UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

SCHEDULE 13G

Under the Securities Exchange Act of 1934 (Amendment No.)*

GTx, Inc.

(Name of Issuer)

Common Stock, par value \$0.001 per share (Title of Class of Securities)

> 40052B108 (CUSIP Number)

February 9, 2018 (Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

□ Rule 13d-1(b)

⊠ Rule 13d-1(c)

□ Rule 13d-1(d)

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 40052B108

| 1 | Name of reporting persons. | | | | | | | |
|----------------------------|-------------------------------------------------------------------------------------------------------|---|---------------------------|--|--|--|--|--|
| | | | | | | | | |
| | Boxer Capital, LLC | | | | | | | |
| 2 | | | | | | | | |
| (a) \Box (b) \boxtimes | | | | | | | | |
| 3 | SEC use on | | | | | | | |
| 5 | SEC use only. | | | | | | | |
| 4 | 4 Citizenship or place of organization. | | | | | | | |
| | | | | | | | | |
| | Delaware | | | | | | | |
| | | 5 | Sole voting power. | | | | | |
| | | | | | | | | |
| | MBER OF | 6 | -0- | | | | | |
| | SHARES | 6 | Shared voting power. | | | | | |
| | BENEFICIALLY OWNED BY | | 1,310,000 | | | | | |
| 0 | EACH | 7 | Sole dispositive power. | | | | | |
| RE | PORTING | | | | | | | |
| 1 | PERSON | | -0- | | | | | |
| | WITH: | 8 | Shared dispositive power. | | | | | |
| | | | | | | | | |
| | | | 1,310,000 | | | | | |
| 9 | Aggregate amount beneficially owned by each reporting person. | | | | | | | |
| | 1 210 000 | | | | | | | |
| 10 | 1,310,000 Check box if the aggregate amount in row (9) excludes certain shares (see instructions). | | | | | | | |
| 10 | כווכנג טטא וו נוול מצבורצמול מווטעווג ווו וטא (ש) לאכועעלא לפוגמוו אומולא (אפי וואגוערוטווא). | | | | | | | |
| | | | | | | | | |
| 11 | Percent of class represented by amount in row (9). | | | | | | | |
| | | | | | | | | |
| | 6.1%* | | | | | | | |
| 12 | Type of reporting person | | | | | | | |
| | 00 | | | | | | | |
| | | | | | | | | |

* Based on 21,541,909 shares of the Issuer's common stock outstanding as of November 9, 2017 as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 14, 2017.

CUSIP No. 40052B108

| 1 | Name of reporting persons. | | | | | | | |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------|---------------------------|--|--|--|--|--|
| | Boxer Asset Management Inc. | | | | | | | |
| 2 Check the appropriate box if a member of a group. (See instructions) | | | | | | | | |
| (a) \Box (b) \boxtimes | | | | | | | | |
| | | | | | | | | |
| 3 | SEC use on | SEC use only. | | | | | | |
| 5 | one dot only. | | | | | | | |
| 4 | Citizenship or place of organization. | | | | | | | |
| - | Citizensinp | or pro | | | | | | |
| | Bahamas | | | | | | | |
| | Dallallias | | | | | | | |
| | | 5 | Sole voting power. | | | | | |
| | | | -0- | | | | | |
| | JMBER OF | C | | | | | | |
| | SHARES | 6 | Shared voting power. | | | | | |
| | IEFICIALLY | | | | | | | |
| 0 | WNED BY | | 1,310,000 | | | | | |
| | EACH | 7 | Sole dispositive power. | | | | | |
| | EPORTING | | | | | | | |
| | PERSON | | -0- | | | | | |
| | WITH: | 8 | Shared dispositive power. | | | | | |
| | | | | | | | | |
| | | | 1,310,000 | | | | | |
| 9 | Aggregate amount beneficially owned by each reporting person. | | | | | | | |
| | | | | | | | | |
| | 1,310,000 | | | | | | | |
| 10 | Check box if the aggregate amount in row (9) excludes certain shares (see instructions). | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 11 | Percent of class represented by amount in row (9). | | | | | | | |
| | | | | | | | | |
| | 6.1%* | | | | | | | |
| 12 | | rting | person | | | | | |
| 14 | Type of reporting person | | | | | | | |
| | СО | | | | | | | |
| | 00 | | | | | | | |

* Based on 21,541,909 shares of the Issuer's common stock outstanding as of November 9, 2017 as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 14, 2017

CUSIP No. 40052B108

| 1 | Name of reporting persons. | | | | | | | |
|----|-------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------|--|--|--|--|--|
| | Joe Lewis | | | | | | | |
| 2 | Check the appropriate box if a member of a group. (See instructions) | | | | | | | |
| | (a) \Box (b) \boxtimes | | | | | | | |
| 3 | SEC use only. | | | | | | | |
| 4 | Citizenship angless of any signification | | | | | | | |
| 4 | Citizenship | Citizenship or place of organization. | | | | | | |
| | United Kingdom | | | | | | | |
| | | 5 | Sole voting power. | | | | | |
| NU | NUMBER OF | | -0- | | | | | |
| | SHARES | | Shared voting power. | | | | | |
| | BENEFICIALLY OWNED BY | | 1,310,000 | | | | | |
| DE | EACH | | Sole dispositive power. | | | | | |
| | REPORTING PERSON | | -0- | | | | | |
| | WITH: | | Shared dispositive power. | | | | | |
| | | | 1,310,000 | | | | | |
| 9 | Aggregate amount beneficially owned by each reporting person. | | | | | | | |
| | 1 210 000 | | | | | | | |
| 10 | 1,310,000 Check box if the aggregate amount in row (9) excludes certain shares (see instructions). | | | | | | | |
| | | | | | | | | |
| 11 | Percent of class represented by amount in row (9). | | | | | | | |
| | | | | | | | | |
| 12 | 6.1%* | | | | | | | |
| 12 | Type of reporting person | | | | | | | |
| | IN | | | | | | | |

* Based on 21,541,909 shares of the Issuer's common stock outstanding as of November 9, 2017 as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 14, 2017.

Item 1(a). Name of Issuer:

GTx, Inc. (the "Issuer")

Item 1(b). Address of Issuer's Principal Executive Offices:

175 Toyota Plaza, 7th Floor Memphis, TN 38103

Item 2(a). Name of Person Filing:

This Schedule 13G is jointly filed by Boxer Capital, LLC ("Boxer Capital"), Boxer Asset Management Inc. ("Boxer Management") and Joe Lewis (together with Boxer Capital and Boxer Management, the "Reporting Persons"). Boxer Management is the managing member and majority owner of Boxer Capital. Joe Lewis is the sole indirect beneficial owner of and controls Boxer Management.

Item 2(b). Address of Principal Business Office, or, if none, Residence:

The principal business address of Boxer Capital is: 11682 El Camino Real, Suite 320, San Diego, CA 92130. The principal business address of Boxer Management and Joe Lewis is: Cay House, EP Taylor Drive N7776, Lyford Cay, New Providence, Bahamas.

Item 2(c). Citizenship:

Boxer Capital is a limited liability company organized under the laws of Delaware. Boxer Management is a corporation organized under the laws of the Bahamas. Joe Lewis is a citizen of the United Kingdom.

Item 2(d). Title of Class of Securities:

Common Stock, par value \$0.001 per share (the "Common Stock").

Item 2(e). CUSIP Number:

40052B108

Item 3. If this statement is filed pursuant to Rule 13d-1(b), or 13d-2(b) or (c), check whether the person filing is a:

Not applicable.

Item 4. Ownership.

(a) Amount beneficially owned:

Boxer Capital, Boxer Management and Joe Lewis beneficially own 1,310,000 shares of Common Stock.

(b) Percent of class:

The shares of Common Stock beneficially owned by Boxer Capital, Boxer Management and Joe Lewis represent 6.1% of the Issuer's outstanding shares of Common Stock based on 21,541,909 shares of the Issuer's common stock outstanding as of November 9, 2017 as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 14, 2017.

- (c) Number of shares as to which such person has:
 - (i) Sole power to vote or to direct the vote:

None of the Reporting Persons has sole power to vote or to direct the vote of any shares of Common Stock they beneficially own.

(ii) Shared power to vote or to direct the vote:

Boxer Capital, Boxer Management and Joe Lewis have shared power to vote or to direct the vote of the 1,310,000 shares of Common Stock they beneficially own.

(iii) Sole power to dispose or to direct the disposition of:

None of the Reporting Persons has sole power to dispose or to direct the disposition of any shares of Common Stock they beneficially

own.

(iv) Shared power to dispose or to direct the disposition of:

Boxer Capital, Boxer Management and Joe Lewis have shared power to dispose or to direct the disposition of the 1,310,000 shares of Common Stock they beneficially own.

Item 5. Ownership of Five Percent or Less of a Class.

Not applicable.

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

Only Boxer Capital has the right to receive dividends and the proceeds from the sale of the shares of Common Stock held by Boxer Capital. See Item 4 above.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not applicable.

Item 8. Identification and Classification of Members of the Group.

Not applicable.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

(c) By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect, other than activities solely in connection with a nomination under § 240.14a-11.

Exhibits

1 Joint Filing Agreement, dated February 20, 2018, among the Reporting Persons.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

February 20, 2018

BOXER CAPITAL, LLC

By:/s/ Aaron I. DavisName:Aaron I. DavisTitle:Authorized Signatory

BOXER ASSET MANAGEMENT INC.

By:/s/ Jason CallenderName:Jason CallenderTitle:Director

JOSEPH C. LEWIS

/s/ Joseph C. Lewis

Joseph C. Lewis, Individually

JOINT FILING AGREEMENT

The undersigned hereby agree that the Statement on Schedule 13G with respect to the shares of GTx, Inc., common stock, par value \$0.001 per share, is, and any amendments thereto executed by each of us shall be, filed on behalf of each of us pursuant to and in accordance with the provisions of Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended, and that this Agreement shall be included as an Exhibit to the Schedule 13G and each such amendment. Each of the undersigned agrees to be responsible for the timely filing of the Schedule 13G and any amendments thereto, and for the completeness and accuracy of the information concerning itself contained therein. This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of February 20, 2018.

BOXER CAPITAL, LLC

By: /s/ Aaron I. Davis

Name: Aaron I. Davis Title: Authorized Signatory

BOXER ASSET MANAGEMENT INC.

By: /s/ Jason Callender Name: Jason Callender Title: Director

JOSEPH C. LEWIS

/s/ Joseph C. Lewis

Joseph C. Lewis, Individually