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

Form 8-A

**FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES
PURSUANT TO SECTION 12(b) OR 12(g) OF THE
SECURITIES EXCHANGE ACT OF 1934**

SYNTA PHARMACEUTICALS CORP.

(Exact name of the Registrant as specified in its charter)

Delaware
(State of incorporation or organization)

04-3508648
(I.R.S. Employer Identification No.)

45 Hartwell Avenue
Lexington, Massachusetts 02421
(Address of Principal Executive Offices) (Zip Code)

Securities to be registered pursuant to Section 12(b) of the Exchange Act:

<u>Title of each class to be so registered</u>	<u>Name of each exchange on which each class is to be registered</u>
Common Stock, \$0.0001 par value per share	The NASDAQ Stock Market, LLC

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A.(c), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A.(d), check the following box.

Securities Act registration statement file number to which this form relates: File No. 333-138894

Securities to be registered pursuant to Section 12(g) of the Exchange Act: None.

Item 1. Description of The Registrant’s Securities to be Registered

The description under the heading “Description of Capital Stock” relating to the Registrant’s common stock, \$0.0001 par value per share, in the prospectus included in the Registrant’s Registration Statement on Form S-1 (File No. 333-138894) as filed with the Securities and Exchange Commission (the “Registration Statement”) is hereby incorporated by reference in response to this item.

Item 2. Exhibits

The following exhibits are filed herewith or are incorporated by reference as indicated below.

<u>Exhibit Number</u>	<u>Description</u>
3.2*	Restated Certificate of Incorporation of the Registrant to be filed upon the completion of the offering made under the Registration Statement.
3.4*	Restated Bylaws of the Registrant to be effective upon the completion of the offering made under the Registration Statement.
4.1*	Form of Common Stock Certificate.

* Incorporated by reference to the identically numbered exhibit to the Registration Statement.

SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

SYNTA PHARMACEUTICALS CORP.

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

Date: January 25, 2007

Exhibit Index

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