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

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**FORM 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): December 29, 2008**

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**GTx, Inc.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or Other Jurisdiction of  
Incorporation)

**000-50549**  
(Commission File Number)

**62-1715807**  
(IRS Employer Identification No.)

**3 N. Dunlap Street  
Van Vleet Building  
Memphis, Tennessee 38163**  
(Address of principal executive offices, including Zip Code)

Registrant's telephone number, including area code: **(901) 523-9700**

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 1.01. Entry into a Material Definitive Agreement.**

On December 29, 2008, GTX, Inc. (the “Company”) entered into a First Amendment to Amended and Restated License Agreement (the “SERM Amendment”) with the University of Tennessee Research Foundation (“UTRF”), to amend that certain Amended and Restated License Agreement, dated September 24, 2007, between the Company and UTRF (the “SERM License”), and a First Amendment to Consolidated, Amended, and Restated License Agreement (the “SARM Amendment” and together with the SERM Amendment, the “License Amendments”) with UTRF to amend that certain Consolidated, Amended and Restated License Agreement, dated July 24, 2007, between the Company and UTRF (the “SARM License” and together with the SERM License, the “UTRF Licenses”).

The parties entered into the License Amendments to clarify the treatment of certain payments that may be received by the Company from its current and future sublicensees for purposes of determining sublicense fees payable to UTRF by the Company under the terms of the UTRF Licenses, including with respect to the treatment of payments made to the Company in exchange for the sale of the Company’s securities in connection with sublicensing arrangements. The License Amendments also amend the dispute resolution and assignment provisions of each of the respective UTRF Licenses to provide that the scope of arbitration under the dispute resolution terms will be subject to the dispute resolution terms of the UTRF Licenses and to provide that any consideration received in connection with an assignment of either UTRF License will not be treated as sublicense revenue. In consideration for the execution of the License Amendments, the Company has agreed to pay UTRF an aggregate of \$540,000. The parties have also agreed that, in connection with the execution of the License Amendments, each of UTRF and the Company will dismiss their respective claims and actions relating to the Company’s sale of its common stock to Merck & Co., Inc. (“Merck”) in December 2007, which sale was made in connection with the sublicensing of certain SARM technology to Merck.

The foregoing is only a brief description of the material terms of the License Amendments, does not purport to be a complete statement of the rights and obligations of the parties under the License Amendments, and is qualified in its entirety by reference to each of the SERM Amendment and SARM Amendment, copies of which will be filed as exhibits to the Company’s Annual Report on Form 10-K for the year ending December 31, 2008.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**GTx, Inc.**

Dated: December 30, 2008

By: /s/ Henry P. Doggrell  
Henry P. Doggrell,  
Vice President, General Counsel and Secretary