mr. Glass was named President and Chief Executive Officer of First Horizon in July 2002, and he also became First Horizon's Chairman of the Board in January 2004. From 2003 through 2007, Mr. Glass served as a director of FedEx Corporation (NYSE: FDX). From July 2001 through July 2002, Mr. Glass was President and Chief Operating Officer of First Horizon. From 1993 to 2001, Mr. Glass was Business Unit President of First Tennessee Bank. Mr. Glass received his B.A. in Accounting from Harding University and graduated from Harvard Business School's Advanced Management Program. With his background in accounting and as a Chief Executive Officer, Mr. Glass serves in the role of a financial expert for our Audit Committee, and his years of experience leading a publicly-owned bank holding company has provided him with the organizational skills, risk management expertise and leadership he currently brings to the GTx Board and the Audit Committee.

Robert J. Wills, Ph.D.

Dr. Wills, age 65, has over three decades of experience as a leader in the pharmaceutical and biotechnology industry. Dr. Wills joined GTx as the Executive Chairman of the Board of Directors and as Chairman of the Board's Scientific and Development Committee on March 2, 2015. He also serves as Chairman of the Board of CymaBay Therapeutics, as board member at Parion Sciences, Inc., as board member at Go Therapeutics and as a member of the Emerging Companies Section Governing Board of Biotechnology Innovation Organization (BIO). Prior to these roles, Dr. Wills spent over 25 years at Johnson & Johnson. Most recently he was Vice President, Alliance Management, Janssen Pharmaceutical Companies of Johnson & Johnson. He also served as Senior Vice President Global Development where he was responsible for the R&D pipeline and a member of the R&D Board of Directors. In addition, he served on several of the commercial Operating Company Boards key pharmaceutical group decision-making committees. Dr. Wills began his career at Hoffmann-LaRoche where he spent 10 years in several roles of scientific responsibility. He holds a BS in Biochemistry and an MS in Pharmaceutics from the University of Wisconsin and a Ph.D. in Pharmaceutics from the University of Texas.

Our Executive Officers

The following table sets forth information about our executive officers as of March 31, 2019:

<u>Name</u>	<u>Age</u>	<u>Position(s)</u>
Marc S. Hanover	56	Chief Executive Officer
Robert J. Wills, Ph.D	65	Executive Chairman
Henry P. Doggrell	70	Vice President, Chief Legal Officer and Secretary
Jason T. Shackelford	43	Vice President, Finance and Accounting, and Principal Financial and Accounting Officer

The biographies of Marc S. Hanover and Robert J. Wills, Ph.D. are provided above under the subsection "*Our Board of Directors.*"

Henry P. Doggrell currently serves as GTx's Vice President, Chief Legal Officer and Secretary, after joining GTx in October 2001 as General Counsel and Secretary. From April 1998 to August 2001, Mr. Doggrell was Senior Vice President, Corporate Affairs at Buckeye Technologies, Inc., a specialty cellulose company, where he was responsible for matters including corporate finance, investor relations, mergers and acquisitions, intellectual property and licensing and strategic development. From 1996 to 1998, Mr. Doggrell served as General Counsel and Secretary of Buckeye Technologies. Prior to joining Buckeye Technologies, Mr. Doggrell was a partner of the Baker, Donelson, Bearman, Caldwell and Berkowitz law firm from 1988 to 1996, where he served as a member of the law firm management committee and Chair of the firm's Corporate Securities department. Mr. Doggrell holds a B.S. in Commerce from the University of Virginia and a JD from Vanderbilt University.

Jason T. Shackelford currently serves as GTx's Vice President, Finance and Accounting, after joining GTx in July 2007 as Director, Accounting and Corporate Controller, and has served as our principal accounting officer since December 31, 2013 and as our principal financial and accounting officer since April 3, 2014. Prior to joining GTx, Mr. Shackelford was a Senior Audit Manager at KPMG LLP. Mr. Shackelford is a Certified Public Accountant and holds a Bachelor of Business Administration and Master of Accountancy from the University of Mississippi.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our executive officers and directors and the beneficial owners of greater than 10% of our common stock to file initial reports of ownership and reports of changes in ownership with the SEC. Executive officers and directors are required by SEC regulations to furnish us with copies of these reports.

To our knowledge, based solely on a review of the copies of these reports furnished to us and any written representations from such executive officers, directors and stockholders with respect to the period from January 1, 2018 through December 31, 2018, all Section 16(a) filing requirements applicable to our officers, directors and greater than ten percent beneficial owners were complied with.

Copies of filings made by our executive officers, directors and stockholders under Section 16(a) of the Exchange Act can be found at our corporate website at www.gtxinc.com under "Investors" at "SEC Filings."

Certain Corporate Governance Matters

Our Audit Committee. We have a standing Audit Committee that is currently composed of three directors: J. Kenneth Glass (Chair), Michael G. Carter and Kenneth S. Robinson. The GTx Board has determined that the members of the Audit Committee are independent under applicable Nasdaq listing standards and SEC rules. In addition, the GTx Board has determined that Mr. Glass, the Chair of the Audit Committee, qualifies as an "audit committee financial expert" within the meaning of the SEC rules.

Code of Ethics. The GTx Board has adopted a Code of Business Conduct and Ethics applicable to all officers, directors and employees as well as Guidelines on Governance Issues. These documents are available on our website (www.gtxinc.com) under "Investors" at "Corporate Governance." We will provide a copy of these documents to any person, without charge, upon request, by writing to us at GTx, Inc., Chief Legal Officer, 17 W Pontotoc Ave., Suite 100, Memphis, Tennessee 38103. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, a provision of the Code of Business Conduct and Ethics by posting such information on our website at the address and the location specified above.

Director Nominations. No material changes have been made to the procedures by which stockholders may recommend nominees to the GTx Board.

ITEM 11. EXECUTIVE COMPENSATION
Summary Compensation Table

The following table sets forth certain summary information for the years indicated with respect to the compensation earned by our Chief Executive Officer and our two most highly compensated executive officers other than our Chief Executive Officer who were serving as executive officers as of December 31, 2018. We refer to these individuals in this report as our "named executive officers."

SUMMARY COMPENSATION TABLE — FISCAL 2018 AND 2017

Name and Principal Position	Year	Salary (\$) ⁽¹⁾	Bonus (\$) ⁽²⁾	Option Awards (\$) ⁽³⁾	Non-Equity Incentive Plan Compensation (\$) ⁽⁴⁾	All Other Compensation (\$) ⁽⁵⁾	Total (\$)
Marc S. Hanover	2018	445,628	—	659,984	115,863	22,338	1,243,813
Chief Executive Officer	2017	432,649	28,122	346,988	154,672	21,586	984,017
Robert J. Wills	2018	226,600	—	659,984	58,916	36,046	981,546
Executive Chairman	2017	220,000	14,300	346,988	78,650	31,268	691,206
Henry P. Doggrell	2018	389,463	—	456,912	54,525	24,836	925,736
Vice President, Chief Legal Officer and Secretary	2017	378,119	13,234	292,200	72,788	21,996	778,337

- (1) The amounts in this column represent base salary earned during the indicated fiscal year.
- (2) The amounts in this column represent amounts awarded as a discretionary bonus paid under our Executive Bonus Compensation Plan, or the Bonus Plan. As discussed under "— Narrative Disclosure to Summary Compensation Table — Annual Bonus Plan" below, each named executive officer was eligible for a discretionary bonus award of up to 10% of his target bonus under the Bonus Plan based on the GTx Compensation Committee's assessment of the named executive officer's personal performance during 2017 and 2018. No discretionary bonuses were awarded for 2018 performance.
- (3) The amounts in the column represent the aggregate grant date fair value of all option awards granted during 2017 and 2018 as determined in accordance with FASB ASC Topic 718. Assumptions used in computing the grant date fair values of the stock options in accordance with FASB ASC Topic 718 are set forth in Note 3 — Share-Based Compensation to our audited financial statements included in the 2018 10-K. For more information on these stock options granted in 2017 and 2018, see "— Narrative Disclosure to Summary Compensation Table — Option Awards" below.
- (4) Represents the amounts earned by the named executive officers under the Bonus Plan based on the attainment of pre-established, objective performance goals approved by the Compensation Committee. For more information on our Bonus Plan, please see "— Narrative Disclosure to Summary Compensation Table — Annual Bonus Plan" below.
- (5) The amounts in this column consisted of (a) employer matching contributions to our defined contribution 401(k) Plan, (b) with respect to Mr. Hanover and Mr. Doggrell only, the incremental cost of life insurance premiums to provide additional term life insurance benefits equal to up to two times each such named executive officer's base salary along with supplemental long-term disability insurance premiums, and (c) with respect to Dr. Wills only, the following items of compensation:

Year	Commuting Expenses Paid (\$)	Tax Gross-Up Payment (\$)
2018	17,350	9,038
2017	11,820	8,648

Narrative Disclosure to Summary Compensation Table

Base Salary

Our Compensation Committee recognizes the importance of base salary as an element of compensation that helps to attract and retain our executive officers. We provide base salary as a fixed source of income for our executives for the services they provide to us during the year, and allow us to maintain a stable executive team.

In determining base salaries for 2018, the Compensation Committee took into account that there had been no salary increases since 2016 other than in connection with certain employee promotions. After considering GTX's capital position and the achievement of certain operational milestones during 2017, in November 2017, the Compensation Committee determined that the base salaries of our executive officers and other employees should be increased approximately 3% from their existing base salaries, effective January 1, 2018. The Compensation Committee also approved the performance criteria for 2018 under our Bonus Plan that were tied to the attainment of certain milestones, as described in detail below. Additionally, the base salaries of our named executive officers were increased, effective January 1, 2018, to the following:

Named Executive Officer	2018 Annual Base Salary (\$)
Marc S. Hanover	445,628
Robert J. Wills, Ph.D.	226,600 ⁽¹⁾
Henry P. Doggrell	389,463

(1) Dr. Wills' base salary reflects his agreement with us to work part time but to make himself available at all other times as may be required.

Following the results of our placebo-controlled Phase 2 clinical trial of enobosarm to evaluate the change in frequency of daily stress urinary incontinence, or SUI, episodes following 12 weeks of treatment, or the ASTRID trial, the Compensation Committee did not adjust any base salaries for 2019, and determined to maintain existing executive base salary levels at the beginning of 2019 at the same levels that existed in 2018.

Annual Bonus Plan

General. Our Compensation Committee first established our Bonus Plan in 2007 as a means of rewarding executive officers for their role in achieving specified annual or short-term performance goals. The potential for payments under the Bonus Plan for any fiscal year is generally based on the attainment of pre-established, objective performance goals approved by the Compensation Committee at the beginning of the year. Each year, unless cash bonus award eligibility under the Bonus Plan is suspended or eliminated for the relevant year, the Compensation Committee approves the objective performance goals and specific criteria, including the weight attributable to each objective, and, if applicable, any weighting for specific categories of performance objectives, for each executive officer. The Compensation Committee (as it did for bonus eligibility under the Bonus Plan for 2018) may include a subjective, discretionary bonus payment opportunity based on the Compensation Committee's assessment of the executive officer's personal performance. Historically, the Compensation Committee solicits and considers the recommendations of our senior management officers in making these determinations.

The objective criteria for the Bonus Plan can vary each year and may include the achievement of the operating budget for GTx, personnel-related objectives, continued innovation in development and progress towards the clinical development of our product candidates, timely development of new product candidates or processes, implementation of financing strategies, including licensing and/or asset dispositions that raise near-term capital for GTx and provide opportunities for increased stockholder value, the establishment of strategic alliances, partnerships or collaborations with third parties, and meeting preclinical, clinical, or regulatory objectives.

Although the Compensation Committee typically approves the performance goals and specific criteria prior to the start of or early in the applicable calendar year, it retains the discretion to modify or otherwise change the objectives during the applicable calendar year. In addition, under the Bonus Plan, the Compensation Committee has the discretion to make additional bonus awards, apart from those related to the achievement of specified performance objectives.

Bonus Plan for 2018. In December 2017, our Compensation Committee initially approved the performance criteria to be achieved in order for our executive officers to be eligible to receive cash bonus awards under the Bonus Plan for the performance period from January 1, 2018 through December 31, 2018. In March 2018, the Compensation Committee revised the performance criteria to allocate most of the cash bonus award potential to the attainment of enrollment goals in the ASTRID trial within a designated time period, and to the achievement of certain clinical results in the ASTRID trial. For 2018, an executive officer could have received: (i) 40% of such executive officer's target bonus as a result of the achievement of enrollment goals in the ASTRID trial within a designated time period; (ii) 50% of such executive officer's target bonus as a result of the achievement of certain clinical results in the ASTRID trial; and (iii) 10% of such executive officer's target bonus related to certain pre-clinical goals related to our SARD technology. However, in the event that a strategic transaction resulted in the cancellation or modification of any of the milestone events set forth above prior to their anticipated occurrence, any such milestone events that had been canceled or modified would have been deemed to have been fulfilled and the commensurate bonus payment or payments associated with such milestone events would have become payable. Additionally, an executive officer was eligible for a bonus award of up to 10% of his or her target bonus based on the Compensation Committee's assessment of the executive officer's personal performance. Accordingly, an executive officer's actual total bonus award could have been awarded at a level above target. As in 2017, the potential bonus payments under the Bonus Plan for 2018 were 65% of base salary for Mr. Hanover and Dr. Wills and 35% of base salary for the other executive officers of the Company. Also as in 2017, actual cash bonus awards under the Bonus Plan for 2018 generally were paid upon the achievement of the applicable performance criteria.

Fiscal Year 2018 Payouts. A bonus payment equal to approximately 40% of each named executive officer's target bonus payment was paid in April 2018 following the achievement of the enrollment goals in the ASTRID trial. No other bonus payments tied to the objective performance criteria for 2018 were earned by the named executive officers, and no discretionary bonus payments were awarded to our named executive officers. Below is a summary of each named executive officer's target bonus and actual bonus for 2018 under the Bonus Plan:

Fiscal Year 2018 Bonus Plan Results			
Named Executive Officer	Total Target Award (\$)	Target Percentage (% of Base Salary)	Total Amount Actually Awarded (\$)
Marc S. Hanover	289,658	65	115,863
Robert J. Wills, Ph.D.	147,290	65	58,916
Henry P. Doggrell	136,212	35	54,525

Bonus Plan for 2019. Following the results from the ASTRID trial, the Compensation Committee determined that the executive's focus should be on developing strategies for the GTx Board's consideration to maximize stockholder value, given the diminished prospects for the Company, including partnering, collaborating or selling the Company's remaining assets or selling or merging the Company with interested third parties. The Compensation Committee felt that it was not appropriate to develop a Bonus Plan for 2019 that would reward executives for attaining any specific goals since trying to formulate a plan to realize stockholder value was deemed paramount, even if it meant that some or all company employees may lose their employment depending on the strategies the GTx Board decided to adopt.

Option Awards

Option Awards for 2018. In December 2017, the Compensation Committee approved the grant of stock options to purchase 65,000 shares of GTx common stock to each of Mr. Hanover and Dr. Wills, and a stock option to purchase 45,000 shares of GTx common stock to Mr. Doggrell, each of which grants was effective on January 1, 2018. The stock options vest in three equal annual installments beginning January 1, 2021, subject to continuous service, thus providing long term incentive compensation for those employees who remain with GTx and increase stockholder value. The exercise price for these stock options is \$12.71 per share, the closing price of GTx's common stock on December 29, 2017, the last trading day of 2017. The stock options expire on December 31, 2027, unless they are forfeited or expire earlier in accordance with their terms.

Option Awards for 2019. There were no stock options awarded to company employees as of January 1, 2019, due to the results of the ASTRID trial.

General Provisions of Stock Option Awards. All options granted to our named executive officers may be exercised with cash, provided that the GTx Board or the Compensation Committee may provide that the exercise price may also be paid by delivery to us of other unencumbered shares of our common stock with a value equal to the aggregate option exercise price, pursuant to a cashless exercise program, or in any other form of legal consideration that may be acceptable to the GTx Board or the Compensation Committee (which may include a "net exercise" of the option). As a general matter, the vested portion of the stock options granted to our named executive officers in 2018 and in previous years will expire three months after the named executive officer's last day of service with us, subject to extension in certain termination situations as described below under "*— Post-Termination Compensation — Stock Option and Equity Plan Provisions — Extended Post-Termination Option Exercise Period*" below. Events that can accelerate the vesting of GTx's stock options are described below under "*— Post-Termination Compensation — Stock Option and Equity Plan Provisions — Stock Award Vesting Acceleration*" below.

Employment Agreements

Each of our named executive officers has entered into a written employment agreement with GTx. Descriptions of our employment agreements with our named executive officers are included under the caption "*— Post-Termination Compensation — Employment Agreements*" below.

Other Compensatory Arrangements

For a description of the other elements of our executive compensation program, see "*— Post-Termination Compensation — Retirement and Other Benefits.*" Except for the benefits described under "*— Post-Termination Compensation — Retirement and Other Benefits,*" GTx does not generally provide its executive officers with any other perquisites and benefits that differ from what are provided to GTx employees generally. To date, the Compensation Committee has not generally considered the provision of such additional perquisites and benefits to be a necessary element of GTx's executive compensation program. However, GTx may, from time to time, offer certain perquisites and benefits to its executive officers not offered to the general employee population, such as commuting, relocation and temporary housing benefits. In this regard, we reimbursed travel-related expenses for Dr. Wills in 2018 for travel between his out-of-state permanent residence and GTx's headquarters in Memphis, Tennessee. Upon the recommendation of the Compensation Committee, the GTx Board also approved tax gross-up payments to Dr. Wills related to these expense reimbursements, as the reimbursements are taxable to Dr. Wills as imputed income. The Compensation Committee believes that the provision of tax gross-up payments to Dr. Wills to offset the tax obligation associated with these imputed income amounts was appropriate and necessary for retaining Dr. Wills.

Outstanding Equity Awards at Fiscal-Year End

The following table summarizes the number of outstanding equity awards held by each of our named executive officers as of December 31, 2018. There were no stock awards outstanding as of December 31, 2018.

OUTSTANDING EQUITY AWARDS AT 2018 FISCAL-YEAR END

Name	Option Awards		Option Exercise Price (\$)	Option Expiration Date
	Number of Securities Underlying Unexercised Options (#)	Number of Securities Underlying Unexercised Options (#)		
	Exercisable	Unexercisable ⁽¹⁾		
Marc S. Hanover	7,000	—	42.00	12/31/19
	7,000	—	26.50	12/31/20
	7,000	—	33.60	12/31/21
	9,000	—	42.00	12/31/22
	40,000	10,000(2)	15.60	04/02/24
	16,667	8,333(3)	13.30	06/04/24
	—	40,000(4)	7.00	12/31/25
	—	95,000(5)	4.71	02/27/27
	—	65,000(6)	12.71	12/31/27
Robert J. Wills	—	40,000(4)	7.00	12/31/25
	—	95,000(5)	4.71	02/27/27
	—	65,000(6)	12.71	12/31/27
Henry P. Doggrell	3,500	—	42.00	12/31/19
	3,500	—	26.50	12/31/20
	3,500	—	33.60	12/31/21
	5,500	—	42.00	12/31/22
	10,000	—	18.80	09/30/23
	13,334	6,666(3)	13.30	06/04/24
	—	25,000(4)	7.00	12/31/25
	—	80,000(5)	4.71	02/27/27
	—	45,000(6)	12.71	12/31/27

- (1) All options have a term of ten years from the date of grant. In addition to the specific vesting schedule for each stock option, each unvested stock option is subject potential future vesting acceleration as described under the heading "*— Post-Termination Compensation*" below. Pursuant to the Merger Agreement, all of these options will vest immediately prior to the consummation of the merger.
- (2) One-fifth of the shares subject to the option vested on each of April 3, 2015, April 2, 2016, April 3, 2017 and April 3, 2018, with the remaining shares vesting as to one-fifth of the shares on April 3, 2019.
- (3) One-third of the shares subject to the option vested on each of June 5, 2017 and June 5, 2018, with the remaining shares vesting as to one-third of the shares on June 5, 2019.
- (4) One-third of the shares subject to the option vested on January 1, 2019, with the remaining shares vesting as to one-third of the shares on each of January 1, 2020 and January 1, 2021.
- (5) One-third of the shares subject to the option will vest on each of February 28, 2020, February 28, 2021 and February 28, 2022.
- (6) One-third of the shares subject to the option will vest on each of January 1, 2021, January 1, 2022 and January 1, 2023.

Option Exercises and Stock Vested During 2018

The following table provides information on restricted stock unit, or RSU, awards vested and the value realized, determined as described below, for the named executive officers during the year ended December 31, 2018. No stock options were exercised by the named executive officers during the year ended December 31, 2018.

Name	Stock Awards	
	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$) ⁽¹⁾
Marc S. Hanover	45,000	571,950
Robert J. Wills	33,333	560,328
Henry P. Doggrell	30,000	381,300

(1) The value realized on vesting is based on the number of shares underlying the RSU awards that vested and the closing price of our common stock on the vesting date (or, in the case of RSU awards vesting on a day that was not a trading day, the closing price of our common stock on the immediately preceding trading day).

Post-Termination Compensation

We have entered into employment agreements with each of our named executive officers. Described below are the circumstances that would trigger our obligation to make cash payments pursuant to these employment agreements following the termination of a named executive officer's employment with us and the cash payments that we would be required to provide. We also describe below the termination and change of control events that would trigger the accelerated vesting of stock options and the extension of the post-termination exercise period with respect to those stock options.

Employment Agreements*Termination Without "Cause" or For "Good Reason" after a Change of Control*

The employment agreements with our named executive officers provide for cash post-termination change of control payments equal to one year's base salary and, for those executives eligible for COBRA under federal law, monthly premium payments to continue the named executive officer's health insurance coverage for up to 12 months following his or her termination. These change of control salary continuation and health insurance coverage benefits are structured on a "double-trigger" basis, meaning that before a named executive officer is eligible to receive such change of control benefits, (1) a change of control must occur and (2) within 12 months after such change of control, the named executive officer's employment must be terminated without "cause" or the named executive officer must resign for "good reason." GTx's obligation to make the salary continuation payments and health insurance premium payments under the employment agreements is conditioned upon the former named executive officer's compliance with the confidentiality provisions of the employment agreement and the provisions of the non-competition provisions of the employment agreement for a period of one year following termination. In addition, GTx's obligation to make the salary continuation payments and health insurance premium payments is conditioned upon GTx's receipt of an effective general release of claims executed by the named executive officer. The post-termination salary continuation payments will either be made over the one-year period following termination on our regular payroll dates or in a lump sum, except that the timing of the monthly payments may be deferred for up to six months if those payments would constitute deferred compensation under Section 409A of the Internal Revenue Code (in which case, the deferred payment would be made in a lump sum following the end of the deferral period, with the balance being paid thereafter on our regular payroll dates).

A change of control generally means the following:

- the sale or other disposition of all or substantially all of GTx's assets (including a liquidation or dissolution of GTx);
- if any person or group acquires beneficial ownership of 50% or more of GTx's voting securities (subject to certain exceptions);
- a merger or consolidation of GTx with or into any other entity, if immediately after the transaction more than 50% of the voting stock of the surviving entity is held by persons who were not holders of at least 50% of GTx's voting stock as of the effective date of the named executive officer's employment agreement; or
- a majority of our Board becomes comprised of individuals whose nomination, appointment, or election was not approved by a majority of the Board members or their approved successors.

"Cause" is generally defined as the named executive officer's:

- conviction for a felony;
- theft, embezzlement, misappropriation of or intentional infliction of material damage to GTx's property or business opportunities;
- breach of his or her confidentiality or non-competition obligations, as applicable, under his or her employment agreement; or
- ongoing willful neglect of or failure to perform his or her duties, or his or her ongoing willful failure or refusal to follow any reasonable, unambiguous duly adopted written direction that is not inconsistent with the description of such named executive officer's duties, provided that such willful neglect or failure is materially damaging or materially detrimental to the business and operations of GTx, and after 30 days' notice and the opportunity to cure.

"Good reason" is generally defined as the following actions taken without the consent of the named executive officer after a change of control (in each case where the named executive officer has provided written notice within 30 days of the action, such action is not remedied by GTx within 30 days following such notice, and the named executive officer's resignation is effective not later than 60 days after the expiration of such 30-day cure):

- an adverse change in the named executive officer's authority, duties or responsibilities (including reporting responsibilities) which, without the named executive officer's consent, represents a material reduction in or a material demotion of the named executive officer's authority, duties or responsibilities as in effect immediately prior to the change of control, or the assignment to the named executive officer of any duties or responsibilities that are materially inconsistent with and materially adverse to such authority, duties or responsibilities;
- a material reduction in the then current base salary of the named executive officer;
- the relocation of the named executive officer's principal office to a location that increases his one-way commute by more than 20 miles (or, in the case of Dr. Wills, a relocation outside of New Jersey);

- the failure of GTx to obtain an agreement reasonably satisfactory to the named executive officer from any successor entity upon the change of control to assume and agree to perform his or her employment agreement in all material respects; or
- a material breach by GTx of any provision of the named executive officer's employment agreement or any other then-effective agreement with the named executive officer.

Termination Without "Cause" or For "Good Reason" Prior to or Not in Connection with a Change of Control

Our employment agreement with Dr. Wills provides for cash post-termination payments equal to one year's base salary (either to be made over the one-year period following termination on our regular payroll dates or in a lump sum payment) and monthly premium payments to continue his health insurance coverage for up to 12 months following his termination, should his employment be terminated without "cause" or should he resign for "good reason", in each case irrespective of whether such termination is within 12 months after (or otherwise in connection with) a change of control.

Other Termination Scenarios

If we terminate a named executive officer's employment for "cause," or if a named executive officer voluntarily terminates his or her employment without "good reason," or upon the death of a named executive officer, the named executive officer would generally have no right to receive any compensation or benefits under his or her employment agreement on or after the effective date of termination, other than any accrued and unpaid salary and expense reimbursement. However, under our employment agreements with Dr. Wills, Dr. Wills would nonetheless be entitled to any earned but unpaid annual bonus with respect to any completed calendar year immediately preceding his termination date. Likewise, except as described above under "*Termination Without "Cause" or For "Good Reason" Prior to or Not in Connection with a Change of Control*" with respect to Dr. Wills, if we terminate a named executive officer's employment without "cause," or if a named executive officer voluntarily terminates his or her employment with "good reason," in each case not within 12 months following a change of control, the named executive officer would have no right to receive any compensation or benefits under his employment agreement on or after the effective date of termination, other than any accrued and unpaid salary and expense reimbursement and, solely in the case of Dr. Wills, subject to our obligation under his employment agreement to pay any accrued but unpaid annual bonus with respect to any completed calendar year immediately preceding his termination date.

Other Employment Agreement Benefits

Except as set forth above, under the employment agreements with our named executive officers, our named executive officers would not be entitled to any other benefits following termination of service, including the continuation of general employee benefits, life insurance coverage and long term disability coverage, except as otherwise required by applicable law.

Stock Option and Equity Plan Provisions

Stock Award Vesting Acceleration

Under the Merger Agreement, as of immediately prior to the Effective Time, the vesting of all outstanding options to purchase shares of our common stock, including those held by our executive officers and directors, will accelerate in full. The number of shares of our common stock underlying such options and the exercise price of such options will be adjusted appropriately to reflect the reverse stock split of GTx's common stock to be implemented prior to the consummation of the merger as set forth in the Merger Agreement.

The terms of our equity plans provide for additional accelerated exercisability that could apply in other scenarios, as described below.

2004 Plan. Our 2004 Equity Incentive Plan, or the 2004 Plan, provides that in the event of a specified corporate transaction such as a merger, consolidation or similar transaction, all outstanding options under the 2004 Plan may be assumed, continued or substituted for by any surviving or acquiring entity. If the surviving or acquiring entity elects not to assume, continue or substitute for such options, such options then held by individuals whose service has not terminated prior to the effective date of the corporate transaction would become fully vested, and, if applicable, exercisable and such options would be terminated if not exercised within 90 days of the effective date of the corporate transaction. A recipient's award agreement may provide for acceleration upon other events. In this regard, the standard form of stock option agreement under the 2004 Plan provides for each stock option to become fully vested and exercisable if (i) the optionholder's service with GTX or its successor terminates within 12 months after a change of control and the termination of service is a result of an involuntary termination without cause or a constructive termination or (ii) the optionholder is required to resign his or her position with GTX as a condition of the change of control. For purposes of our 2004 Plan, the definition of change of control is similar to the definition of change of control under the employment agreements with our named executive officers. As a result of the adoption of the 2013 Plan, we no longer grant any equity awards under the 2004 Plan, and stock options were the only form of stock awards granted to our named executive officers under the 2004 Plan.

The standard form of stock option agreement under the 2004 Plan generally defines "cause" as the grant recipient:

- committing an act that materially injures the business of GTX;
- refusing or failing to follow the lawful and reasonable directions of the Board or the appropriate individual to whom he or she reports, after 15 days' notice and the opportunity to cure;
- willfully or habitually neglecting his or her duties with GTX, after 15 days' notice and the opportunity to cure;
- being convicted of a felony that is likely to inflict or has inflicted material injury on the business of GTX; or
- committing a material fraud, misappropriation, embezzlement or other act of gross dishonesty that resulted in material loss, damage or injury to GTX.

The standard form of stock option agreement under the 2004 Plan generally defines a "constructive termination" as a voluntary termination within 12 months after a change of control after any of the following actions are taken without the consent of the grant recipient:

- the assignment to the grant recipient of any duties or responsibilities which results in a significant reduction in his or her function as in effect immediately prior to the change of control;
- a material reduction in the grant recipient's salary, as in effect on the effective date of the change of control;

- the failure to continue in effect any benefit plan or program in which the grant recipient was participating immediately prior to the effective date of the change of control, or the taking of any action that would adversely affect his or her participation in (or reduce his or her benefits under) any such benefit plan or program (but either circumstance will only be grounds for a "constructive termination" if the range of benefit plans and programs offered by the acquirer is not comparable to the benefit plans previously offered by GTX, when considered as a whole);
- a relocation of the grant recipient's principal office to a location more than 50 miles from the location at which he or she performed his or her duties as of the effective date of the change of control; or
- a material breach by GTX of any provision of the grant recipient's stock option agreement under the 2004 Plan.

2013 Plan. Our 2013 Plan provides that in the event of a specified corporate transaction such as a merger, consolidation or similar transaction, all outstanding stock awards under the 2013 Plan may be assumed, continued or substituted for by any surviving or acquiring entity, and any reacquisition or repurchase rights held by GTX in respect of common stock issued pursuant to outstanding stock awards may be assigned by GTX to its successor (or the successor's parent company). If the surviving or acquiring corporation does not assume, continue or substitute any or all such outstanding stock awards, then with respect to stock awards that have not been assumed, continued or substituted and that are held by participants whose continuous service has not terminated prior to the effective time of the corporate transaction, the vesting (and, if applicable, the exercisability) of such stock awards will (contingent upon the effectiveness of the corporate transaction) be accelerated in full to a date prior to the effective time of the corporate transaction as the Board determines (or, if the Board does not determine such a date, to the date that is five days prior to the effective time of the corporate transaction), such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the corporate transaction, and any reacquisition or repurchase rights held by GTX with respect to such stock awards will (contingent upon the effectiveness of the corporate transaction) lapse. Unless otherwise provided in a written agreement between GTX or an affiliate and a participant, the vesting (and, if applicable, the exercisability) of any other outstanding stock awards that are not assumed, continued or substituted in connection with the corporate transaction will not be accelerated and such stock awards will terminate if not exercised (if applicable) prior to the effective time of the corporate transaction. A recipient's award agreement may provide for acceleration upon other events. In this regard, the standard form of stock option agreement under the 2013 Plan provides for each stock option to become fully vested and exercisable if the optionholder's service with GTX or its successor terminates on or within 12 months after a change of control and the termination of service is a result of an involuntary termination without cause or a constructive termination. In addition, if a stock option is assumed, continued or substituted for in a change in control and a participant's service terminates as a condition to such change in control or upon the effectiveness of the change in control, such stock option would remain exercisable for 12 months post-termination.

For purposes of our 2013 Plan, the definition of change of control is similar to the definition of change of control under the employment agreements with our named executive officers.

For purposes of our 2013 Plan, "cause" has the meaning ascribed to such term in any written agreement between the grant recipient and GTX, and in the absence of such an agreement, "cause" means the occurrence of any of the following:

- the grant recipient's willful failure substantially to perform his or her duties and responsibilities or deliberate violation of a company policy;

- the grant recipient's commission of any act of fraud, embezzlement, dishonesty or any other willful misconduct that has caused or is reasonably expected to result in material injury to GTX;
- unauthorized use or disclosure by the grant recipient of any proprietary information or trade secrets of GTX or any affiliate or any other party to whom the grant recipient owes an obligation of nondisclosure as a result of the grant recipient's relationship with GTX or any affiliate; or
- the grant recipient's willful breach of any of his or her obligations under any written agreement or covenant with GTX or any affiliate.

The definition of a "constructive termination" in the standard form of stock option agreement under the 2013 Plan is similar to the definition of a "constructive termination" in the standard form of stock option agreement under the 2004 Plan, except that a constructive termination would also be deemed to occur if the board of GTX's successor requires the participant to resign from GTX in a manner that terminates the participant's continuous service, as a condition of the change in control. In addition, in order to have a basis for constructive termination under the 2013 Plan, a participant must provide written notice of the event giving rise to constructive termination to the board of GTX's successor within 30 days following such event, provide the successor with 30 days to cure such event, and, if not cured, the participant must resign from all positions then held with GTX and its successor not later than six months after the date of the participant's written notice to the board of the successor (or such earlier date as may be requested by the Board).

Extended Post-Termination Option Exercise Period

As a general matter, the terms of the options we have granted to our executive officers provided that the vested portion of these options will expire three months after the executive officer's termination of service. The period following the executive officer's termination during which he or she can continue to exercise his or her vested stock options is referred to as the post-termination exercise period. However, in connection with the adoption of a retention bonus program by the Compensation Committee in September 2013, the options held by certain of our executive officers and outstanding on or prior to September 27, 2013 were modified to generally provide for a six month post-termination exercise period. In addition, a retention stock option granted to Mr. Doggrell in 2013 generally provides for a six month post-termination exercise period. All such post-termination exercise periods are limited by, and will not exceed, the original expiration date of the option. The terms of the retention benefit agreements with our executive officers will, however, be less favorable than the terms for an extension of the post-termination exercise period provided under the terms of our equity plans. Such more favorable terms will apply under the circumstances described below. Under our 2004 Plan and the form of stock option agreement under our 2004 Plan, the post-termination exercise period will generally be one year following termination if the termination of service is a result of an involuntary termination without cause or a constructive termination within 12 months after a change of control. Under our 2013 Plan and the form of stock option agreement under our 2013 Plan, the post-termination exercise period will generally be one year following termination if the termination of service occurs either as a condition of a change of control or upon the effectiveness of a change of control, unless the stock option is not assumed, continued or replaced by the successor or acquiring entity. If the termination is a retirement, the exercise period will be two years under each of the 2004 Plan and 2013 Plan. Currently, Messrs. Hanover and Doggrell are retirement-eligible.

With respect to all of our stock option plans and the forms of stock option agreements under such stock option plans, if the termination is due to the named executive officer's death, the post-termination exercise period will generally be 18 months following termination, and if the termination is due to the named executive officer's disability, the post-termination exercise period will generally be one year following termination. With respect to our 2013 Plan and the form of stock option agreement under our 2013 Plan, if the termination is for cause, the option will terminate upon the date on which the event giving rise to the termination for cause first occurred (or, if required by law, the date of the termination). With respect to our 2001 Plan and 2002 Plan and the forms of stock option agreements under those plans, if a named executive officer voluntarily retires his or her employment (which generally means a retirement after age 65 or after age 55 following a specified period of service), the post-termination exercise period will generally be five years following termination. However, our 1999 and 2000 Plans provide that the Compensation Committee in its discretion can provide for any post-termination exercise period for a vested option in the event of the disability, death or involuntary termination of an option grant recipient of up to, but not exceeding, the initial ten-year term of the option. Under our 2004 Plan and 2013 Plan and the forms of stock option agreements under those plans, if a named executive officer voluntarily retires his or her employment (which generally means a retirement after age 65 following a specified period of service or after age 55 following a specified period of service and with the authorization of our Chief Executive Officer or the Board), the post-termination exercise period will generally be two years following termination. Currently, Messrs. Hanover and Doggrell are retirement-eligible. In no event, however, will the post-termination exercise period be extended beyond the initial ten-year term of the option.

The standard form of stock option agreement under the 2004 Plan generally defines "cause" as the grant recipient:

- committing an act that materially injures the business of GTx;
- refusing or failing to follow the lawful and reasonable directions of the Board or the appropriate individual to whom he or she reports, after 15 days' notice and the opportunity to cure;
- willfully or habitually neglecting his or her duties with GTx, after 15 days' notice and the opportunity to cure;
- being convicted of a felony that is likely to inflict or has inflicted material injury on the business of GTx; or
- committing a material fraud, misappropriation, embezzlement or other act of gross dishonesty that resulted in material loss, damage or injury to GTx.

The standard form of stock option agreement under the 2004 Plan generally defines a "constructive termination" as a voluntary termination within 12 months after a change of control after any of the following actions are taken without the consent of the grant recipient:

- the assignment to the grant recipient of any duties or responsibilities which results in a significant reduction in his or her function as in effect immediately prior to the change of control;
- a material reduction in the grant recipient's salary, as in effect on the effective date of the change of control;

- the failure to continue in effect any benefit plan or program in which the grant recipient was participating immediately prior to the effective date of the change of control, or the taking of any action that would adversely affect his or her participation in (or reduce his or her benefits under) any such benefit plan or program (but either circumstance will only be grounds for a "constructive termination" if the range of benefit plans and programs offered by the acquirer is not comparable to the benefit plans previously offered by GTx, when considered as a whole);
- a relocation of the grant recipient's principal office to a location more than 50 miles from the location at which he or she performed his or her duties as of the effective date of the change of control; or
- a material breach by GTx of any provision of the grant recipient's stock option agreement under the 2004 Plan.

Retirement and Other Benefits

We do not provide our employees, including our named executive officers, with a defined benefit pension plan, any supplemental executive retirement plans or retiree health benefits. Our named executive officers may participate on the same basis as other employees in our 401(k) retirement savings plan. Our 401(k) retirement savings plan provides an employer matching contribution of 100% of the first 4% of the employee's eligible compensation, subject to the annual Internal Revenue Service limits in effect from time to time. We believe this matching contribution is consistent with market practice and helps in attracting and retaining key executives. The 401(k) plan will be terminated prior to the closing of the merger.

We offer a comprehensive employee benefit program, including health, life and disability insurance, to all of our regular employees, including certain of our named executive officers who are full time employees. This program provides a safety net of protection against the financial catastrophes that can result from illness, disability or death. Company-funded life insurance of up to \$50,000 is provided to employees generally, and company-funded long-term disability insurance provides a 60% income-replacement benefit, up to \$10,000 per month.

The Compensation Committee has also approved supplemental life and long-term disability insurance for our executive officers. The total life insurance benefit for Mr. Hanover and certain eligible Vice Presidents is equal to twice the executive officer's annual salary, not to exceed \$1 million in coverage for any officer, although Mr. Doggrell's total coverage amount was reduced 65% following his 65th birthday. Dr. Wills, as a part time employee, does not qualify for health, life or disability insurance and other similar benefits pursuant to the requirements of the insurers' programs. However, should he in the future be deemed to be a "full time" employee by the insurers, he would also receive the same benefits as are presently provided to Mr. Hanover and our eligible Vice Presidents. The Compensation Committee believes that the cost of providing this supplemental insurance coverage is minimal in comparison to the value of such benefits in attracting and retaining executive employees and that providing these supplemental benefits is consistent with the practices of other public companies.

Compensation and Risk

In March 2018, the Compensation Committee considered our compensation policies, practices and programs as generally applicable to our employees and determined that our policies, practices and programs do not encourage excessive or unnecessary risk-taking, and that the level of risk that they do encourage is not reasonably likely to have a material adverse effect on our company. The design of our compensation policies and programs encourage our employees to remain focused on our long-term goals of increasing stockholder value through the successful development of our clinical product candidates. For example, through our use of different types of equity compensation awards that provide long term incentives to increase our share price, as well as our use of multi-year vesting for stock option, we believe that our employee compensation programs promote a long-term stockholder perspective, encourage decisions that will result in sustainable performance over the longer term, and mitigate the risks associated with an undue short-term focus on results.

DIRECTOR COMPENSATION

Cash Retainers

The GTx Board has approved the GTx Non-Employee Director Compensation Policy, or the Director Compensation Policy, pursuant to which the following cash compensation payments are made quarterly to the GTx Board and committee members:

- a \$35,000 annual retainer for service as a member of our Board of Directors;
- a supplemental annual retainer for the Lead Director of the Board and for the Chairs of each Board committee in the following amounts: \$15,000 for the Lead Director of the Board; \$17,500 for Chair of the Audit Committee; \$10,000 for Chair of the Compensation Committee; and \$8,500 for Chair of the Nominating and Corporate Governance Committee; and
- a supplemental annual retainer for each member of the following committees other than the Chairs, in the following amounts: \$10,000 for members of the Audit Committee; \$7,500 for members of the Compensation Committee; \$5,000 for members of the Nominating & Corporate Governance Committee; and \$10,000 for members of the Scientific and Development Committee.

No directors currently receive consulting fees from GTx. Directors who are also employees (currently Mr. Hanover and Dr. Wills) receive no additional compensation for service on the GTx Board.

Directors' Deferred Compensation Plan

Since June 30, 2004, our non-employee directors have had the opportunity to defer all or a portion of their fees under our Directors' Deferred Compensation Plan. Deferrals can be made into a cash account, a stock account, or a combination of both. Deferrals into a cash account would accrue interest at the prime rate of interest announced from time to time by a local bank utilized by us, and deferrals into a stock account accrue to the deferring director rights in shares of GTx common stock equal to the cash compensation then payable to the director for his or her Board service divided by the then current fair market value of GTx common stock, or the Deferred Stock Rights. As of March 31, 2019, five of our non-employee directors held Deferred Stock Rights, and an aggregate of 155,426 shares of our common stock were issuable pursuant to Deferred Stock Rights. In addition, as of March 31, 2019, two of our non-employee directors had elected to defer compensation under the Director Deferred Compensation Plan after January 3, 2019, which deferrals will be paid to the non-employee directors at the closing of the merger in cash. Under the Directors' Deferred Compensation Plan, amounts credited to cash or stock accounts are distributed in a single lump sum on the date, if any, selected by the director pursuant to his or her election or, if no such election is made or if the selected distribution date is after his or her separation from service, then the distribution would be made on the date of his or her separation from service in the form of a single lump sum (subject to deferral under certain circumstances to the extent necessary to avoid the incurrence of adverse personal tax consequences under Section 409A of the Internal Revenue Code). Any fractional shares of GTx common stock will be distributed in cash valued at the then current fair market value of GTx common stock.

Under the Merger Agreement, as of immediately prior to the Effective Time (but in no event more than 30 days prior to the Effective Time), we shall take all actions necessary to cause the termination and liquidation of the Deferred Stock Rights. As a result, the outstanding Deferred Stock Rights will be settled at the closing of the merger in shares, to the extent shares have been credited to non-employee director stock accounts under the plan. We shall also ensure that any deferrals under the Director Deferred Compensation Plan on or after January 3, 2019 shall be settled only in cash and that the maximum number of shares of our common stock issuable upon settlement of the Deferred Stock Rights shall be limited to the number of Deferred Stock Rights outstanding as of the date of the Merger Agreement.

Equity Compensation

Pursuant to our Director Compensation Policy, each non-employee director of GTx (who does not own more than ten percent of the combined voting power of GTx's then outstanding securities) is eligible for certain initial and annual stock awards, which grants are currently made pursuant to GTx's 2013 Non-Employee Director Equity Incentive Plan, or the 2013 Directors' Plan. Accordingly, each of our non-employee directors, with the exception of Mr. Hyde, is eligible to receive these initial and annual non-statutory stock awards. Under the Director Compensation Policy, any individual who first becomes a non-employee director is eligible for a stock award in such form and in such amount that the GTx Board deems necessary to attract such individual to join the GTx Board. In addition, under the Director Compensation Policy, any individual who is serving as a non-employee director on the day following an annual meeting of GTx's stockholders automatically will be granted an option to purchase shares of common stock on that date; provided, however, that if the individual has not been serving as a non-employee director for the entire period since the preceding annual meeting, the number of shares subject to such individual's annual grant will be reduced pro rata for each full month prior to the date of grant during which such individual did not serve as a non-employee director. In March 2018, the GTx Board, upon the upon the recommendations of the Nominating and Corporate Governance Committee and the Compensation Committee, determined that the number of shares subject to the automatic annual grants occurring on the date following the 2018 Annual Meeting will be 7,500 shares of GTx common stock; accordingly, each non-employee director then serving as a non-employee director received a grant for 7,500 shares on the date following the 2018 annual meeting of stockholders. Following the results from the ASTRID trial, the GTx Board made no determination about stock option grants for Board members in 2019.

The shares subject to each initial grant and each annual grant vest in a series of three successive equal annual installments measured from the date of grant, so that each initial grant and each annual grant will be fully vested three years after the date of grant. The exercise price per share for the options granted under the 2013 Directors' Plan is not less than the fair market value of the stock on the date of grant. Prior to the adoption of the 2013 Directors' Plan at the 2013 annual meeting of stockholders, initial and annual stock option grants were made pursuant to the Prior Directors' Plan.

In the event of a specified corporate transaction, as defined in the Prior Directors' Plan or the 2013 Directors' Plan, as applicable, all outstanding options granted under the Prior Directors' Plan and the 2013 Directors' Plan may be assumed or substituted for by any surviving or acquiring entity. If the surviving or acquiring entity elects not to assume or substitute for such options, then (a) with respect to any such options that are held by optionees then performing services for GTx or its affiliates, the vesting and exercisability of such options will be accelerated in full and such options will be terminated if not exercised prior to the effective date of the corporate transaction, and (b) all other outstanding options will terminate if not exercised prior to the effective date of the corporate transaction. If a specified change of control transaction occurs, as defined in the Prior Directors' Plan, then the vesting and exercisability of the optionee's options granted under the Prior Directors' Plan will be accelerated in full immediately prior to (and contingent upon) the effectiveness of the transaction. Under the Prior Directors' Plan, if an optionee is required to resign his or her position as a non-employee director as a condition of the change of control transaction, the vesting and exercisability of the optionee's options will be accelerated in full immediately prior to the effectiveness of such resignation. Under the 2013 Directors' Plan, if a specified change of control transaction occurs, as defined in the 2013 Directors' Plan, then all stock awards held by a participant whose continuous service has not terminated prior to such time will become fully vested and, if applicable, exercisable, immediately prior to the transaction. In addition, under the 2013 Directors' Plan, if a non-employee director is required to resign his or her position as a non-employee director as a condition of the change of control transaction, all outstanding stock awards held by such individual will become fully vested and, if applicable, exercisable, as of immediately prior to such resignation. During 2008, the GTx Board, upon the recommendation of the Compensation Committee, adopted a general policy regarding the retirement of non-employee directors that provides that the GTx Board will act, on a case-by-case basis, to accelerate the vesting and exercisability of the retiring director's options in full provided such director retires from the GTx Board in good standing.

Pursuant to the merger agreement, all outstanding unvested options held by GTx's non-employee directors will vest upon the closing of the merger.

The table below represents the compensation earned by each non-employee director who served on the GTx Board during 2018. Neither Mr. Hanover nor Dr. Wills are listed in the following table since they served as our employees during their respective term service on our Board of Directors and did not receive any additional compensation for serving as members of our Board of Directors. Each of Mr. Hanover's and Dr. Wills' compensation is described under "*Executive Compensation*" above.

DIRECTOR COMPENSATION — FISCAL 2018

Name	Fees Earned or Paid in Cash (\$) ⁽¹⁾	Option Awards (\$) ⁽²⁾	Total (\$)
J. R. Hyde, III	62,500	—	62,500
Michael G. Carter, M.D.	65,000	99,197	164,197
J. Kenneth Glass	60,000	99,197	159,197
Garry A. Neil, M.D.	50,000	99,197	149,197
Kenneth S. Robinson, M.D., M.Div.	53,500	99,197	152,697

- (1) Represents fees earned in 2018 that were either paid, deferred or were payable at the end of 2018. Each director in the table above, other than Mr. Glass and Dr. Carter elected to defer payment of all or a portion of his earned fees during 2018 pursuant to the Directors' Deferred Compensation Plan. The number of shares credited to individual stock accounts for the GTx non-employee directors under the Directors' Deferred Compensation Plan as of December 31, 2018 was as follows: 52,108 shares for Mr. Hyde; 3,631 shares for Dr. Carter; 655 shares for Mr. Glass; 22,224 shares for Dr. Neil and 44,105 shares for Dr. Robinson.
- (2) The amounts in this column represent the aggregate grant date fair value of all option awards granted to our non-employee directors during the year ended December 31, 2018 as computed in accordance with FASB ASC Topic 718. Assumptions used in computing the aggregate grant date fair value in accordance with FASB ASC Topic 718 are set forth in Note 3 — Share-Based Compensation to our audited financial statements included in the 2018 10-K.

The following table indicates the grant date fair value for the annual option awarded to each non-employee director during the year ended December 31, 2018, as determined in accordance with FASB ASC Topic 718, as well as the total number of shares subject to options outstanding as of December 31, 2018 for each non-employee director listed in the table above. Assumptions used in computing the aggregate grant date fair value in accordance with FASB ASC Topic 718 are set forth in Note 3 — Share-Based Compensation to our audited financial statements included in the 2018 10-K.

Name	FASB ASC Topic 718 Grant Date Fair Value (\$)	Total Shares Subject to Options Outstanding at 12/31/2018 (#)
J. R. Hyde, III	—	—
J. Kenneth Glass	99,197	46,500
Michael G. Carter, M.D.	99,197	46,500
Garry A. Neil, M.D.	99,197	28,750
Kenneth S. Robinson, M.D., M.Div.	99,197	46,500

Following completion of the merger, it is expected that the combined organization will provide compensation to non-employee directors. Our current director compensation program will be suspended at the time of the closing of the merger and the director compensation policies for the combined organization following the merger will be re-evaluated by the compensation committee and board of directors of the combined organization following completion of the merger and may be subject to change. Non-employee directors of the combined organization are, however, expected to receive annual cash retainers and equity compensation, although the amount of such compensation has not yet been determined.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth information as of March 31, 2019 (except where otherwise indicated) regarding the beneficial ownership of our common stock by:

- each person, or group of affiliated persons, who is known by us to own beneficially five percent or more of the outstanding shares of our common stock;
- each of our current directors;
- each of our named executive officers; and
- all of our current directors and executive officers as a group.

The number of shares owned and percentage ownership in the following table is based on 24,051,844 shares of common stock outstanding on March 31, 2019. Except as otherwise indicated below, the address of each officer and director listed below is c/o GTx, Inc., 17 W Pontotoc Ave., Suite 100, Memphis, Tennessee 38103.

We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, these rules require that we include shares of common stock issuable pursuant to the exercise of stock options and warrants that are either immediately exercisable or exercisable within 60 days of March 31, 2019. We have also included shares credited to individual non-employee director stock accounts under our Directors' Deferred Compensation Plan as of March 31, 2019. Amounts credited to individual non-employee director stock accounts under our Directors' Deferred Compensation Plan are payable solely in shares of GTx common stock, but such shares do not have current voting or investment power. Shares issuable pursuant to our Directors' Deferred Compensation Plan, as well as shares issuable pursuant to the exercise of stock options and warrants that are either immediately exercisable or exercisable within 60 days of March 31, 2019, are deemed to be outstanding and beneficially owned by the person to whom such shares are issuable for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, we believe that the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them.

Except as contemplated by the merger, GTx does not know of any arrangements, including any pledge by any person of securities of GTx, the operation of which may at a subsequent date result in a change of control of GTx.

Name and Address of Beneficial Owner	Beneficial Ownership	
	Number of Shares	Percent of Total
5% Stockholders:		
The Pyramid Peak Foundation ⁽¹⁾ 1350 Concourse Avenue, Suite 383 Memphis, Tennessee 38104	7,183,900	26.8%
Named Executive Officers and Directors:		
Marc S. Hanover ⁽²⁾	304,776	1.3%
Robert J. Wills, Ph.D. ⁽³⁾	150,678	*
Henry P. Doggrell ⁽⁴⁾	107,097	*
Michael G. Carter, M.D., Ch.B., F.R.C.P. ⁽⁵⁾	39,131	*
J. Kenneth Glass ⁽⁶⁾	60,381	*
J. R. Hyde, III ⁽⁷⁾	10,010,446	36.7%
Garry A. Neil, M.D. ⁽⁸⁾	53,426	*
Kenneth S. Robinson, M.D., M.Div. ⁽⁹⁾	79,605	*
All Directors and Executive Officers as a group (9 persons)⁽¹⁰⁾	10,848,287	39.2%

* Represents less than 1% of the outstanding shares of our common stock.

(1) Based on information provided to GTx as of February 28, 2019. Includes an aggregate of 2,793,657 shares issuable upon exercise of outstanding warrants. James R. Boyd, Lee B. Harper, O. Mason Hawkins and Andrew R. McCarroll are each a director of the Foundation. Each of such individuals may be deemed to share beneficial ownership of the shares beneficially owned by the Foundation. The foregoing ownership information was provided to us as of February 28, 2019, and, consequently, beneficial ownership may have changed between such date and March 31, 2019.

- (2) Includes 35,287 shares held by Equity Partners XII, LLC, an entity controlled by Mr. Hanover, 22,726 shares issuable upon exercise of a warrant, 12,400 shares held by trusts of which Mr. Hanover is the trustee, and 110,001 shares of common stock issuable upon the exercise of options held by Mr. Hanover.
- (3) Includes 13,334 shares of common stock issuable upon the exercise of options held by Dr. Wills.
- (4) Includes 934 shares held by trusts with respect to which Mr. Doggrell may be deemed to have beneficial ownership, 11,435 shares held by a trust of which Mr. Doggrell is the co-trustee, 47,667 shares of common stock issuable upon the exercise of options held by Mr. Doggrell, and 400 shares of common stock held by Mr. Doggrell through an individual retirement account. Also includes 664 shares held by Mr. Doggrell's wife and 2,547 shares of common stock held by Mr. Doggrell's wife through an individual retirement account.
- (5) Consists of 35,500 shares of common stock issuable upon the exercise of options held by Dr. Carter, and 3,631 shares issuable to Dr. Carter pursuant to our Directors' Deferred Compensation Plan.
- (6) Includes 35,500 shares of common stock issuable upon the exercise of options held by Mr. Glass, and 655 shares issuable to Mr. Glass pursuant to our Directors' Deferred Compensation Plan. Also includes 2,450 shares of common stock held by Mr. Glass' wife through an individual retirement account.
- (7) Includes 14,535 shares held by Pittco Associates III, L.P. and 391,571 shares held by Pittco Investments, L.P., entities controlled by Mr. Hyde, 2,454,483 shares issuable upon exercise of a warrant issued to Mr. Hyde in November 2014, or the 2014 Warrant, 678,349 shares issuable upon exercise of a warrant issued to Mr. Hyde in September 2017, or the 2017 Warrant, and 70,276 shares issuable to Mr. Hyde pursuant to our Directors' Deferred Compensation Plan. Mr. Hyde also has shared voting and dispositive power over 21,646 shares held by Mr. Hyde's spouse, 184,480 shares held by trusts for the benefit of Mr. Hyde's children (the "Hyde Family Trusts"). As trustee of the Hyde Family Trusts, John H. Pontius shares voting and dispositive power over all of the shares held by the Hyde Family Trusts.
- (8) Consists of 16,667 shares of common stock issuable upon the exercise of options held by Dr. Neil, and 36,759 shares issuable to Dr. Neil pursuant to our Directors' Deferred Compensation Plan.
- (9) Consists of 35,500 shares of common stock issuable upon the exercise of options held by Dr. Robinson, and 44,105 shares issuable to Dr. Robinson pursuant to our Directors' Deferred Compensation Plan.
- (10) Includes 54,182 shares of common stock beneficially owned by executive officers that are not named executive officers, of which 34,634 shares were issuable upon the exercise of options held by these executive officers. For purposes of determining the number of shares beneficially owned by directors and executive officers as a group, any shares beneficially owned by more than one director or executive officer are counted only once.

Equity Compensation Plan Information

The following table provides certain information with respect to all of GTx's equity compensation plans in effect as of December 31, 2018:

Name	Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
<i>Plan Category</i>			
Equity compensation plans approved by security holders	2,335,447(1)\$	11.67	1,167,162(2)
Equity compensation plans not approved by security holders	122,725(3)	—(3)	37,526(4)
Total	2,458,172 \$	11.67	1,204,688

- (1) Represents shares of GTx common stock underlying stock options granted under, as applicable: (i) the GTx, Inc. 2001 Stock Option Plan, or the 2001 Plan, the GTx, Inc. 2002 Stock Option Plan, or the 2002 Plan, and the GTx, Inc. 2004 Equity Incentive Plan, or the 2004 Plan; (ii) the GTx, Inc. Amended and Restated 2004 Non-Employee Directors' Stock Option Plan, or the Prior Directors' Plan; (iii) the GTx, Inc. 2013 Equity Incentive Plan, or the 2013 Plan; and (iv) the GTx, Inc. 2013 Non-Employee Director Equity Incentive Plan, or the 2013 Directors' Plan. From and after the May 2, 2013 effective date of the 2013 Plan and 2013 Directors' Plan, no further awards may be made under the 2001 Plan, 2002 Plan, 2004 Plan and the Prior Directors' Plan. Stock options previously granted under the 2001 Plan, 2002 Plan, 2004 Plan and the Prior Directors' Plan continue to be governed by the terms of the applicable plan.

- (2) Represents shares of GTx common stock remaining available for future issuance under the 2013 Plan and the 2013 Directors' Plan. The total number of shares of GTx common stock available for future issuance under the 2013 Plan, upon its May 2, 2013 effective date, was initially 420,815 shares plus up to an additional 609,355 Returning Employee Shares (as defined below) as such shares become available from time to time as set forth in the 2013 Plan. "Returning Employee Shares" means the shares subject to outstanding awards granted under the Genotherapeutics, Inc. Stock Option Plan, the GTx, Inc. 2000 Stock Option Plan, the 2001 Plan, the 2002 Plan and the 2004 Plan that, from and after the May 2, 2013 effective date of the 2013 Plan, expire or terminate for any reason prior to exercise or settlement, are forfeited because of the failure to vest in those shares or are otherwise returned to the 2013 Plan share reserve pursuant to the terms of the 2013 Plan. As of December 31, 2018, an aggregate of 1,001,047 shares of GTx common stock remained available for future issuance under the 2013 Plan, plus up to an additional 203,797 Returning Employee Shares as such shares become available from time to time thereafter as set forth in the 2013 Plan. In addition, the number of shares remaining available for future issuance under the 2013 Plan automatically increases on January 1st of each year, for ten years, commencing on January 1, 2014, in an amount equal to 4% of the total number of shares of GTx common stock outstanding on December 31 of the preceding calendar year, or such lesser (or no) amount as may be approved by our Board of Directors. On January 1, 2019, the number of shares available for issuance under the 2013 Plan automatically increased by 962,074 shares. The total number of shares of GTx common stock available for future issuance under the 2013 Directors' Plan, upon its May 2, 2013 effective date, was initially 40,400 shares plus up to an additional 44,966 Returning Director Shares (as defined below) as such shares become available from time to time as set forth in the 2013 Directors' Plan. "Returning Director Shares" means the shares subject to outstanding awards granted under the Prior Directors' Plan that, from and after the May 2, 2013 effective date of the 2013 Directors' Plan, expire or terminate for any reason prior to exercise or settlement, are forfeited because of the failure to vest in those shares or are otherwise returned to the 2013 Directors' Plan share reserve pursuant to the terms of the 2013 Directors' Plan. As of December 31, 2018, an aggregate of 166,115 shares of GTx common stock remained available for future issuance under the 2013 Directors' Plan, plus up to an additional 15,000 Returning Director Shares as such shares become available from time to time thereafter as set forth in the 2013 Directors' Plan. In addition, the number of shares remaining available for future issuance under the 2013 Directors' Plan automatically increases on January 1st of each year, for ten years, commencing on January 1, 2014, in an amount equal to the lesser of 1% of the total number of shares of GTx common stock outstanding on December 31 of the preceding calendar year and 50,000 shares, or such lesser (or no) amount as may be approved by our Board of Directors. On January 1, 2019, the number of shares available for issuance under the 2013 Directors' Plan automatically increased by 50,000 shares.
- (3) Represents shares credited to individual director stock accounts as of December 31, 2018 under our Directors' Deferred Compensation Plan. There is no exercise price for these shares.
- (4) As of December 31, 2018, we had reserved an aggregate of 175,000 shares of GTx common stock for issuance pursuant to our Directors' Deferred Compensation Plan. The number of shares that may become issuable under our Directors' Deferred Compensation Plan depends solely on future elections made by plan participants. As of December 31, 2018, 14,749 shares of common stock had been distributed to participants in our Directors' Deferred Compensation Plan, and 122,725 shares were then credited to individual director stock accounts under our Directors' Deferred Compensation Plan.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Policies and Procedures for Review of Related Party Transactions

The GTx Board adopted a related party transactions policy, which specifies GTx's policies and procedures regarding transactions between GTx and its employees, officers, directors or their family members. GTx's Chief Legal Officer is responsible for (a) ensuring that policy is distributed to all GTx officers, directors and other managers and (b) requiring that any proposed related party transaction be presented to the Audit Committee for consideration before GTx enters into any such transactions. This policy can be found on GTx's website (www.gtxinc.com) under "Investors" at "Corporate Governance."

It is the policy of GTX to prohibit all related party transactions unless the Audit Committee determines in advance of GTX entering into any such transaction that there is a compelling business reason to enter into such a transaction. There is a general presumption that the Audit Committee will not approve a related party transaction with GTX. However, the Audit Committee may approve a related party transaction if:

- it finds that there is a compelling business reason to approve the transaction, taking into account such factors as the absence of other unrelated parties to perform similar work for a similar price within a similar timeframe; and
- it finds that it has been fully apprised of all significant conflicts that may exist or otherwise arise on account of the transaction, and it believes, nonetheless, that GTX is warranted entering into the related party transaction and has developed an appropriate plan to manage the potential conflicts of interest.

Certain Transactions with or Involving Related Persons

Employment Arrangements. For information on employment arrangements and compensation for service on the GTX Board, see "Executive Compensation" and "Director Compensation" under Item 11 of this report.

Warrant Exercises. On November 14, 2014, we issued warrants, or the BVF Warrants, to Biotechnology Value Fund, L.P., Biotechnology Value Fund II, L.P., Investment 10, L.L.C. and MSI BVF SPV, LLC, or collectively, the BVF Entities, to purchase an aggregate of 1,111,081 (whole) shares of our common stock (as adjusted to give effect to the 2016 Reverse Stock Split) at an exercise price of \$8.50 per share (as adjusted to give effect to the 2016 Reverse Stock Split) in connection with a private placement of our common stock and warrants to purchase common stock. On March 13, 2018, the BVF Entities exercised the BVF Warrants in full pursuant to the "net exercise" provisions of the BVF Warrants resulting in a net issuance on exercise to the BVF Entities of an aggregate of 674,579 shares of our common stock. Based solely on the difference between the fair market value of our common stock on the date of exercise as determined pursuant to the net exercise provisions of the BVF Warrants and the exercise price of the BVF Warrants, the value realized by the BVF Entities upon exercise of the BVF Warrants totaled approximately \$14.6 million. Our involvement in the BVF Warrant exercises did not require approval under our related party transactions policy because our actions with respect to such matters were undertaken in accordance with our pre-existing obligations under the BVF Warrants.

Loan Agreement. On August 10, 2017, we entered into a loan agreement with J.R. Hyde, III and The Pyramid Peak Foundation to borrow up to a total of \$15,000,000. Each of Mr. Hyde and The Pyramid Peak Foundation are significant stockholders, and Mr. Hyde serves on our board of directors. We did not borrow any amounts under the loan agreement and the loan agreement terminated in accordance with its terms on September 29, 2017 in connection with the completion of the September 2017 private placement of our equity securities described below.

September 2017 Private Placement and Related Registration. On September 29, 2017, we completed a private placement of an aggregate of 5,483,320 immediately separable units, comprised of an aggregate of 5,483,320 shares of our common stock and warrants to purchase up to an aggregate of 3,289,988 additional shares of our common stock, for an aggregate purchase price of approximately \$48.5 million. The per unit purchase price for a share of common stock and a warrant to purchase 0.6 of a share of common stock was \$8.845. The warrants, which have a five-year term expiring on September 29, 2022, are immediately exercisable and have a per share exercise price of \$9.02. Pursuant to the terms of the securities purchase agreement, we filed a registration statement with the SEC in November 2017 to register the resale of the shares of our common stock and the shares of common stock underlying the warrants, and agreed to keep one or more registration statements registering the shares effective until the earlier to occur of September 28, 2019 or the date on which all of the applicable shares of our common stock have been sold or can be sold publicly without restriction or limitation under Rule 144 under the Securities Act. Our total expenses in connection with the filing of the November 2017 registration statement were approximately \$70,000. The investors in the private placement included the following related parties:

Investor	Shares Purchased	Warrants Purchased	Aggregate Unit Purchase Price (\$)
J.R. Hyde III ⁽¹⁾	1,130,582	678,349	9,999,997.79
The Pyramid Peak Foundation ⁽¹⁾	565,291	339,174	4,999,998.90
Jack W. Schuler ⁽¹⁾	226,116	135,669	1,999,996.02
Amzak Health Investors, LLC ⁽²⁾⁽³⁾	847,936	508,761	7,499,993.92
Aisling Capital IV LP ⁽²⁾	847,936	508,761	7,499,993.92
Boxer Capital, LLC	565,291	339,174	4,999,998.90

- (1) Executive officer, director and/or greater than 5% stockholder (and a "related party") immediately prior to the private placement. Mr. Schuler is no longer a stockholder of record of our capital stock.
- (2) Became a greater than 5% stockholder of GTx as a result of the private placement and, accordingly, became a "related party" of GTx. Amzak Health Investors, LLC and Aisling Capital IV LP are no longer stockholders of record of our capital stock.
- (3) Pursuant to the terms of the securities purchase agreement, we reimbursed Amzak Health Investors for its legal fees in the amount of \$33,078.

The GTx Board of Directors appointed a Special Committee of the Board of Directors consisting of disinterested and independent directors to review and evaluate the private placement and any other alternative transaction to the private placement, and delegated to the Special Committee the exclusive power and authority to consider, negotiate, disapprove or approve the private placement, which the Special Committee ultimately determined to approve. Likewise, as a result of the participation of related parties in the private placement, the private placement was reviewed and pre-approved by the Audit Committee in accordance with our related party transactions policy.

Indemnity Agreements

GTx has entered into indemnity agreements with each of its current directors and certain of its executive officers to give such directors and officers additional contractual assurances regarding the scope of the indemnification set forth in GTx's charter and bylaws and to provide additional procedural protections.

Director Independence

As required under the Nasdaq listing standards, a majority of the members of a listed company's Board of Directors must qualify as "independent," as affirmatively determined by the Board of Directors. Consistent with the requirements of the SEC and Nasdaq, our Board of Directors reviews all relevant transactions or relationships between each director, and GTx, its senior management and its independent registered public accounting firm. During this review, the Board considers whether there are any transactions or relationships between directors or any member of their immediate family (or any entity of which a director or an immediate family member is an executive officer, general partner or significant equity holder) and members of GTx's senior management or their affiliates.

As a result of this review, the GTx Board affirmatively determined that the following five of our seven directors are independent members of the Board of Directors within the meaning of the applicable Nasdaq listing standards: Dr. Carter, Mr. Hyde (Lead Director), Mr. Glass, Dr. Neil and Dr. Robinson. As a result of Mr. Hyde's significant stock ownership in GTx, Mr. Hyde is not considered "independent" under applicable Nasdaq and SEC standards pertaining to membership of the Audit Committee (Mr. Hyde is not a member of the Audit Committee). In determining that Mr. Hyde is an independent member of the Board of Directors within the meaning of the applicable Nasdaq listing standards, the GTx Board considered Mr. Hyde's significant ownership interest in GTx, as well as his significant investments in our securities offerings in 2014, 2016 and 2017. Neither Mr. Hanover nor Dr. Wills is "independent" within the meaning of the Nasdaq listing standards since each of Mr. Hanover and Dr. Wills serves as an executive officer of GTx.

The Compensation Committee and the Nominating and Corporate Governance Committee of the Board are comprised entirely of directors who are independent within the meaning of the Nasdaq listing standards, and the members of the Audit Committee are independent under applicable Nasdaq listing standards and SEC rules. In determining whether Dr. Carter, Mr. Hyde and Mr. Glass are independent within the meaning of the Nasdaq listing standards pertaining to membership of the Compensation Committee, the GTx Board determined that, based on its consideration of factors specifically relevant to determining whether any such director has a relationship to GTx that is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, no member of the Compensation Committee has a relationship that would impair that member's ability to make independent judgments about GTx's executive compensation. In particular, the GTx Board considered, among other things, the source of each member's compensation, including compensation paid to such member by GTx, and also considered Mr. Hyde's significant stock ownership in and status as an affiliate of GTx and determined that such compensation and affiliation, as applicable, would not impair the applicable member's ability to make independent judgments about GTx's executive compensation. In the case of Mr. Hyde, the GTx Board determined that, as a significant stockholder, his interests are aligned with other stockholders in seeking an appropriate executive compensation program for GTx.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES**Independent Registered Public Accounting Firm's Fees**

The following table shows the fees paid or accrued by GTX for audit and other services provided by Ernst & Young LLP, GTX's independent registered public accounting firm, for the years ended December 31, 2017 and 2018.

<u>Year</u>	<u>Audit Fees⁽¹⁾</u>	<u>Audit-Related Fees⁽²⁾</u>	<u>Tax Fees⁽³⁾</u>	<u>All Other Fees</u>	<u>Total Fees</u>
2017	\$ 345,453	—	\$ 50,750	—	\$ 396,203
2018	\$ 418,438	—	\$ 20,000	—	\$ 438,438

- (1) "Audit Fees" consisted of fees for professional services provided in connection with the audit of our financial statements and review of our quarterly financial statements. Also includes fees for services provided in connection with other statutory or regulatory filings or engagements, such as comfort letters, attest service, consents and review of documents filed with the SEC.
- (2) "Audit-Related Fees" consisted of fees billed for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under "Audit Fees." There were no audit-related fees billed for fiscal 2017 or fiscal 2018.
- (3) "Tax Fees" consisted of fees associated with tax compliance, including tax return preparation, and tax advice and tax planning services. Tax compliance services accounted for \$20,000 of the total tax fees billed in both 2017 and 2018. Tax advice and tax planning services of \$30,750 and \$0 in 2017 and 2018, respectively, related primarily to consultations on our net operating loss carryforwards.

Pre-Approval Policies and Procedures

Applicable SEC rules require the Audit Committee to pre-approve audit and non-audit services provided by our independent registered public accounting firm. Since March 18, 2004, our Audit Committee has pre-approved all new services provided by Ernst & Young LLP.

The Audit Committee pre-approves all audit and non-audit services to be performed for GTX by its independent registered public accounting firm. The Audit Committee does not delegate the Audit Committee's responsibilities under the Exchange Act to GTX's management. The Audit Committee has delegated to the Chair of the Audit Committee the authority to grant pre-approvals of audit services of up to \$20,000; provided that any such pre-approvals are required to be presented to the full Audit Committee at its next scheduled meeting. The Audit Committee has determined that the rendering of the services other than audit services by Ernst & Young LLP is compatible with maintaining Ernst & Young's independence.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a)(1) Index to Financial Statements included in the registrant's Annual Report on Form 10-K filed with the SEC on March 18, 2019.

Page	Description
F-2	Report of Independent Registered Public Accounting Firm
F-3	Balance Sheets at December 31, 2018 and 2017
F-4	Statements of Operations for the Years Ended December 31, 2018, 2017 and 2016
F-5	Statements of Stockholders' Equity for the Years Ended December 31, 2018, 2017 and 2016
F-6	Statements of Cash Flows for the Years Ended December 31, 2018, 2017 and 2016
F-7	Notes to Financial Statements

(a)(2) Financial statement schedules are omitted as they are not applicable.

(a)(3) See Item 15(b) below.

(b) Exhibits — The following exhibits are included herein or incorporated herein by reference:

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
2.1	Asset Purchase Agreement dated as of September 28, 2012 between the Registrant and Strakan International S.à r.l.	8-K	000-50549	2.1	10/03/2012
2.2**	Agreement and Plan of Merger and Reorganization, dated March 6, 2019, by and among the Registrant, Oncternal Therapeutics, Inc. and Grizzly Merger Sub, Inc.	8-K	000-50549	2.1	03/07/2019
2.3**	Form of CVR Agreement by and between the Registrant, Marc S. Hanover, as the Holders' Representative, and Computershare Investor Services, as Rights Agent.	8-K	000-50549	2.2	03/07/2019
2.4	Form of GTx Voting Agreement, dated March 6, 2019, by and between Oncternal Therapeutics, Inc., the Registrant and each of the parties named in each agreement therein	8-K	000-50549	2.3	03/07/2019
2.5	Form of Oncternal Voting Agreement, dated March 6, 2019, by and between the Registrant, Oncternal Therapeutics, Inc. and each of the parties named in each agreement therein	8-K	000-50549	2.4	03/07/2019

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
2.6	Form of Lock-Up Agreement, dated March 6, 2019, by each of the parties named in each agreement therein	8-K	000-50549	2.5	03/07/2019
3.1	Restated Certificate of Incorporation of GTX, Inc.	S-3	333-127175	4.1	08/04/2005
3.2	Certificate of Amendment of Restated Certificate of Incorporation of GTX, Inc.	8-K	000-50549	3.2	05/06/2011
3.3	Certificate of Amendment of Restated Certificate of Incorporation of GTX, Inc.	8-K	000-50549	3.3	05/09/2014
3.4	Certificate of Amendment of Restated Certificate of Incorporation of GTX, Inc.	10-Q	000-50549	3.4	05/11/2015
3.5	Certificate of Amendment of Restated Certificate of Incorporation of GTX, Inc.	8-K	000-50549	3.1	12/05/2016
3.6	Amended and Restated Bylaws of GTX, Inc.	8-K	000-50549	3.1	03/07/2019
4.1	Reference is made to Exhibits 3.1 , 3.2 , 3.3 , 3.4 , 3.5 and 3.6	-	-	-	-
4.2	Specimen of Common Stock Certificate	S-1	333-109700	4.2	12/22/2003
4.3	Amended and Restated Registration Rights Agreement between Registrant and J. R. Hyde, III dated August 7, 2003	S-1	333-109700	4.4	10/15/2003
4.4	Consent, Waiver and Amendment among Registrant, J. R. Hyde, III and Pittco Associates, L.P. dated December 3, 2007	S-3	333-148321	4.6	12/26/2007
4.5	Waiver and Amendment Agreement among Registrant, J.R. Hyde, III and Pittco Associates, L.P. dated March 6, 2014	10-K	000-50549	4.5	03/12/2014
4.6	Amended and Restated Registration Rights Agreement among Registrant, J.R. Hyde, III and The Pyramid Peak Foundation, dated August 4, 2014	10-Q	000-50549	4.6	08/05/2014

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
4.7	Consent, Waiver and Amendment Agreement between Registrant and J.R. Hyde, III and Pittco Associates, L.P., dated August 4, 2014	10-Q	000-50549	4.8	08/05/2014
4.8	Form of Common Stock Warrant, issued by Registrant pursuant to the Purchase Agreement, dated November 9, 2014, between Registrant and the purchasers identified in Exhibit A therein	10-K	000-50549	4.9	03/16/2015
4.9	Form of Warrant Amendment Agreement entered into effective as of March 25, 2016 between Registrant and each holder of a Common Stock Warrant originally issued on November 14, 2014	10-Q	000-50549	4.9	05/10/2016
4.10	Form of Common Stock Warrant, issued by Registrant pursuant to the Purchase Agreement, dated September 25, 2017, between Registrant and the purchasers identified in Exhibit A therein	S-3	333-221040	4.9	10/20/2017
10.1†	Consolidated, Amended, and Restated License Agreement dated July 24, 2007, between Registrant and University of Tennessee Research Foundation	10-Q	000-50549	10.40	11/09/2007
10.2	First Amendment, dated December 29, 2008, to the Consolidated, Amended and Restated License Agreement dated July 24, 2007 between the Registrant and University of Tennessee Research Foundation	10-K	000-50549	10.47	03/03/2009
10.3*	Form of Indemnification Agreement	S-1	333-109700	10.12	12/22/2003
10.4*	Genotherapeutics, Inc. 1999 Stock Option Plan, as amended through December 10, 2009 (refiled to reflect reverse stock split effected on December 5, 2016), and Form of Stock Option Agreement	10-K	000-50549	10.4	03/24/2017
10.5*	GTx, Inc. 2000 Stock Option Plan, as amended through December 10, 2009 (refiled to reflect reverse stock split effected on December 5, 2016), and Form of Stock Option Agreement	10-K	000-50549	10.5	03/24/2017

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
10.6*	GTx, Inc. 2001 Stock Option Plan, as amended through November 3, 2009 (refiled to reflect reverse stock split effected on December 5, 2016), and Form of Stock Option Agreement	10-K	000-50549	10.6	03/24/2017
10.7*	GTx, Inc. 2002 Stock Option Plan, as amended through November 3, 2009 (refiled to reflect reverse stock split effected on December 5, 2016), and Form of Stock Option Agreement	10-K	000-50549	10.7	03/24/2017
10.8*	GTx, Inc. 2004 Equity Incentive Plan, as originally adopted, and Form of Stock Option Agreement	S-1	333-109700	10.5	01/15/2004
10.9*	GTx, Inc. 2004 Equity Incentive Plan, as amended effective April 30, 2008	8-K	000-50549	10.6	05/06/2008
10.10*	GTx, Inc. 2004 Equity Incentive Plan, as amended effective November 4, 2008 (refiled to reflect reverse stock split effected on December 5, 2016), and Form of Stock Option Agreement	10-K	000-50549	10.10	03/24/2017
10.11*	GTx, Inc. 2004 Non-Employee Directors' Stock Option Plan and Form of Stock Option Agreement, as originally adopted	S-1	333-109700	10.6	01/15/2004
10.12*	Amended and Restated GTx, Inc. 2004 Non-Employee Directors' Stock Option Plan, effective April 26, 2006	8-K	000-50549	10.1	04/27/2006
10.13*	Form of Stock Option Agreement under the Amended and Restated GTx, Inc. 2004 Non-Employee Directors' Stock Option Plan	10-Q	000-50549	10.35	08/09/2006
10.14*	Amended and Restated GTx, Inc. 2004 Non-Employee Directors' Stock Option Plan, as amended effective November 4, 2008 (refiled to reflect reverse stock split effected on December 5, 2016)	10-K	000-50549	10.14	03/24/2017
10.15*	GTx, Inc. 2013 Equity Incentive Plan, as originally adopted	S-8	333-188377	99.1	05/06/2013
10.16*	GTx, Inc. 2013 Equity Incentive Plan, as amended effective May 6, 2015 (refiled to reflect reverse stock split effected on December 5, 2016)	10-K	000-50549	10.16	03/24/2017

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
10.17*	Form of Stock Option Grant Notice and Option Agreement under the GTx, Inc. 2013 Equity Incentive Plan (Standard Form)	10-Q	000-50549	10.2	07/22/2013
10.18*	Form of Retention Stock Option Grant Notice and Option Agreement under the GTx, Inc. 2013 Equity Incentive Plan	10-Q	000-50549	10.3	11/12/2013
10.19*	Form of Retention Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under the GTx, Inc. 2013 Equity Incentive Plan	10-Q	000-50549	10.4	11/12/2013
10.20*	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under the GTx, Inc. 2013 Equity Incentive Plan	10-Q	000-50549	10.5	05/11/2015
10.21*	GTx, Inc. 2013 Non-Employee Director Equity Incentive Plan, as originally adopted (refiled to reflect reverse stock split effected on December 5, 2016)	10-K	000-50549	10.21	03/24/2017
10.22*	Form of Stock Option Grant Notice and Option Agreement under the GTx, Inc. 2013 Non-Employee Director Equity Incentive Plan	10-Q	000-50549	10.4	07/22/2013
10.23*	Employment Agreement dated February 12, 2015, between Registrant and Robert J. Wills	10-Q	000-50549	10.4	05/11/2015
10.24*	Employment Agreement dated July 13, 2015, between Registrant and Diane C. Young	10-Q	000-50549	10.1	11/09/2015
10.25*	Amended and Restated Employment Agreement dated February 12, 2015, between Registrant and Marc S. Hanover	10-K	000-50549	10.25	03/16/2015
10.26*	Amended and Restated Employment Agreement dated February 14, 2013, between Registrant and Henry P. Doggrell	10-K	000-50549	10.22	03/05/2013
10.27*	Employment Agreement dated January 6, 2017 between Registrant and Jason T. Shackelford	10-K	000-50549	10.28	03/24/2017
10.28*	Form of Retention Benefits Letter Agreement for Mitchell S. Steiner and Marc S. Hanover	10-Q	000-50549	10.1	11/12/2013

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
10.29*	Form of Retention Benefits Letter Agreement for Jason T. Shackelford and Henry P. Doggrell	10-Q	000-50549	10.2	11/12/2013
10.30*	Amended and Restated GTx, Inc. Executive Bonus Compensation Plan, effective November 4, 2008	10-K	000-50549	10.53	03/03/2009
10.31*	2017 Compensation Information for Registrant's Executive Officers	10-Q	000-50549	10.2	05/15/2017
10.32*	Directors' Deferred Compensation Plan, as amended and restated effective February 14, 2013	10-K	000-50549	10.28	03/05/2013
10.33*	Directors' Deferred Compensation Plan, as amended and restated effective February 18, 2016 (refiled to reflect reverse stock split effected on December 5, 2016)	10-K	000-50549	10.34	03/24/2017
10.34*	Non-Employee Director Compensation Policy of GTx, Inc., effective January 1, 2016	10-K	000-50549	10.39	03/15/2016
10.35	Lease agreement, dated April 13, 2015, between Registrant and Hertz Memphis Three LLC	10-Q	000-50549	10.1	08/10/2015
10.36	Purchase Agreement, dated November 9, 2014, between Registrant and the purchasers identified in Exhibit A therein	8-K	000-50549	10.1	11/10/2014
10.37	Form of Subscription Agreement for October 2016 registered direct offering	8-K	000-50549	10.1	10/12/2016
10.38	Loan Agreement, dated as of August 10, 2017, by and among Registrant, J.R. Hyde, III and The Pyramid Peak Foundation and form of Promissory Note	10-Q	000-50549	10.1	08/14/2017
10.39	Securities Purchase Agreement, dated as of September 25, 2017, between Registrant and the purchasers identified on Exhibit A	8-K	000-50549	10.1	09/29/2017
10.40	At-the-Market Equity Offering Sales Agreement, dated February 9, 2018, by and between Registrant and Stifel, Nicolaus & Company, Incorporated	8-K	000-50549	10.1	02/09/2018

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
10.41†††	License Agreement, effective March 1, 2015, between the Registrant and University of Tennessee Research Foundation				
10.42†††	Amendment #1 to the License Agreement, dated November 12, 2015, between the Registrant and University of Tennessee Research Foundation				
10.43†††	Amendment #2 to the License Agreement, as amended, dated August 12, 2016, between the Registrant and University of Tennessee Research Foundation				
10.44†††	Amendment #3 to the License Agreement, as amended, dated April 6, 2017, between the Registrant and University of Tennessee Research Foundation				
10.45†††	Amendment #4 to the License Agreement, as amended, dated October 23, 2018, between the Registrant and University of Tennessee Research Foundation				
23.1	Consent of Independent Registered Public Accounting Firm	10-K	000-50549	23.1	03/18/2019
24.1	Power of Attorney	10-K	000-50549	-	03/18/2019
31.1	Certification of Chief Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)	10-K	000-50549	31.1	03/18/2019
31.2	Certification of Principal Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)	10-K	000-50549	31.2	03/18/2019
31.3+	Certification of Chief Executive Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)				
31.4+	Certification of Principal Financial Officer, as required by Rule 13a-14(a) or Rule 15d-14(a)				
32.1	Certification of Chief Executive Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350)⁽¹⁾	10-K	000-50549	32.1	03/18/2019

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
32.2	Certification of Principal Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350) ⁽¹⁾	10-K	000-50549	32.2	03/18/2019
101.INS	XBRL Instance Document	10-K	000-50549	101.INS	03/18/2019
101.SCH	XBRL Taxonomy Extension Schema Document	10-K	000-50549	101.SCH	03/18/2019
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	10-K	000-50549	101.CAL	03/18/2019
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	10-K	000-50549	101.DEF	03/18/2019
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document	10-K	000-50549	101.LAB	03/18/2019
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	10-K	000-50549	101.PRE	03/18/2019

** Schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.

† Confidential treatment has been granted with respect to certain portions of this exhibit. This exhibit omits the information subject to the related confidentiality order. Omitted portions have been filed separately with the SEC.

†† Portions of this exhibit (indicated by asterisks) have been omitted in accordance with Item 601(b)(10) of Regulation S-K.

* Indicates a management contract or compensation plan or arrangement.

+ Filed herewith

(1) This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Amendment No. 1 to its Annual Report on Form 10-K/A to be signed on its behalf by the undersigned, thereunto duly authorized.

GTx, Inc.

By

/s/ Marc S. Hanover

Marc S. Hanover
Chief Executive Officer
(Principal Executive Officer)

Date: April 30, 2019

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

LICENSE AGREEMENT

UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION

and

GTx, INC.

This License Agreement (“Agreement”) is made and entered into this 1st day of March, 2015 (“Effective Date”) by and between the UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION, having an office at 910 Madison Avenue, Suite 827 Memphis, Tennessee 38163 (“**UTRF**”), and GTx, INC., a company organized and existing under the laws of the State of Delaware having its principal place of business at 175 Toyota Plaza, 7th floor, Memphis, Tennessee 38103 (“**LICENSEE**”).

RECITALS:

WHEREAS, UTRF (defined below) has submitted the Invention Disclosure (defined below) to UTRF for administration;

WHEREAS, LICENSEE desires to utilize and commercialize the Licensed Patents (defined below) and is willing to expend its reasonable efforts and resources to do so if it can obtain a license to use the Licensed Patents under the terms and conditions set forth herein; and

WHEREAS, UTRF desires to transfer the Licensed Patents for the ultimate benefit of the public and believes that such transfer will be facilitated by the grant of a license to LICENSEE under the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the recitals, covenants, conditions, and undertakings contained herein, the parties hereto agree as follows:

ARTICLE 1. DEFINITIONS

When used in this Agreement, the following terms shall have the meanings set out below. The singular shall be interpreted as including the plural and vice versa, unless the context clearly indicates otherwise.

1.1 “Active Ingredient” means the material(s) in a pharmaceutical product which provide its pharmacological activity (excluding formulation components such as coatings, stabilizers or controlled release technologies).

1.2 “Affiliate” means any corporation, partnership, or other entity that at any time during the Term of this Agreement, directly or indirectly controls or is controlled by or is under common control with a party to this Agreement, but only for so long as the relationship exists. A corporation or other entity shall no longer be an Affiliate when through loss, divestment, dilution or other reduction of ownership, the requisite control no longer exists.

1.3 “Combination Product” means either (i) any pharmaceutical product that consists of a SARD and at least one other Active Ingredient that is not a SARD, or (ii) any combination of a SARD and another pharmaceutical product that contains at least one other Active Ingredient that is not a SARD where such products are not formulated together but are sold together as a single product and invoiced as one product.

1.4 “Control” or “Controls” or “Controlled” means: in the case of a corporation, ownership or control, directly or indirectly, of more than fifty percent (50%) of the shares of stock entitled to vote for the election of directors; or (ii) in

the case of an entity other than a corporation, ownership or control, directly or indirectly, of more than fifty percent (50%) of the assets of such entity.

1.5 “Dispute” means any and all claims, disputes, or controversies arising under, out of, or in connection with this Agreement, including any dispute relating to patent validity or infringement.

1.6 “LICENSEE” shall mean GTx Inc. and its Affiliate(s) unless such Affiliates are clearly excluded from the referencing provision(s) at issue, provided that in no instance shall LICENSEE be relieved of any duty or obligation hereunder by the inclusion of its Affiliates in the definition of “LICENSEE”.

1.7 “Invention Disclosure” means the UTRF file number [***], titled “[***]” submitted to UTRF on [***] by [***].

1.8 “License Year” shall mean a 12-month period beginning on March 1st of a given year and ending on February 28th of the following year (unless such year is a leap year, in which case ending on February 29th).

1.9 “Licensed Patents” means, to the extent now or hereinafter owned (solely or partially) or controlled by UTRF and which are described as follows:

- (a) Any United States and foreign patents and/or patent applications and/or provisional patents listed in Appendix A;
- (b) Any divisionals and continuations of any United States or foreign patent applications listed in Appendix A;
- (c) Any United States and foreign patents issued from any applications described in (a) or (b) above;
- (d) Any claims of United States and foreign patent applications (including, without limitation, continuations-in-part of patent applications or patents described in (a) or (b) above), and of the resulting patents (i) that are directed to subject matter claimed in the patents or patent applications described in (a), (b), or (c) above or (ii) that are directed to subject matter described in the Invention Disclosure, and;
- (e) Any reissue or extension of any United States patent described in (a), (b), (c), or (d) above or any patent resulting from equivalent foreign procedures with respect to any foreign patent described in (a), (b), (c), or (d) above.

1.10 “Licensed Product” means any product, method, procedure or service, or process thereof, whose manufacture, use, sale, lease, or import is covered by a Valid Claim of the Licensed Patents in the country in which such product, method, procedure, service, process, or part thereof is manufactured, used, sold, leased, or imported.

1.11 “Major Countries” means United States, Canada, Mexico, Germany, United Kingdom, Russia, Japan, and China.

1.12 “Net Sales” means:

- (a) The gross receipts received by LICENSEE or any Sublicensees from the use, sale, lease, or other transfer or disposition (including, without limitation, the performance of services utilizing the Licensed Patents) to or for third parties (hereinafter “Sale”) of a Licensed Product (hereinafter “Gross Receipts”) less the following deductions, provided they actually pertain to the Sale of Licensed Product and are separately invoiced:
 - i. refunds, credits and/or discounts actually given in connection with the Sale in amounts customary in the trade for quantity purchases, cash payments, and prompt payments;

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

- ii. refunds, credits and/or discounts actually given for Licensed Products that are rejected, returned, or destroyed by customers, but only if such refunds, credits and/or discounts constitute a return of amounts already included in Gross Receipts;
- iii. sales, tariff duties and/or use taxes directly imposed and with reference to a particular Sale (but not including income taxes), to the extent included in Gross Receipts;
- iv. outbound transportation expenses (including insurance relating thereto) directly related to the Sale, to the extent included in Gross Receipts;
- v. the cost of export licenses, import duties, value added tax, and prepaid freight directly related to the Sale, to the extent included in Gross Receipts;
- vi. sales commissions paid by Licensee to individuals who are not employees of Licensee, a Sublicensee, or their respective Affiliates, to the extent such commissions are directly related to a particular Sale;
- vii. out-of-pocket service fees consistent with normal industry practice paid to distributors or wholesalers of drug product in payment for distribution of Licensed Product, provided that (a) such distributors and wholesalers are not Affiliates of Licensee; (b) if any such distributor or wholesaler is an Affiliate of a Sublicensee, such fees are no more than that which such distributor/wholesaler actually and contemporaneously charges unaffiliated third party pharmaceutical companies for the same or similar service; (c) such fees may not be deducted more than once; (d) if a Sublicense shall be in effect, the fees paid by a Sublicensee may be deducted from Net Sales under this Agreement only if such fees are deducted from the equivalent of Net Sales under the relevant Sublicense agreement for purposes of calculating the royalty owed to Licensee; and
- viii. retroactive price reductions, chargeback payments and rebates actually granted in connection with a particular Sale to managed health care organizations or to federal, state and local governments, their agencies, purchasers, and reimbursers, but only if such reductions, chargeback payments, and rebates constitute a return of amounts already included in or calculated as part of Gross Receipts;

(b) For purposes of the calculation of Net Sales:

- i. no deductions shall be made for any other costs or expenses, including commissions paid to individuals who are employees of LICENSEE, a Sublicensee, or their respective Affiliates;
- ii. Net Sales shall not include the gross amounts from the Sale of any Licensed Products to any Sublicensee unless such Sublicensee is an end-user of such Licensed Products (i.e., Sublicensee's purchase of Licensed Products is not for the purpose of resale). If such Sublicensee is an end-user, such consideration shall be included in Net Sales at the greater of the actual selling price or the average selling price charged to a third party. Net Sales also shall not include Sales of Licensed Product for use in conducting clinical trials of a Licensed Product candidate in a country.
- iii. Net Sales shall be determined in a consistent manner for all products sold by or on behalf of Licensee and its Sublicensees and in accordance with applicable U.S. generally accepted accounting principles for Licensee and any U.S. based Sublicensee.

(c) Combination Product: In the event one or more Licensed Products are sold as part of a Combination Product in a particular country, the Net Sales of such Licensed Product(s), for the purposes of determining payments based on Net Sales, shall be determined by multiplying the Net

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Sales of the Combination Product in such country, during the applicable Net Sales reporting period, by the fraction, $A/(A+B)$, where:

A is the average sale price of the Licensed Product(s) by LICENSEE or Sublicensees when sold separately in finished form in such country and B is the average sale price by LICENSEE or Sublicensees, or, if they have no such right of sale, by a Third Party of the other product(s) included in the Combination Product when sold separately in finished form in such country, in each case during the applicable Net Sales reporting period.

In the event one or more Licensed Products are sold as part of a Combination Product and are sold separately in finished form in such country, but the other product(s) included in the Combination Product are not sold separately in finished form in such country, the Net Sales of the Licensed Product, for the purposes of determining payments based on Net Sales, shall be determined by multiplying the Net Sales of the Combination Product in such country by the fraction C/D where:

C is the average sale price, in such country, of the Licensed Product(s) contained in such Combination Product when sold separately and D is the average sale price, in such country, for the Combination Product, in each case during the applicable Net Sales reporting period. Under no circumstances can C/D exceed one hundred percent (100%).

In the event that one or more of the Licensed Product(s) are not sold separately in finished form in the country, but all of the other product(s) included in the Combination Product in such country are sold separately, the Net Sales of the Licensed Product, for the purposes of determining payments based on Net Sales, shall be determined by multiplying the Net Sales of the Combination Product in such country by the fraction $(D-E)/D$, where:

D is the average sale price, in such country, of the Combination Product, and E is the average sale price of the other product(s) included in the Combination Product in finished form in such country, in each case during the applicable Net Sales reporting period.

In the event that the Net Sales of the Licensed Product(s) when included in a Combination Product cannot be determined using the methods above, Net Sales for the purposes of determining payments based on Net Sales shall be calculated by multiplying the Net Sales of the Combination Product by the fraction of $F/(F+G)$ where:

F is the fair market value of the Licensed Product(s) and G is the fair market value of all other pharmaceutical product(s) included in the Combination Product, as reasonably determined in good faith by the Parties.

1.13 “Patent Expenses” means all fees, costs and expenses (including, without limitation, the professional fees of US and foreign patent counsel) relating to the filing, prosecution and maintenance of the Licensed Patents. For purposes of clarification, included Patent Expenses are any and all fees, costs, and expenses incurred before or after issuance of the Licensed Patents, including, without limitation, fees, costs, and expenses incurred in association with any reissue or reexamination of a Licensed Patent, any interference or opposition proceeding involving one or more Licensed Patents, or any extension or request for extension of the term of one or more Licensed Patents.

1.14 “Patented Product” shall mean any product whose manufacture, use, sale or import is covered in whole or in part by a Valid Claim of the Licensed Patents in the country of manufacture, use, sale or import.

1.15 “Regulatory Approval” shall mean any approvals granted by a governmental authority in a particular regulatory jurisdiction (with the exception of conditional approvals) that are necessary for the commercial manufacture, use, storage, importation, export, transport or sale of Licensed Products in that regulatory jurisdiction.

1.16 “SARD” or “SARDS” shall mean selective androgen receptor degrader(s) whose primary pharmacologic effect at any dose observed in vivo is the degradation of the androgen receptor.

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1.17 “Sublicense” means a direct grant of right, license, or option to the Licensed Patents from LICENSEE to a third party and any further grant at any tier.

1.18 “Sublicense Revenue” means all payments received by LICENSEE pursuant to each Sublicense, including, without limitation, up-front fees, milestone payments, and license maintenance fees. Notwithstanding the foregoing, the following shall not be considered Sublicense Revenue:

- (a) Running royalties received by LICENSEE that are calculated as a percentage of Sublicensee’s Net Sales;
- (b) Payments received by LICENSEE as reimbursement for actual, otherwise unreimbursed, out-of-pocket research and development expenses incurred after the date of the Sublicense;
- (c) Payments made to Third Parties by a Sublicensee on LICENCEE’S behalf for conducting clinical trials, filing new drug applications, commercially launching a product and/or marketing and selling a product, since these are not payments received by LICENSEE from a Sublicensee;
- (d) consideration paid to Licensee in exchange for securities of Licensee up to the fair market value of such securities; and
- (e) In the event the Sublicensee of Licensed Product is granted in conjunction with a license of distinct technology of Licensee that is not Licensed Product covered by the Licensed Patents (“Other Technology”), amounts allocable to such Other Technology as reasonably established by Licensee and the Sublicensee and set out in the Sublicense agreement. If no allocation to Other Technology exists in the Sublicense, UTRF and LICENSEE agree to good faith negotiations to determine the excluded amounts. In the event that, after [***] of good faith negotiations, no agreement exists on the amount to be excluded from Sublicense Revenue, the Parties agree that an independent arbitrator shall make the determination of allocation, which shall be final and unappealable.

1.19 “Sublicensee” means any recipient of a Sublicense.

1.20 “Territory” means worldwide.

1.21 “Third Party” shall mean any person, party or entity other than LICENSEE, its Affiliates, UTRF, or UT.

1.22 “UT” means The University of Tennessee, an educational agency of the State of Tennessee.

1.23 “UT Contributor” Duane Miller, Ramesh Narayanan, Dong-Jin Hwang, Thamarai Ponnusamy, and any other UT employee who contributes to the development of the Licensed Patents while under the supervision of Duane Miller or Ramesh Narayanan, either before or after the Effective Date.

1.24 “Valid Claim” means (a) a claim of an issued patent which (i) has not expired and which has not been held revoked, invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed with the time allowed for appeal having expired, and (ii) which has not been admitted to be invalid through reissue or disclaimer or otherwise; or (b) a claim of a pending patent application.

ARTICLE 2. GRANT

2.1 **Grant of License:** During the Term hereof, and subject to the terms and conditions of this Agreement, UTRF hereby grants to LICENSEE an exclusive, worldwide right and license, with the right to grant Sublicenses, to practice under the Licensed Patents for the purpose of developing, making, having made, using, marketing, selling, having sold, importing, distributing, and offering for sale Licensed Product(s) (collectively, the “License”). Subject to the remaining provisions of this Agreement, the Parties hereby agree that the term “exclusive” means that, UTRF shall not grant any license to a Third Party or take any action inconsistent with the rights in the Licensed Patents granted to LICENSEE under this Agreement.

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2.2 Limitations on the Rights Granted:

- (a) **Federal Government Rights:** To the extent that any invention included within the Licensed Patents has been or is in the future funded in whole or in part by the United States government, the United States government retains certain rights in such inventions as set forth in 35 U.S.C. §§200-212 and all regulations promulgated thereunder, as amended, and any successor statutes and regulations (“Federal Policy”). As a condition of the License granted hereby, LICENSEE acknowledges and shall comply with all aspects of Federal Policy applicable to the Licensed Patents, including the obligation that Licensed Products used or sold in the United States be manufactured substantially in the United States. Nothing contained in this Agreement obligates UTRF to take any action that would conflict in any respect with its or the University’s past, current or future obligations to the United States government under the Federal Policy.
- (b) **Reserved Rights:** The License is expressly made subject to UTRF’s and the University’s reserved right to practice under the Licensed Patents for its own non-commercial educational, academic research and teaching purposes and to grant such rights to other academic or non-profit institutions for non-commercial purposes.
- (c) **Third Party Rights:** The exclusive rights granted in Article 2.1(a) are expressly made subject to any rights in a Licensed Patent held by a third party resulting from co-inventorship by an individual whose contribution to a Licensed Patent is not made in the course of employment by UT; provided that for purposes of entering into this Agreement, UTRF is not aware of any co-inventor who is not currently an employee of UT.
- (d) **Limitation on Assistance:** UTRF shall have no obligation to provide LICENSEE with technical assistance in the exercise of the License. In the event LICENSEE requires technical assistance with respect to the activities conducted by LICENSEE pursuant to this Agreement, obtaining such technical assistance (whether from the UT Contributors or otherwise) shall be LICENSEE’s responsibility and at LICENSEE’s expense.

2.3 **Applicability:** Nothing in this Agreement shall be construed to confer any rights upon LICENSEE by implication, estoppel, or otherwise as to any patent rights other than the Licensed Patents, regardless of whether such other rights shall be dominant or subordinate to any Licensed Patents.

ARTICLE 3. SUBLICENSES

3.1 **Rights and Requirements:** LICENSEE shall have the right to sublicense the rights granted to LICENSEE under this Agreement and to permit further sublicensing by Sublicensees through multiple tiers with respect to the Licensed Patents, provided that:

- (a) The Sublicensee shall agree in writing to be bound, to the extent practicable, by all the provisions of this Agreement in the same manner as LICENSEE is bound;
- (b) LICENSEE shall remain liable to UTRF for the full and timely performance of this Agreement by any Sublicensee. No Sublicensee shall relieve LICENSEE of any of its obligations under this Agreement.
- (c) This Agreement is in effect and LICENSEE is not in breach of its obligations under this Agreement;
- (d) All Sublicenses granted by LICENSEE under this Agreement shall conform to this Agreement in the following respects:
 - i. LICENSEE shall not grant any rights to a third party that are inconsistent with LICENSEE’s rights and obligations under this Agreement;

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- ii. Any Sublicense granted by LICENSEE shall include substantially the same definitions and provisions on royalties, due diligence, confidentiality, publicity, reporting, audit requirements, indemnification, insurance, warranties, patent notices, and use of names as are agreed to in this Agreement;
- iii. Any act or omission of a Sublicensee which would constitute a breach of this Agreement if it were the act or omission of LICENSEE shall be deemed to be an Event of Default of this Agreement by LICENSEE, subject to the same cure provisions in favor of LICENSEE as are otherwise provided herein for breach by LICENSEE (provided that if the Sublicense agreement shall provide to Sublicensee a reasonably longer cure period, that cure period shall control for purposes hereof). Sublicenses shall include such other provisions as are needed to enable LICENSEE to comply with this Agreement.

(e) LICENSEE shall provide UTRF with a copy of each executed Sublicense Agreement within [***] of its execution.

3.2 **Special Termination Rules:** Upon termination of this Agreement, each Sublicense shall be governed by Article 14 of this Agreement.

3.3 **Failure to Conform to this Article:** LICENSEE's failure to conform any Sublicense to this Article will have the following effects:

- (a) The non-conforming Sublicense will be voidable at UTRF's sole discretion provided that UTRF has provided written notice to LICENSEE and within [***] of such notice from UTRF, LICENSEE fails to cure such non-conformance of the Sublicense; and
- (b) Said failure will constitute a material breach of this Agreement subject to the termination provisions of Article 14 of this Agreement.

ARTICLE 4. DILIGENCE

4.1 **Diligence:** LICENSEE shall proceed diligently to acquire funding, staff, equipment, and facilities sufficient to develop and commercialize the Licensed Patents. Further, LICENSEE shall, throughout the Term of this Agreement, conduct, organize or manage a diligent program of research utilizing the Licensed Patents and shall employ active, diligent efforts to achieve commercial utilization of one or more Licensed Products.

4.2 **Milestones:** In particular, LICENSEE shall meet the following milestones ("Diligence Milestones"):

- (a) 1st Diligence Milestone: Within [***] of the Effective Date, LICENSEE shall [***].
- (b) 2nd Diligence Milestone: Subject to [***] Licensee will [***] within [***] of the Effective Date of this Agreement.
- (c) 3rd Diligence Milestone: On or before the [***] anniversary of the Effective Date, LICENSEE shall [***], or [***], or Licensee shall [***] within the later of (i) the time period required hereby or (ii) [***] from the date of the Sublicense agreement.

4.3 **Notification:** LICENSEE will notify UTRF in writing of the achievement of each Diligence Milestone within [***] thereafter, including sufficient information for UTRF to determine whether such Diligence Milestone has been reasonably accomplished.

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ARTICLE 5. ROYALTIES AND OTHER PAYMENTS

5.1 Fees and Royalties: For the rights, privileges and license granted hereunder, LICENSEE shall pay to UTRF the following fees and royalties in the manner hereinafter provided until this Agreement expires or is terminated.

- (a) **License Issue Fee:** Within [***] of the Effective Date, LICENSEE shall pay to UTRF, in addition to all other amounts payable hereunder, the non-refundable sum of [***] ("License Issue Fee").
- (b) **Annual Maintenance Fee:** LICENSEE shall pay UTRF, in addition to all other amounts payable hereunder, a non-refundable license maintenance fee in the amount of [***] on each anniversary date of the Effective Date, commencing [***], for the earlier of (i) [***] from the Effective Date or (ii) the [***], at which time LICENSEE shall pay UTRF, in addition to all other amounts payable hereunder, a non-refundable license maintenance fee in the amount of [***] on the anniversary date of the Effective Date and for [***] during the Term of this Agreement ("Annual Maintenance Fee"). The Annual Maintenance Fees due on [***] and for the next [***] thereafter shall be waived in the event that [***], and if [***] or [***], then Licensee (or Sublicensee, as the case may be) will pay to UTRF the required Annual Maintenance Fee.
- (c) **Running Royalties:** In addition to all other amounts payable hereunder, LICENSEE shall pay to UTRF an amount equal to [***] of Net Sales of any Licensed Product covered by a Valid Claim of a Licensed Patent. Payment of Running Royalties shall be made on [***], for the calendar [***], within [***] of the end of each such [***] period on Net Sales occurring during the immediately preceding calendar [***]. For example, payment of Running Royalties will be due within [***] on Net Sales occurring during the [***] period of [***]. Notwithstanding the foregoing, LICENSEE shall owe no Running Royalties on any Sale that does not take place during the Term of this Agreement. For purposes of determining whether a Sale takes place during the Term of this Agreement, a Sale shall be deemed to occur upon the earlier of the shipment of a Licensed Product or invoicing.
- (d) **Sublicense Royalties:** In addition to all other amounts payable hereunder, LICENSEE shall pay to UTRF the following percentages of all Sublicense Revenues received from a Sublicensee pursuant to a sublicense agreement:
 - (i) Prior to [***], [***] of Sublicense Revenues;
 - (ii) Following [***], but prior to [***], [***] of Sublicense Revenues; and
 - (iii) Following [***], [***] of Sublicense Revenues.

Payment of Sublicense Royalties shall be made on a [***] basis for the [***] commencing in [***], within [***] of the end of each such [***] period.

- (e) **Patent Expenses:** LICENSEE shall be responsible for all Patent Expenses incurred after the Effective Date.

5.2 Maximum Royalties: In the event that any royalties payable under this Agreement are higher than the maximum royalties permitted by the law or regulations of a particular country:

- (a) The Running Royalties payable for Net Sales in such country shall be equal to the maximum permitted royalty under such law or regulations;
- (b) Notice documenting that Running Royalties payable under this Agreement are higher than a country's maximum royalties shall be provided to UTRF;
- (c) An authorized representative of LICENSEE shall notify UTRF, in writing, within [***] of discovering that such Running Royalties are approaching or have reached the maximum amount; and

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(d) LICENSEE shall provide UTRF with written documentation regarding the laws or regulations establishing any such maximum.

5.3 Effect of Taxes on Royalties: In the event that any taxes are levied by any foreign taxing authority on Running Royalties payable by LICENSEE under this Agreement, and LICENSEE determines in good faith that it must pay such taxes:

- (a) LICENSEE shall have the right to pay such taxes levied on Running Royalties to the local tax authorities on behalf of UTRF;
- (b) LICENSEE shall pay the net amount of Running Royalties due after reduction by the amount of such taxes that are actually owed and paid;
- (c) LICENSEE shall provide UTRF with appropriate documentation and receipts supporting such payment; and
- (d) LICENSEE shall inform UTRF in writing within [***] of being notified that taxes will or have been levied by a taxing authority on Running Royalties.

5.4 Multiple Licenses. In the event that a Running Royalty is payable to UTRF on the same Net Sales revenue or a Sublicense Royalty is payable to UTRF on the same Sublicense Revenue under this Section 5 and under one or more other UTRF/Licensee license agreements, Licensee shall only be required to pay UTRF such royalty under one such license agreement, subject to the provisions of Section 6.2 and provided that if the amount due varies from one such license agreement to another, Licensee shall pay the highest amount.

5.5 Late Payments: In the event any payments are not received by UTRF when due, LICENSEE shall pay to UTRF interest on the overdue balance at the lesser of [***] or the maximum rate of interest allowed by law. LICENSEE shall also pay all reasonable collection costs at any time incurred by UTRF in obtaining payment of amounts past due, including reasonable attorney fees. The payment of such interest shall not foreclose UTRF from exercising any other rights it may have as a consequence of the lateness of any payment.

5.6 Payment Shortage: If an examination of records provided under Article 6 of this Agreement reveals a payment shortage of greater than [***] of the total amount due under any one royalty payment, LICENSEE shall promptly reimburse UTRF for the reasonable cost of examination, the shortage in payment, and the interest accrued on the shortage under Article 5.5 of this Agreement. Each event of payment shortage of greater than [***] shall be considered a failure to make a payment under Articles 14.

5.7 Manner of Payments: All payments shall be paid in United States dollars in Knoxville, Tennessee, or at such other place as UTRF may reasonably designate consistent with the laws and regulations controlling in the United States or any foreign country. If any currency conversion shall be required in connection with the payment of royalties hereunder, such conversion shall be made by using the exchange rate listed in the Wall Street Journal for major New York banks on the last business day of the calendar quarter to which such royalty payments relate. If the transfer of moneys owed to UTRF or the conversion into United States Dollar equivalents in any such instance is not lawful or possible, the payment of such part of the royalties as is necessary shall be made by the deposit thereof, in the currency of the country where the sales were made on which the royalty was based, to the credit and account of UTRF or its nominee in any commercial bank or trust company of its choice located in that country, prompt notice of which shall be given by LICENSEE to UTRF.

5.8 Event of Default: LICENSEE's failure to make any payment at the time, in the manner, and in the amount that is required by Article 5 of this Agreement, shall constitute an event of default and UTRF shall have the option to terminate this Agreement in accordance with the terms and provisions of Article 14 of this Agreement.

5.9 Effect of Receipt or Acceptance: Receipt or acceptance by UTRF of any payment or report under this Agreement shall not prevent UTRF from subsequently challenging the validity or accuracy of such payment or report.

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ARTICLE 6. REPORTS AND RECORDS

6.1 Books of Account: LICENSEE shall keep, and shall require each Sublicensee to keep, full, true and accurate books of account containing all particulars necessary to determine and show the amounts payable to UTRF hereunder. LICENSEE shall keep all books of account at its principal place of business or, upon written notice to UTRF, the principal place of business of its appropriate division to which this Agreement relates and shall require the same of each Sublicensee. LICENSEE shall ensure that its books are open at all reasonable time for [***] following the end of the calendar year to which they pertain, to the inspection by UTRF or its agents, upon reasonable notice and no more than [***] in any [***], for the purpose of verifying compliance with this Agreement, and LICENSEE shall require the same of each Sublicensee.

6.2 Delivery of Reports: LICENSEE shall deliver to UTRF true and accurate reports, giving such particulars of the business conducted by LICENSEE and its Sublicensees under this Agreement as shall be pertinent to a royalty accounting under this Agreement. These reports shall be deemed LICENSEE's Confidential Information:

- (a) Before the first commercial use or sale of a Licensed Product or the granting of the first Sublicense under this Agreement (whichever occurs first), [***]; and
- (b) After the first commercial use or sale of Licensed Product or the granting of the first Sublicense under this Agreement, [***] after the end of [***].

6.3 Content of Reports: Reports shall include at least the following on a Licensed Product-by-Licensed Product, country-by-country, and Sublicense-by-Sublicense basis:

- (a) A summary of LICENSEE's activities during such quarter to develop and commercialize Licensed Products;
- (b) The number/amount of Licensed Products, used, leased, sold, and imported by and/or for LICENSEE and each Sublicensee;
- (c) Total amounts invoiced and total amounts received for Licensed Products used, leased, and sold by and/or for LICENSEE and all Sublicensees;
- (d) Accounting for Net Sales of LICENSEE and each Sublicensee;
- (e) A copy of each royalty statement or report submitted to LICENSEE by a Sublicensee, provided that such statement or report has not previously been provided by LICENSEE to UTRF;
- (f) Total amount due under this Agreement (including, without limitation, the manner in which all royalties were calculated and a breakdown for each type of royalties listed in Article 5 and their respective amounts payable);
- (g) The current status of any regulatory activities pertaining to Licensed Products;
- (h) The name, address, and phone number of each Sublicensee and the Licensed Patents licensed to each Sublicensee as of the last date of the reporting period; and
- (i) Upon reasonable request by UTRF, any other information that is necessary for the purpose of showing the amounts payable to UTRF hereunder and/or the compliance by LICENSEE with the diligence provisions of Article 4.1 and/or the achievement of Diligence Milestones under Article 4.2.
- (j) If no payment shall be due, LICENSEE shall so report.

6.4 Responsibility for Accuracy: LICENSEE shall be responsible for the completeness and accuracy of its own records and reports, and for the accuracy of the reports submitted by each Sublicensee.

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ARTICLE 7. PATENT PROSECUTION

7.1 Rights and Duties:

- (a) During the Term, LICENSEE will be responsible for preparing, applying for, seeking issuance of, and maintaining patent applications and issued patents included in Licensed Patents, and for prosecuting or defending interferences, oppositions, and reexaminations declared with regard to patent applications and issued patents included in Licensed Patents, all for UTRF's and Licensee's benefit.
- (b) In the event that LICENSEE elects not to file, prosecute or maintain any Licensed Patent in a Major Country within the Territory, LICENSEE shall so notify UTRF of such decision no later than [***] before any applicable statutory bar date or response date, as the case may be, to permit UTRF (at its own expense) to prosecute and/or maintain the patent application(s) and/or patent(s) that were the subject of such notice.

7.2 Ownership: All patent applications and issued patents prosecuted or maintained by or on behalf of LICENSEE under Article 7.1 shall be owned by UTRF.

7.3 Patent Numbering: LICENSEE and all its Sublicensees shall mark all products covered by Licensed Patents with patent numbers in accordance with the statutory requirements in the country(ies) of manufacture, use, and sale, and pending the issue of any patents, LICENSEE and its Sublicensees shall stamp the products, "Patent Applied For," or the foreign equivalent as appropriate.

7.4 Exclusion of Certain Foreign Patents: Licensee agrees that it seek patent coverage for the appropriate Licensed Patents in the United States and other Major Countries where it is commercially reasonable to do so. However, UTRF agrees that there may be some foreign jurisdictions where LICENSEE determines that it will not incur expenses for foreign Licensed Patents considered unnecessary to its business objectives.

ARTICLE 8. INFRINGEMENT

8.1 Enforcement: If either LICENSEE or UTRF becomes aware of any infringement of the Licensed Patents by a third party, the party having the knowledge will give the other party prompt written notice.

- (a) LICENSEE shall have the first right during the Term, at its sole cost and expense, to commence any action that LICENSEE deems appropriate, including notifying the infringer to cease and desist all such infringing activity, filing a complaint and/or instituting an action or a lawsuit for any known or suspected third party activity that may infringe the Licensed Patents (each an "Action"), and, in furtherance of such right, UTRF hereby agrees that LICENSEE may include UTRF as a party plaintiff in any such suit, without expense to UTRF. In the event LICENSEE commences an Action, UTRF shall retain the right, at its own expense, to join such Action as a co-litigant.
- (b) Should LICENSEE fail to commence and pursue any particular Action, then UTRF may commence, at its sole cost and expense, such Action as UTRF deems appropriate, provided that:
 - i. UTRF gives LICENSEE a written [***] notice of its intention to initiate such Action; and
 - ii. LICENSEE fails to initiate said suggested Action within said [***] notice period.
 - iii. LICENSEE shall retain the right to join such Action as a co-litigant.

8.2 Cooperation: Upon the request of the party that institutes an Action (the "Instituting Party"), the other party (the "Co-Party") shall:

- (a) Join any such Action as a necessary party; and

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- (b) Use its commercially reasonable efforts to assist and cooperate with the Instituting Party in such Action.

The Instituting Party shall reimburse the Co-Party for any reasonable and pre-approved costs related to such assistance and cooperation.

8.3 Recovery of Damages: After reimbursement of the parties' previously unreimbursed out-of-pocket expenses of such Action or any previous Action, including attorney's fees and other out of pocket costs associated with the Action, [***] of any remaining recovery of damages resulting from any Action shall be given to the Instituting Party, and [***] to the Co-Party; provided that if the damage award is identified by judgment of the court or in a settlement in such suit as compensating Licensee for loss of sales revenue for Licensed Product on account of such Third Party's unlicensed or illegal actions, in which event (instead of dividing the remaining balance between the Parties as stated in the preceding sentence), Licensee shall pay to UTRF an amount equal to the lesser of: (i) [***] the remaining balance; or (ii) [***] of the equivalent of the lost Net Sales upon which such judgment or settlement award is based, and GTx shall retain the rest.

8.4 Declaratory Judgment Action: In the event that a declaratory judgment action alleging invalidity or noninfringement of any of the Licensed Patents shall be brought against UTRF, LICENSEE may, within [***] of LICENSEE's receipt of notice regarding such action and with the written consent of UTRF which shall not be unreasonably withheld, intervene and take over the sole defense of the action against UTRF at LICENSEE's own expense, provided that LICENSEE may not enter into a consent judgment acknowledging the invalidity or noninfringement of any of the Licensed Patents or an admission of fault or of wrongdoing or that materially affects the rights of UTRF hereunder without the prior written approval of UTRF, which approval shall not be unreasonably withheld.

8.5 Notice and Settlement: The Instituting Party shall reasonably notify the Co-Party of the course of any Action and shall not settle any Action without prior approval of the Co-Party (i) during the Term if such settlement contains an admission of the invalidity of any Licensed Patents or (ii) either during or after the Term if such settlement contains an admission of fault or wrongdoing or materially affects the rights of the Co-Party hereunder.

ARTICLE 9. INDEMNIFICATION; INSURANCE; REPRESENTATIONS; DISCLAIMER OF WARRANTIES

9.1 Indemnification: In the event that UTRF, UT, any of their trustees, directors, officers, or employees (each an "Indemnified Party") is, as a result of the manufacture, marketing, use, sale, lease, or import of Licensed Products under this Agreement, charged with infringement of a patent by a third party or is made a party in any lawsuit arising out of the manufacture, marketing, use, sale, lease, or import of Licensed Products under this Agreement, excluding, however, any such action resulting from the use of any Licensed Patent or Licensed Product by UT or its employees pursuant to Section 2.2(b) hereof, or any Sublicense (including, without limitation, actions founded on product liability), LICENSEE shall:

- (a) Defend or settle, at LICENSEE's expense, any such claim of infringement or lawsuit, provided that LICENSEE shall not enter into any such settlement (i) without the prior approval of UTRF if such settlement contains an admission of the invalidity of any Licensed Patent or materially affects the rights of UTRF hereunder; or (ii) without the prior approval of the Indemnified Party(ies) if such settlement contains an admission of fault or wrongdoing on the part of such Indemnified Party(ies);
- (b) Indemnify and hold the Indemnified Party(ies) harmless for any and all damages, losses, liability, and costs resulting from such charge of infringement or lawsuit except for damages, losses, liability, or costs resulting solely from the willful misconduct or misrepresentation by UTRF, UT, or their respective trustees, directors, officers, or employees, as adjudicated by decision of a court of competent jurisdiction, unappealable or unappealed within the time provided by law.

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

9.2 Insurance: During the Term beginning with the date of the first commercial manufacture, sale, or import of a Licensed Product, LICENSEE shall obtain and carry in full force and effect commercial, general liability insurance which shall cover LICENSEE and the Indemnified Parties with respect to events covered by Article 9.1 above. LICENSEE shall provide UTRF and University with Certificates of Insurance. Such insurance shall:

- (a) Be written by a reputable insurance company authorized to do business in the State of Tennessee;
- (b) List UT and UTRF as additional insureds;
- (c) Be endorsed to include product liability coverage;
- (d) Require [***] written notice to be given to UTRF and UT before any cancellation or material change thereof; and
- (e) Have a limit of not less than \$[***] per occurrence with an aggregate of \$[***] for property damage, personal injury or death.

9.3 Representations: Each party represents that:

- (a) It is authorized to enter into this Agreement;
- (b) Entering into this Agreement does not and will not create a conflict with or breach of the terms of any other agreement to which it is a party; and
- (c) All rights exercised and obligations undertaken in connection with this Agreement will comply with all applicable foreign, federal, state, and local laws and regulations.
- (d) UTRF represents and warrants that to the best of its actual knowledge as of the Effective Date, it has fully complied and will fully comply with the requirements, to the extent applicable, of 35 U.S.C. § 200 *et seq.* and all implementing regulations, to the extent applicable, that are necessary to perfect title to the Licensed Patents.

9.4 Disclaimer of Warranties: EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, UTRF, ITS DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF PATENT RIGHTS CLAIMS, ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE. IN NO EVENT SHALL UTRF, UT, OR THEIR RESPECTIVE TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES OR AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ECONOMIC DAMAGE OR INJURY TO PROPERTY AND LOST PROFITS, REGARDLESS OF WHETHER UTRF OR UT SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF THE FOREGOING. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS:

- (a) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF THAT THE PRACTICE BY LICENSEE OF THE LICENSE GRANTED HEREUNDER SHALL NOT INFRINGE THE PATENT RIGHTS OF ANY THIRD PARTY;
- (b) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF AS TO THE VALIDITY OR SCOPE OF THE LICENSED PATENTS;
- (c) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF THAT ANY PATENT APPLICATION INCLUDED IN THE LICENSED PATENTS WILL ULTIMATELY ISSUE AS A PATENT;

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

- (d) A REQUIREMENT THAT UTRF SHALL BE RESPONSIBLE FOR THE EXPENSES OF FILING OR PROSECUTING ANY PATENT APPLICATION OR MAINTAINING ANY ISSUED PATENT IN FORCE;
- (e) AN OBLIGATION ON THE PART OF UTRF TO BRING OR PROSECUTE ACTIONS OR SUITS AGAINST THIRD PARTIES FOR INFRINGEMENT OF THE LICENSED PATENTS OR FOR UNAUTHORIZED USE OF KNOW-HOW;
- (f) AN OBLIGATION ON THE PART OF UTRF TO DEFEND ANY ACTION OR SUIT BROUGHT BY ANY THIRD PARTY;
- (g) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF AS TO THE SAFETY, RELIABILITY OR EFFICACY OF THE LICENSED PRODUCTS;
- (h) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF THAT ANY KNOW-HOW IS SECRET OR CONFIDENTIAL;
- (i) AN OBLIGATION ON THE PART OF UTRF TO TAKE ANY ACTION TO PREVENT THE DISCLOSURE OF THE LICENSED PATENTS BY UT, ITS EMPLOYEES OR ANY THIRD PARTY; OR
- (j) A REPRESENTATION MADE OR WARRANTY GIVEN BY UTRF THAT ANY OF THE INVENTORS WILL AGREE TO PROVIDE TECHNICAL ASSISTANCE OR CONSULTATION TO LICENSEE, OR THAT SUCH TECHNICAL ASSISTANCE OR CONSULTATION, IF PROVIDED, WOULD BE SUFFICIENT TO ENABLE LICENSEE TO SUCCESSFULLY EXPLOIT THE LICENSED PATENTS.

ARTICLE 10. EXPORT CONTROLS

10.1 Limitations: LICENSEE hereby agrees that it will not sell, transfer, export or re-export any Licensed Products or Licensed Patents:

- (a) In any form, or any direct products thereof, except in compliance with all applicable laws, including the export laws of any U.S. Government agency and any regulations thereunder; and
- (b) To any persons or any entities with regard to which there exist grounds to suspect or believe that they are violating applicable laws, including export laws of any U.S. Government agency.

10.2 Responsibilities: LICENSEE shall be solely responsible for obtaining all licenses, permits or authorizations required from the U.S. and any other government for any such export or re-export.

ARTICLE 11. NON-USE OF NAMES

11.1 LICENSEE shall not use the names or trademarks of UTRF, of UT, nor any adaptation thereof, nor the names of any of their employees, directors, trustees, or any UT Contributor in any advertising, promotional or sales literature without prior written consent obtained from UTRF, UT, or said employee, director, trustee, or UT Contributor, in each case, except that LICENSEE may state that it is licensed by UTRF under one or more of the patents and/or patent applications comprising the Licensed Patents.

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

11.2 UTRF shall not use the names or trademarks of LICENSEE, nor any adaptation thereof, nor the names of any employee of LICENSEE, in any advertising, promotional, sales or other literature without prior written consent obtained from LICENSEE, or said employee, in each case, except that UTRF may state that it has licensed one or more of the patents and/or applications comprising the Licensed Patents to LICENSEE.

ARTICLE 12. CONFIDENTIALITY

12.1 Disclosure of Agreement: Nothing herein shall preclude a Party from disclosing the existence of this Agreement and the general scope of the license granted hereunder. UTRF shall have the right to disclose financial and other information concerning this Agreement (a) to UT Contributors, UT, the State of Tennessee, and to the United States government and any agency, laboratory, and contractor thereof; and (b) in anonymized form to third parties for academic, research, and database purposes provided that in so doing, UTRF does not disclose any of LICENSEE's Confidential Information (defined below) or identify LICENSEE, its Affiliates, Sublicensees, employees, directors, or agents. LICENSEE shall have the right to disclose this Agreement to potential investors and in seeking corporate partnerships, including the economic terms included herein. Except as set forth herein, neither Party shall otherwise disclose the economic terms of this Agreement without the written consent of the other Party.

12.2 Confidential Information: Subject to the exceptions set forth herein, all information or material disclosed pursuant to this Agreement and/or related to the Licensed Patents shall be confidential ("Confidential Information"). The Recipient of Confidential Information ("Receiving Party") agrees to hold in confidence, and not to distribute or disseminate to any person or entity, for any reason for a period of ten (10) years after receipt, any Confidential Information received under or relating to this Agreement from the other Party ("Providing Party"), except for Confidential Information which:

- (a) was known or used by the Receiving Party prior to the date of disclosure to the Receiving Party as evidenced by written records; or
- (b) either before or after the date of disclosure is lawfully disclosed to the Receiving Party by sources other than the Providing Party which are rightfully in possession of the Confidential Information and not subject to any obligation of confidentiality, as evidenced by written records; or
- (c) either before or after the date of disclosure to the Receiving Party becomes generally known to the public, through no fault or omission on the part of the Receiving Party; or
- (d) is independently developed by or for the Receiving Party without reference to, knowledge of, or reliance upon the Confidential Information as evidenced by written records; or
- (e) is required to be disclosed by the Receiving Party to comply with applicable laws, to defend or prosecute litigation or to comply with governmental regulations, provided that the Receiving Party provides prior written notice of such disclosure to the Providing Party and takes reasonable and lawful actions to avoid and/or minimize the degree of such disclosure, provided that specific information shall not be deemed to be within any of these exclusions merely because it is embraced by more general information falling within these exclusions.

All information concerning Licensed Patents shall be deemed Confidential Information of UTRF. Disclosures of Confidential Information to LICENSEE, including, without limitation, disclosures that are made to LICENSEE by UT Contributors, shall be deemed, for purposes of this Article, to be disclosures made by UTRF.

12.3 Disclosure to Counsel: The Parties agree that counsel of the parties may receive Confidential Information.

ARTICLE 13. ASSIGNMENT

13.1 This Agreement shall be binding upon and shall inure to the benefit of UTRF and its assigns and successors, and shall be binding upon and shall inure to the benefit of LICENSEE and its assigns provided that LICENSEE obtains

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prior written approval from UTRF for any assignment of this Agreement to a third party, which approval shall not be unreasonably withheld. Notwithstanding the foregoing, no prior written approval from UTRF shall be required for any assignment of this Agreement by LICENSEE to (i) an Affiliate of LICENSEE (or any entity into which LICENSEE shall have been merged or consolidated, provided more than 50% of such merged or consolidated entity is owned by shareholders holding more than 50% of LICENSEE immediately prior to such merger or consolidation), or (ii) a Third Party which acquires all or substantially all of LICENSEE's assets or a Controlling interest in the business to which this Agreement relates if, but only if, the Third Party can reasonably demonstrate a financial net worth or market cap equal to or better than the financial net worth of LICENSEE existing prior to the acquisition, but not less than a net worth of [***] or a market cap of [***]. LICENSEE's right to assign the rights granted to LICENSEE under this Agreement shall be further conditioned upon the following:

- (a) The assignee shall first agree in writing to be bound by all the provisions of this Agreement in the same manner as LICENSEE is bound;
- (b) No assignment shall relieve LICENSEE of any obligations which have matured prior to the date of Assignment.
- (c) This Agreement is in effect and LICENSEE is not in breach of its obligations under this Agreement; and
- (d) No further assignment shall be permitted by the assignee without the prior written approval of UTRF.
- (e) LICENSEE shall forward any such assignment document(s) to UTRF within [***] after execution.

13.2 Failure to Conform to this Article: Any attempt to assign the rights granted to LICENSEE under this Agreement that fails to fulfill any of the terms of this Article in any way shall make said attempt voidable at UTRF's sole discretion. Said failure will constitute a material breach of this Agreement subject to the termination provisions of Article 14 of this Agreement.

ARTICLE 14. TERM AND TERMINATION

14.1 Term. This Agreement shall take effect upon the Effective Date, and unless earlier terminated pursuant to the provisions of this Article 14, shall continue in full force and effect on a country-by-country basis in each country in which a Valid Claim for any Licensed Patent shall continue to exist, until the last Valid Claim for any Licensed Patent shall expire in the country, at which time this Agreement shall expire as to such country ("Term"). After expiration of the Term in a country, LICENSEE shall have a perpetual, fully paid, royalty-free license to the Licensed Patents in such country, such license being of no greater scope than that granted hereunder. LICENSEE shall continue to be obligated to pay (i) Running Royalties on account of Licensed Product sold in any country for which the Term shall not have expired; and (ii) Sublicense Royalties on Sublicense Revenue generated under any Sublicense that includes a grant of rights in any country for which the Term shall not have expired; and (iii) the Annual Maintenance Fee for as long as there is at least one country for which the Term shall not have expired.

14.2 Failure to Carry on LICENSEE's Business: If LICENSEE shall be adjudicated by a court of competent jurisdiction to be insolvent or is dissolved or declared bankrupt or is placed in receivership pursuant to proceedings directed against LICENSEE declaring bankruptcy or insolvency, this Agreement shall terminate immediately, unless UTRF, after being informed of the same, elects to the contrary.

14.3 LICENSEE'S Failure to Achieve Diligence Milestones: If LICENSEE fails to meet any Diligence Milestone within the required time period, UTRF shall have the right to terminate this Agreement upon [***] written notice to LICENSEE, during which time the failure to meet any Diligence Milestone may be cured.

14.4 LICENSEE's Failure to Make Payment: Should LICENSEE fail to pay UTRF any payment due and payable under this Agreement, UTRF shall have the right to terminate this Agreement on [***] prior written notice, unless LICENSEE pays UTRF, within [***] after LICENSEE's receipt of such notice, all such overdue payments along with

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interest due and payable. Upon the expiration of the [***] period, if LICENSEE shall not have paid all such payments along with interest due and payable, the rights, privileges and License granted hereunder shall terminate.

14.5 LICENSEE's Material Breach: Upon any material breach or default of this Agreement by LICENSEE, other than those occurrences set out in Articles 14.2 and 14.4 above, which shall always take precedence in that order over any material breach or default referred to in this Article 14.5, LICENSEE shall have [***] after the receiving of written notice of such default by UTRF to correct such default (or in the case of a default described in Article 14.3, [***]). If such default is not corrected within the said cure period, UTRF shall have the right, at its option, to terminate this Agreement. The failure of UTRF to exercise such right of termination for non-payment of royalties or otherwise shall not be deemed to be a waiver of any right UTRF might have, nor shall such failure preclude UTRF from exercising or enforcing said right upon any subsequent breach or default by LICENSEE.

14.6 Multiple Failures by LICENSEE to Make Payment: UTRF may also terminate this Agreement upon the occurrence of the [***] failure by LICENSEE within any consecutive [***] period for failure to make any payment under this Agreement when due, regardless of LICENSEE's cure of the failures under Article 14.4 above.

14.7 Notice to Sublicensees. At such time as UTRF shall provide notice to Licensee of its failure to make payment or of any other material breach hereunder, UTRF agrees to provide similar notice of such breach to any Sublicensee of which it has been properly notified hereunder, and UTRF agrees that a Sublicensee shall have the right to cure the default to the same extent Licensee is provided such right hereunder, provided that any failure on the part of UTRF to provide any such notice to a Sublicensee shall not be deemed to be a default on the part of UTRF under this Agreement.

14.8 LICENSEE's Right to Terminate: LICENSEE shall have the right to terminate this Agreement:

- (a) On [***] written notice in the event that UTRF is in material breach or default of this Agreement and fails to cure such breach or default within [***] after UTRF's receipt of such notice; or
- (b) At any time on [***] written notice to UTRF, provided that LICENSEE has paid all amounts due UTRF through the effective date of the termination.

14.9 Surviving Obligations: Upon termination of this Agreement for any reason, nothing herein shall be construed to release either party from any obligation that matured prior to the effective date of such termination. In addition, if the Agreement has been terminated for a reason other than breach on the part of LICENSEE, then LICENSEE (and any Sublicensee not then in default) may, after the effective date of such termination, sell all Licensed Products and complete Licensed Products in the process of manufacture at the time of such termination and sell the same, provided that LICENSEE shall pay to UTRF the royalties thereon as required by Article 5 of this Agreement and shall submit the reports required by Article 6 on the sales of Licensed Products.

14.10 Effect on Sublicensees: Upon termination of this Agreement for any reason, any Sublicensee not then in default shall have the right to assume the rights of Licensee hereunder, subject to the prior written consent of UTRF, which shall not be unreasonably withheld.

ARTICLE 15. DISPUTE RESOLUTION

15.1 Arbitration: Any Dispute in connection with this Agreement shall be resolved by final and binding arbitration in Memphis, Tennessee under the rules of the American Arbitration Association.

- (a) **Limitations:** The arbitrator(s) shall not have the power to take any action in derogation of the clear intent of the parties or to award punitive damages.
- (b) **Enforcement:** Any award rendered in such arbitration may be enforced by either party in the courts of the State of Tennessee or in the United States District Court for the Western District of Tennessee, to whose jurisdiction for such purposes UTRF and LICENSEE each hereby irrevocably consents and submits.

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15.2 Temporary Restraining Orders and Preliminary Injunctions: Notwithstanding the foregoing, either party shall have the right to apply to a court of competent jurisdiction for a temporary restraining order, a preliminary injunction, or other equitable relief to preserve the status quo or prevent irreparable harm.

15.3 Non-Waiver: Nothing in this Article shall be construed to waive the timely performance of any obligations existing under this Agreement.

ARTICLE 16. PAYMENTS, NOTICES, AND OTHER COMMUNICATIONS

16.1 Any payment, notice or other communication required or permitted hereunder (hereinafter "notice") shall be in writing and shall be hand-delivered, sent by overnight courier, mailed by certified United States mail, return receipt requested, or sent by email, to the address(es) given below or to such other address(es) as the parties may hereafter specify in writing. Notice shall be deemed given and received five (5) days after being deposited with the U.S. Postal Service certified mail postage prepaid, or if notice is hand-delivered or sent by overnight courier, upon the date of actual delivery, or if sent by email, upon the date the receiving party acknowledges receipt in writing, by email or otherwise.

UTRF:

If notice is given by means other than email, to:

University of Tennessee Research Foundation
910 Madison Avenue, Suite 827
Memphis, Tennessee, 38163 U.S.A.
Attn: Vice-President

If notice is given by email, to:

[***]

LICENSEE:

If notice is given by means other than email, to:

GTx, Inc.
175 Toyota Plaza, 7th floor,
Memphis, Tennessee 38103
Attn: CEO

With copy to:

GTx, Inc.
175 Toyota Plaza, 7th floor,
Memphis, Tennessee 38103
Attn: [***]

If notice is given by email, to:

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

ARTICLE 17. PUBLICATIONS

17.1 University Rights to Publish Licensed Patents: LICENSEE recognizes that under UTRF and UT policy, the results of a University research project must be publishable and agrees that researchers engaged in such research shall have the right, with regard to the Licensed Patents, to present at symposia, professional meetings and to publish in journals, theses or dissertations, or otherwise of their own choosing (“Publication”), unless UT, UTRF and LICENSEE agree to more restrictive terms in a sponsored research agreement. UTRF agrees that it shall provide to GTx a copy of such Publication, promptly upon receipt and in the manner and form in which received in order that GTx may review the Publication to identify and protect any Confidential Information of GTx that may be contained therein and to allow for the preparation and filing of a patent application by GTx or Sublicensees. UTRF shall not be deemed in breach or default of this Agreement merely due to a Publication that UTRF does not receive prior to publication.

ARTICLE 18. MISCELLANEOUS PROVISIONS

18.1 This Agreement is entered into in the State of Tennessee and shall be construed, governed, interpreted and applied in accordance with the laws of the State of Tennessee without giving effect to any conflict of law provisions thereof.

18.2 The parties hereto acknowledge that this Agreement sets forth the entire Agreement and understanding of the parties hereto as to the subject matter hereof, and shall not be subject to any change or modification except by the execution of a written instrument subscribed to by the parties hereto.

18.3 The provisions of this Agreement are severable, and in the event that any provisions of this Agreement shall be determined to be invalid or unenforceable under any controlling body of the law, such invalidity or unenforceability shall not in any way affect the validity or enforceability of the remaining provisions hereof.

18.4 The failure of either party to assert a right hereunder or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other party.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals and duly executed this Agreement the day and year set forth below.

GTx, Inc.
 (“LICENSEE”)

UNIVERSITY OF TENNESSEE RESEARCH
 FOUNDATION (“UTRF”)

By: /s/ Henry P. Doggrell

By: /s/ Richard Magid

Name: Henry P. Doggrell

Name: Richard Magid, Ph.D.

Title: Vice President, Chief Legal Officer

Title: Vice President

Date: March 6, 2015

Date: March 6, 2015

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

APPENDIX A to LICENSE AGREEMENT between
UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION
and GTx, Inc.

LICENSED PATENTS

1. INSERT PATENTS AND APPLICATIONS. [***] United States provisional applications are being drafted and will be inserted into this Appendix A upon their filing. These provisional applications will be directed to subject matter related to the “Invention Disclosure” as defined in Section 1.7.

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

AMENDMENT #1 TO LICENSE AGREEMENT

This Amendment #1 to License Agreement is entered into the 12th day of November, 2015, between UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION, having an office at 910 Madison Avenue, Suite 827, Memphis, Tennessee 38163 ("UTRF"), and GTx, Inc., a Delaware corporation located at 175 Toyota Plaza, 7th Floor, Memphis, TN 38103 ("LICENSEE").

BACKGROUND

THE UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION ("UTRF") and LICENSEE entered into a License Agreement dated as of March 1, 2015 ("LICENSE AGREEMENT") with respect to Selective Androgen Receptor Degraders ("SARDS");

WHEREAS, the UT Contributors have developed new SARDS and disclosed the same to UTRF;

WHEREAS, UTRF and LICENSEE would like to amend and modify the LICENSE AGREEMENT to add the new material;

NOW THEREFORE, the parties agree that the LICENSE AGREEMENT is hereby amended, as follows:

DEFINITIONS. Article 1.7 is hereby deleted in its entirety, and the following is substituted in lieu thereof:

1.7 "Invention Disclosures" means UTRF file numbers [***], submitted to UTRF on [***], and [***], submitted to UTRF on [***].

APPENDIX A. Appendix A is hereby deleted in its entirety and Appendix A, attached hereto and made a part hereof, is substituted in lieu thereof.

ALL OTHER PROVISIONS shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the date first written above.

UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION

GTx, INC.

By: /s/ Richard Magid

By: /s/ Henry P. Doggrell

Name: Richard Magid

Name: Henry P. Doggrell

Title: Vice President

Title: Vice President, Chief Legal Officer

Date: November 12, 2015

Date: November 12, 2015

APPENDIX A to LICENSE AGREEMENT between
UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION
and GTx, Inc.

LICENSED PATENTS

[*] (1 page omitted)**

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

AMENDMENT #2 TO
LICENSE AGREEMENT

This Amendment #2 to License Agreement is entered into the 12th day of August, 2016, between UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION, having an office at 910 Madison Avenue, Suite 827, Memphis, Tennessee 38163 (“UTRF”), and GTx, Inc., a Delaware corporation located at 175 Toyota Plaza, 7th Floor, Memphis, TN 38103 (“LICENSEE”).

BACKGROUND

THE UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION (“UTRF”) and LICENSEE entered into a License Agreement dated as of March 1, 2015 (“LICENSE AGREEMENT”) with respect to Selective Androgen Receptor Degraders (“SARDs”);

WHEREAS, the UT Contributors have developed new SARDs and disclosed the same to UTRF;

WHEREAS, UTRF and LICENSEE would like to amend and modify the LICENSE AGREEMENT to add the new material;

NOW THEREFORE, the parties agree that the LICENSE AGREEMENT is hereby amended, as follows:

APPENDIX A. Appendix A is hereby deleted in its entirety and Appendix A, attached hereto and made a part hereof, is substituted in lieu thereof.

ALL OTHER PROVISIONS shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the date first written above.

UNIVERSITY OF TENNESSEE
RESEARCH FOUNDATION

GTx, INC.

By: /s/ Richard Magid

By: /s/ Henry P. Doggrell

Name: Richard Magid

Name: Henry P. Doggrell

Title: Vice President

Title: Vice President, Chief Legal Officer

Date: August 15, 2016

Date: August 15, 2016



APPENDIX A to LICENSE AGREEMENT between
UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION
and GTx, Inc.

LICENSED PATENTS

[***] (two pages omitted)

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

AMENDMENT #3 TO LICENSE AGREEMENT

This Amendment #3 to License Agreement is entered into the 6th day of April, 2017, between UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION, having an office at 910 Madison Avenue, Suite 827, Memphis, Tennessee 38163 ("UTRF"), and GTx, Inc., a Delaware corporation located at 175 Toyota Plaza, 7th Floor, Memphis, TN 38103 ("LICENSEE").

BACKGROUND

THE UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION ("UTRF") and LICENSEE entered into a License Agreement dated as of March 1, 2015 ("LICENSE AGREEMENT") with respect to Selective Androgen Receptor Degraders ("SARDs");

WHEREAS, the UT Contributors have developed new SARDs and disclosed the same to UTRF;

WHEREAS, UTRF and LICENSEE would like to amend and modify the LICENSE AGREEMENT to add the new material;

NOW THEREFORE, the parties agree that the LICENSE AGREEMENT is hereby amended, as follows:

DEFINITIONS. Article 1.7 is hereby deleted in its entirety, and the following is substituted in lieu thereof:

1.7 "Invention Disclosures" means UTRF file numbers [***], submitted to UTRF on [***], [***], submitted to UTRF on [***], [***], submitted to UTRF on [***], and [***], submitted to UTRF on [***].

APPENDIX A. Appendix A is hereby deleted in its entirety and Appendix A, attached hereto and made a part hereof, is substituted in lieu thereof.

ALL OTHER PROVISIONS shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the date first written above.

UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION

GTx, INC.

By: /s/ Richard Magid

By: /s/ Henry P. Doggrell

Name: Richard Magid

Name: Henry P. Doggrell

Title: Vice President

Title: Vice President, Chief Legal Officer

Date: April 7, 2017

Date: April 7, 2017

APPENDIX A to LICENSE AGREEMENT between
UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION
and GTx, Inc.

LICENSED PATENTS

[***] (two pages omitted)

[***] = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

AMENDMENT #4 TO LICENSE AGREEMENT

This Amendment #4 to License Agreement is entered into the 23rd day of October, 2018, between UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION, having an office at 910 Madison Avenue, Suite 827, Memphis, Tennessee 38163 ("UTRF"), and GTx, Inc., a Delaware corporation located at 175 Toyota Plaza, 7th Floor, Memphis, TN 38103 ("LICENSEE").

BACKGROUND

THE UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION ("UTRF") and LICENSEE entered into a License Agreement dated as of March 1, 2015 ("LICENSE AGREEMENT") with respect to Selective Androgen Receptor Degraders ("SARDs");

WHEREAS, the UT Contributors have developed new SARDs and disclosed the same to UTRF;

WHEREAS, UTRF and LICENSEE would like to amend and modify the LICENSE AGREEMENT to add the new material;

NOW THEREFORE, the parties agree that the LICENSE AGREEMENT is hereby amended, as follows:

DEFINITIONS. Article 1.7 is hereby deleted in its entirety, and the following is substituted in lieu thereof:

1.7 "Invention Disclosures" means UTRF file numbers [***], submitted to UTRF on [***], and [***], submitted to UTRF on [***].

APPENDIX A. Appendix A is hereby deleted in its entirety and Appendix A, attached hereto and made a part hereof, is substituted in lieu thereof.

ALL OTHER PROVISIONS shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the date first written above.

UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION

GTx, INC.

By: /s/Richard Magid

By: /s/ Henry P. Doggrell

Name: Richard Magid

Name: Henry P. Doggrell

Title: Vice President

Title: Vice President, Chief Legal Officer

Date: November 15, 2018

Date: November 13, 2018



APPENDIX A to LICENSE AGREEMENT between
UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION
and GTx, Inc.

LICENSED PATENTS

(three pages omitted)

*** = Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, Marc S. Hanover, certify that:

1. I have reviewed this Amendment No. 1 to the Annual Report on Form 10-K/A of GTx, Inc.; and
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.

Date: April 30, 2019

/s/ Marc S. Hanover

Marc S. Hanover
Chief Executive Officer

QuickLinks

[EXHIBIT 31.3](#)

[CHIEF EXECUTIVE OFFICER CERTIFICATION](#)

PRINCIPAL FINANCIAL OFFICER CERTIFICATION

I, Jason T. Shackelford, certify that:

1. I have reviewed this Amendment No. 1 to the Annual Report on Form 10-K/A of GTx, Inc.; and
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report.

Date: April 30, 2019

/s/ Jason T. Shackelford

Jason T. Shackelford
Vice President, Finance and Accounting and
Principal Financial and Accounting Officer

QuickLinks

[EXHIBIT 31.4](#)

[PRINCIPAL FINANCIAL OFFICER CERTIFICATION](#)