
**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 5, 2010**

SYNTA PHARMACEUTICALS CORP.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

001-33277
(Commission File Number)

04-3508648
(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))
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ITEM 1.01 Entry into a Material Definitive Agreement.

On December 23, 2008, Synta Pharmaceuticals Corp. (“Synta”) entered into a Collaboration and License Agreement (the “Agreement”) with F. Hoffmann-La Roche Ltd, a Swiss corporation, and its affiliate, Hoffman-La Roche Inc., a New Jersey corporation (together, “Roche”). Under the Agreement, Synta and Roche have agreed to collaborate on the discovery, development and commercialization of compounds targeting calcium release-activated calcium modulator channels, initially directed to the treatment of inflammatory diseases.

On February 5, 2010, Synta and Roche entered into an amendment to the Agreement with an effective date of January 1, 2010 (the “Amendment”), which updates the research and development objectives for the collaboration under the Agreement based on the activities conducted in the fourth quarter of 2009 and for calendar year 2010 and, in connection therewith, modifies the distribution of research and development activities between the parties, and revises the budgets for research activities and development activities, for the fourth quarter of 2009 and calendar year 2010. In addition, the Amendment amends one of the events that will trigger a development milestone payment from Roche to Synta; modifies the rates of the tiered royalties Synta is entitled to receive on sales of all approved, marketed products; modifies the rights of the parties to certain compounds under the Agreement; and amends the Agreement’s termination provision to potentially extend the date after which Roche may terminate the Agreement in its entirety.

The foregoing is a summary description, that does not purport to be complete, of certain terms of the Amendment and is qualified in its entirety by reference to the full text of the Amendment, which Synta intends to file as an exhibit to its Quarterly Report on Form 10-Q for the quarter ending March 31, 2010.

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: February 11, 2010

/s/ Safi R. Bahcall
Safi R. Bahcall
President and Chief Executive Officer