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

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): June 21, 2010

GTx, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**000-50549**	**62-1715807**
(State or other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)

175 Toyota Plaza 7th Floor Memphis, Tennessee	**38103**
(Address of Principal Executive Offices)	(Zip Code)

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

(Former name or former address if changed since last report.)

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:

o Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

o Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

o Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

o Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

ITEM 8.01 Other Events.

On May 25, 2010, GTx, Inc. issued a press release announcing that Ostarine™ (GTx-024, formerly MK-2866) increased lean body mass and leg press strength in a head to head study evaluating Ostarine and another selective androgen receptor modulator (SARM), MK-3984, in postmenopausal women, a copy of which is furnished as Exhibit 99.1 to this Current Report.

ITEM 9.01 Financial Statements and Exhibits.

(c) Exhibits

Exhibit Number	Description
99.1	Press Release issued by GTx, Inc. dated June 21, 2010

SIGNATURE

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

GTx, Inc.

Date: June 21, 2010

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

Contact:
McDavid Stilwell
Director, Corporate Communications & Financial Analysis
GTx, Inc.
901-523-9700

GTx Announces Ostarine Increased Lean Body Mass and Leg Press Strength in Head to Head Clinical Study

San Diego, June 21, 2010 – GTx, Inc. (Nasdaq: GTXI) announced that Ostarine™ (GTx-024, formerly MK-2866) increased lean body mass and leg press strength in a head to head study evaluating Ostarine and another selective androgen receptor modulator (SARM), MK-3984, in postmenopausal women. The data were presented yesterday at the 2010 Annual Meeting of the Endocrine Society. GTx is developing its lead SARM, Ostarine, for the treatment of cancer induced muscle wasting (cancer cachexia).

“This is the third Ostarine clinical study that measured lean body mass and physical performance endpoints, and Ostarine has consistently demonstrated the ability to increase muscle mass and strength,” said Mitchell S. Steiner, MD, CEO of GTx. “We also continue to be pleased with Ostarine’s safety profile.”

The 12 week, randomized clinical trial evaluated Ostarine 3 mg and two doses of MK-3984 compared to placebo in 88 postmenopausal women. Total lean body mass was measured by DEXA at baseline and 12 weeks, and physical performance was evaluated at the same interval by bilateral leg press machine.

After 12 weeks of treatment, Ostarine 3 mg and MK-3984 significantly increased total lean body mass. Compared to placebo, mean differences from baseline for lean body mass were observed with increases of 1.54 kg (p value<0.001) for both Ostarine 3 mg and 50 mg of MK-3984 and an increase of 1.74 kg (p value<0.001) for 125 mg of MK-3984. Increases in thigh muscle volume as measured by MRI for Ostarine and MK-3984 were noted as early as week 4 with the effect persisting through the end of the study. Ostarine 3 mg and MK-3984 treatment resulted in an increase in leg muscle strength. Mean leg muscle strength at 12 weeks for Ostarine 3 mg treated subjects increased by 22 pounds from baseline.

Ostarine 3 mg and MK-3984 were tissue selective. Treatment did not cause virilization in these women, as there was no change in sebaceous gland volume, rate of sebum excretion, or hair follicle gene expression. Moreover, Ostarine 3 mg and MK-3984 did not stimulate endometrial proliferation as measured by endometrial thickness. As for safety, seven subjects treated with MK-3984 were discontinued from the study due to elevations in liver enzymes greater than three times the upper limit of normal, whereas no clinically significant liver enzyme elevations occurred in subjects treated with Ostarine.

In summary, 12 week treatment with Ostarine 3 mg and MK-3984 had comparable efficacy on total lean body mass, muscle strength and tissue selectivity in postmenopausal women. Ostarine 3 mg was well tolerated with no clinically significant liver enzyme elevations.

About GTx
GTx, Inc., headquartered in Memphis, Tenn., is a biopharmaceutical company dedicated to the discovery, development, and commercialization of small molecules that selectively target hormone pathways for the treatment and prevention of cancer, the treatment of side effects of anticancer therapy, cancer supportive care, and other serious medical conditions.

GTx is developing toremifene 80 mg for the reduction of fractures and treatment of other estrogen deficiency side effects of androgen deprivation therapy for prostate cancer. GTx has completed a successful toremifene 80 mg Phase III clinical trial and expects to initiate TREAT 2, the second Phase III clinical trial by year end 2010.

GTx is also developing Ostarine™ (GTx-024) and other selective androgen receptor modulators, or SARMs, for cancer cachexia and other muscle wasting diseases. GTx is meeting with the FDA this summer to discuss the late stage clinical development plan for Ostarine for cancer cachexia.

GTx's newest product candidate is GTx-758, an oral LH inhibitor, which is in a Phase II clinical trial. GTx-758 has the potential to achieve medical castration without causing bone loss, hot flashes, impotence and other serious side effects of currently available androgen deprivation therapy for prostate cancer. GTx expects to receive results of the Phase II clinical trial this summer.

Forward-Looking Information is Subject to Risk and Uncertainty
This press release contains forward-looking statements based upon GTx's current expectations. Forward-looking statements include, but are not limited to, statements relating to GTx's plans to continue to pursue the development of and marketing approval for, and the potential commercialization of, toremifene 80 mg, and the continued development and potential commercialization of GTx's other product candidates. Forward-looking statements involve risks and uncertainties. GTx's actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of these risks and uncertainties, which include, without limitation, the risks (i) that GTx and its collaboration partner will not be able to commercialize their product candidates if clinical trials do not demonstrate safety and efficacy in humans, including in any additional clinical trials that GTx may conduct for toremifene 80 mg to reduce fractures in men with prostate cancer on ADT; (ii) that GTx may not be able to obtain required regulatory approvals to commercialize its product candidates, including toremifene 80 mg to reduce fractures in men with prostate cancer on ADT, in a timely manner or at all; (iii) that clinical trials being conducted or planned to be conducted by GTx and its collaboration partner may not be initiated or completed on schedule, or at all, or may otherwise be suspended or terminated; (iv) related to GTx's dependence on its collaboration partner for product candidate development and commercialization efforts; (v) related to GTx's reliance on third parties to manufacture its product candidates and to conduct its clinical trials; and (vi) that GTx could utilize its available cash resources sooner than it currently expects and may be unable to raise capital when needed, which would force GTx to delay, reduce or eliminate its product candidate development programs or commercialization efforts. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this press release. GTx's annual report on Form 10-Q filed with the SEC on May 4, 2010 contains under the heading, "Risk Factors," a more comprehensive description of these and other risks to which GTx is subject. GTx expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in its expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based.