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): **February 26, 2011**

SYNTA PHARMACEUTICALS CORP.

(Exact name of registrant as specified in its charter)

Delaware	**001-33277**	**04-3508648**
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

45 Hartwell Avenue
Lexington, MA 02421
(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: **(781) 274-8200**

(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:

☐ 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))

ITEM 8.01 Other Events.

On February 26, 2011, Synta Pharmaceuticals Corp. issued a press release announcing that encouraging preliminary results of a Phase 2 trial of ganetespib as a single agent in non-small cell lung cancer (NSCLC) were presented at the International Association for the Study of Lung Cancer (IASLC) 11th Annual Targeted Therapies for the Treatment of Lung Cancer Meeting. A copy of the press release is filed as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

On February 26, 2011, Synta Pharmaceuticals Corp. issued a press release announcing that a Phase 2b/3 clinical trial of ganetespib (STA-9090) in combination with docetaxel in non-small cell lung cancer (NSCLC) will be initiated in the second quarter of 2011. A copy of the press release is filed as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated herein by reference.

ITEM 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Description
99.1	Press Release, dated February 26, 2011 - Synta Announces Encouraging Preliminary Results for Ganetespib (STA-9090) in Phase 2 Non-small Cell Lung Cancer Trial.
99.2	Press Release, dated February 26, 2011 - Synta Announces Phase 2b/3 Trial for Ganetespib (STA-9090) in Advanced 2nd-line Non-small Cell Lung Cancer.

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.

SYNTA PHARMACEUTICALS CORP.

Dated: March 1, 2011

/s/ Keith S. Ehrlich
Keith S. Ehrlich
Vice President, Finance and Administration
Chief Financial Officer

EXHIBIT INDEX

Exhibit No.	Description
99.1	Press Release, dated February 26, 2011 - Synta Announces Encouraging Preliminary Results for Ganetespib (STA-9090) in Phase 2 Non-small Cell Lung Cancer Trial.
99.2	Press Release, dated February 26, 2011 - Synta Announces Phase 2b/3 Trial for Ganetespib (STA-9090) in Advanced 2nd-line Non-small Cell Lung Cancer.

Exhibit 99.1

Synta Pharmaceuticals Corp.
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Synta Announces Encouraging Preliminary Results for Ganetespib (STA-9090) in Phase 2 Non-small Cell Lung Cancer Trial

- Results demonstrate ganetespib is clinically active in patients with advanced, relapsed/refractory NSCLC -
- Durable, objective responses observed -
- Favorable safety profile key to future plans with ganetespib -

LEXINGTON, MA — February 26, 2011 — Synta Pharmaceuticals Corp. (NASDAQ: SNTA) , a biopharmaceutical company focused on discovering, developing, and commercializing small molecule drugs to treat severe medical conditions, today announced that encouraging preliminary results of a Phase 2 trial of ganetespib as a single agent in non-small cell lung cancer (NSCLC) were presented at the International Association for the Study of Lung Cancer (IASLC) 11th Annual Targeted Therapies for the Treatment of Lung Cancer Meeting. The trial is ongoing; final results are expected later this year.

Ganetespib is a potent inhibitor of heat shock protein 90 (Hsp90) that is structurally unrelated to earlier Hsp90 inhibitors such as 17-AAG, and has shown superior activity to these agents in preclinical studies. Ganetespib is currently being studied in a broad range of clinical trials both as a single agent and in combination with other anti-cancer agents

"The results presented today show that ganetespib, administered as a single agent, achieved objective, durable responses in patients with advanced, relapsed/refractory NSCLC," said Jonathan Goldman, M.D., Premiere Oncology, who presented the data. "Patients with this advanced stage of disease are generally heavily pre-treated and highly drug-resistant; single-agent responses are rare. It is particularly encouraging that these responses were achieved with a favorable overall safety profile. Consistent with the previously reported Phase 1 results, there has been no evidence of the serious bone marrow toxicities and neuropathy often seen with chemotherapy, or the liver and ocular toxicities seen with other Hsp90 inhibitors. The most common adverse events seen with ganetespib have been generally mild or moderate diarrhea and fatigue, which have been manageable and reversible with standard care."

"Results from this trial clearly demonstrate that ganetespib has clinical activity," said Vojo Vukovic, M.D., PhD., Senior Vice President and Chief Medical Officer, Synta Pharmaceuticals. "This activity is encouraging, creating a promising path for developing ganetespib for use as a single-agent in treating certain patient populations. The favorable safety profile supports our strategy of also developing ganetespib for use in combination with other anti-cancer agents. The combination approach is particularly exciting because ganetespib has shown synergistic anti-cancer activity with a number of widely-used agents, such as taxanes and certain targeted agents. For combination therapy, a favorable safety profile, including non-overlapping toxicities with other agents, is essential. We believe the ganetespib clinical activity and favorable safety results presented today demonstrate proof-of-concept in NSCLC, and we are excited to lead the way in realizing the potential of Hsp90 inhibition to benefit cancer patients."

Results presented by Dr. Goldman today included an evaluation of adenocarcinoma patients in the EGFR- and K-Ras wild type cohorts of the trial. All patients had advanced stage NSCLC, received multiple prior treatments, and either failed to respond or experienced worsening of disease. Of 33 evaluable patients, three patients achieved durable, confirmed, objective responses; all three currently remain on treatment (1 patient 14 months; 2 patients 6 months). A total of 10 patients achieved target lesion tumor shrinkage; and a total of 22 patients achieved target lesion stabilization (<20% growth). The most common treatment-related grade 3 or 4 adverse events in this population were fatigue (8%), diarrhea (6%), and insomnia (6%). Safety results reported in this population were consistent with safety results reported for the prior Phase 1 trials for ganetespib, and with the safety results observed to date across 15 trials, which have included over 350 patients treated to date. Dr. Goldman's presentation is available at: http://www.syntapharma.com/Documents/ganetespib-feb2011-iaslc.pdf.

"The results presented today confirm the potential for Hsp90 inhibition in treating NSCLC," said Safi Bahcall, President and CEO Synta Pharmaceuticals. "The anti-tumor activity and favorable safety we have seen in NSCLC and in other tumor types suggest that ganetespib has broad potential, commensurate with the multiple known effects of the Hsp90 mechanism of action and the high interest we are seeing in the oncology community for sponsoring additional trials and research. We look forward to advancing this program to the next stage in NSCLC and other cancers."

About the Phase 2 NSCLC Trial

The Phase 2 NSCLC trial is designed to enroll patients with advanced, metastatic disease (Stage IIIB and IV) who have failed prior therapy. Patients are grouped into one of three cohorts based on the genetic profile of their cancer, and are treated with ganetespib, as a monotherapy, once-weekly at a dose of 200 mg/m(2). Based on encouraging signs of activity, an amendment announced in September 2010 expanded the trial with two additional patient cohorts, including a cohort which allows for combination treatment with ganetespib and docetaxel.

About Ganetespib

Ganetespib (formerly STA-9090) is a potent, synthetic, small-molecule inhibitor of heat shock protein 90 (Hsp90). Hsp90 is a molecular chaperone required for the proper folding and activation of many cancer-promoting proteins, and is recognized as a key facilitator of cancer cell growth and survival. In preclinical experiments, ganetespib has shown activity in multiple tumor models both as a single agent and in combination with certain widely used cancer agents. Ganetespib is currently being evaluated in a broad range of cancer clinical trials including trials in non-small cell lung, breast, prostrate, pancreatic, colorectal, gastric, small cell lung, ocular melanoma, liver, GIST and hematologic cancers. Ganetespib has shown evidence of clinical and biological activity and has been well tolerated to date with no evidence of severe liver, ocular, cardiac or renal toxicity seen with other Hsp90 inhibitors. The most common adverse events seen to date have been diarrhea and fatigue, which have been manageable and reversible. Information on clinical trials with STA-9090 can be found at www.clinicaltrials.gov.

About Synta Pharmaceuticals

Synta Pharmaceuticals Corp. is a biopharmaceutical company focused on discovering, developing, and commercializing small molecule drugs to extend and enhance the lives of

patients with severe medical conditions, including cancer and chronic inflammatory diseases. Synta has a unique chemical compound library, an integrated discovery engine, and a diverse pipeline of clinical- and preclinical-stage drug candidates with distinct mechanisms of action and novel chemical structures. All Synta drug candidates were invented by Synta scientists using our compound library and discovery capabilities. For more information, please visit www.syntapharma.com.

Safe Harbor Statement

This media release may contain forward-looking statements about Synta Pharmaceuticals Corp. Such forward-looking statements can be identified by the use of forward-looking terminology such as "will", "would", "should", "expects", "anticipates", "intends", "plans", "believes", "may", "estimates", "predicts", "projects", or similar expressions intended to identify forward-looking statements. Such statements, including statements relating to the timing, developments and progress of our ganetespib (formerly STA-9090) clinical program, reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such forward-looking statements, including those described in "Risk Factors" of our Form 10-K for the year ended December 31, 2009 as filed with the Securities and Exchange Commission. Synta undertakes no obligation to publicly update forward-looking statements, whether because of new information, future events or otherwise, except as required by law.

Multimedia Available: www.syntapharma.com/GanetespibVideo.

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Exhibit 99.2

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Synta Announces Phase 2b/3 Trial for Ganetespib (STA-9090)
in Advanced 2nd-line Non-small Cell Lung Cancer

-Combination trial with docetaxel in up to 800 patients to start in Q2 2011-
- Builds on encouraging results seen in Phase 2 NSCLC trial with ganetespib -
- Initial data from first stage of trial expected by early 2012 -

LEXINGTON, MA — February 26, 2011 — Synta Pharmaceuticals Corp. (NASDAQ: SNTA), a biopharmaceutical company focused on discovering, developing, and commercializing small molecule drugs to treat severe medical conditions, today announced that a Phase 2b/3 clinical trial of ganetespib (STA-9090) in combination with docetaxel in non-small cell lung cancer (NSCLC) will be initiated in the second quarter of 2011.

Ganetespib is a potent inhibitor of heat shock protein 90 (Hsp90) that is structurally unrelated to earlier Hsp90 inhibitors such as 17-AAG, and has shown superior activity to these agents in preclinical studies. Ganetespib is currently being studied in broad range of Phase 2 trials, including NSCLC, with over 350 patients treated to date. Results from a Phase 2 NSCLC trial presented today at the International Association for the Study of Lung Cancer (IASLC) 11th Annual Targeted Therapies for the Treatment of Lung Cancer Meeting demonstrated that ganetespib has a favorable safety profile, and is clinically active in patients with advanced relapsed/refractory NSCLC. Durable tumor responses and sustained tumor shrinkage were observed in patients following single-agent administration of ganetespib.

"Hsp90 inhibition is a promising strategy for treating patients with advanced NSCLC, as demonstrated by the results presented today for ganetespib," said Suresh Ramalingam, MD, Associate Professor, Chief of Thoracic Oncology and Director of Medical Oncology, Emory University. Dr. Ramalingam is a principal investigator for both the upcoming Phase 2b/3 NSCLC trial and the Phase 1 trial assessing safety of ganetespib in combination with docetaxel. "Hsp90 inhibition is known to enhance the efficacy of taxanes by increasing cytotoxicity and preventing resistance. Preclinical models show potent synergistic activity between ganetespib and docetaxel. The safety results from the single-agent trials for ganetespib and the ongoing combination study with docetaxel have both suggested good tolerability of the regimens. Taken together, the preclinical and clinical evidence to date strongly support the initiation of this Phase 2b/3 program."

The Phase 2b/3 trial will evaluate treatment with ganetespib and docetaxel vs. docetaxel alone, with1:1 randomization, in patients with Stage IIIB or IV NSCLC who have completed one prior systemic therapy for advanced disease. The first stage, Phase 2b portion will assess efficacy as measured by progression-free survival in approximately 240 patients. Results from this stage will also be used to inform the choice of patient subpopulation, by histology or biomarker, for the second stage, Phase 3 portion. The second stage will assess efficacy as measured by overall survival, and will enroll between 400 and 600 patients. This trial is expected to start in

Q2 2011 with interim results from the first-stage portion of the trial expected by end of 2011 or early 2012.

The Phase 2b/3 program is designed to mitigate risk in the Phase 3 portion by evaluating biomarkers and other patient characteristics in the Phase 2b portion that identify patients most likely to benefit from treatment with ganetespib.

“Combining ganetespib and docetaxel is a two-punch strategy for improving efficacy of single-agent docetaxel,” said Vojo Vukovic, M.D., PhD., Senior Vice President and Chief Medical Officer, Synta Pharmaceuticals. “First, ganetespib has clinical activity in NSCLC patients on its own, as was observed in our Phase 2 single-agent trial. Second, ganetespib has potent chemo-sensitizing effects, including inhibition of mechanisms of resistance to taxanes.”

“We have been very encouraged by the results seen with ganetespib, and are hopeful that launching this program will bring us one step closer to unlocking the true potential of Hsp90 inhibition to benefit cancer patients,” concluded Dr. Vukovic.

The Phase 1 trial of ganetespib in combination with docetaxel being conducted at Emory University established the recommended Phase 2 dose and schedule, which will be used in the Phase 2b/3 NSCLC trial. Detailed results from this trial are expected to be presented later this year.

“Synta is very well positioned today, with two late-stage, unpartnered oncology drug candidates, each with broad, pan-tumor potential,” said Safi Bahcall, Ph.D., President and CEO, Synta Pharmaceuticals. “We have been encouraged by the partnership interest in these and other, earlier-stage programs at the company and are confident we will conclude one or more partnership agreements this year. We anticipate partnerships contributing substantial resources and complementary activities to our programs.”

About Ganetespib

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About Non-small Cell Lung Cancer

Lung cancer is the leading cause of cancer-related mortality in the United States, with over 225,000 new cases and 157,000 deaths estimated in 2010. The five year survival rate for advanced-staged lung cancer is less than 5%. Approximately 85% of all lung cancers are classified as non-small cell.

About Synta Pharmaceuticals

Synta Pharmaceuticals Corp. is a biopharmaceutical company focused on discovering, developing, and commercializing small molecule drugs to extend and enhance the lives of patients with severe medical conditions, including cancer and chronic inflammatory diseases. Synta has a unique chemical compound library, an integrated discovery engine, and a diverse pipeline of clinical- and preclinical-stage drug candidates with distinct mechanisms of action and novel chemical structures. All Synta drug candidates were invented by Synta scientists using our compound library and discovery capabilities. For more information, please visit www.syntapharma.com.

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