

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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No. 1)***

Synta Pharmaceuticals Corp.

(Name of Issuer)

Common Stock, par value \$0.0001

(Title of Class of Securities)

87162T 20 6

(CUSIP Number)

**Keith R. Gollust
Gollust Management
645 Madison Avenue, 20th Floor
New York, NY 10022
(212) 758-7220**

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

January 8, 2010

(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box. ☐

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1.	Names of Reporting Persons Keith R. Gollust	
2.	Check the Appropriate Box if a Member of a Group (See Instructions)	
	(a)	<input type="checkbox"/>
	(b)	<input type="checkbox"/>
3.	SEC Use Only	
4.	Source of Funds (See Instructions) PF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization United States	
	7.	Sole Voting Power 1,954,046
Number of Shares Beneficially Owned by Each Reporting Person With	8.	Shared Voting Power 0
	9.	Sole Dispositive Power 1,954,046
	10.	Shared Dispositive Power 0
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 1,954,046	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 4.9%*	

14. Type of Reporting Person (See Instructions)
IN

*Based on 39,533,856 shares of Synta Common Stock issued and outstanding on January 13, 2010.

Item 1. Security and Issuer

This Amendment No. 1 to Schedule 13D relates to the common stock, par value \$0.0001 per share (the “Common Stock”), of Synta Pharmaceuticals Corp. (“Synta” or the “Issuer”). The principal executive offices of Synta are located at 45 Hartwell Avenue, Lexington, MA 02421.

Item 2. Identity and Background

- (a) This Amendment No. 1 to Schedule 13D is filed by Keith R. Gollust and amends the initial statement on Schedule 13D filed by Mr. Gollust on June 20, 2008 to update the information provided in Items 3, 5, and 6.
- (b) The business address of Mr. Gollust is 645 Madison Avenue, 20th Floor, New York, NY 10022.
- (c) The present principal occupation of Mr. Gollust is private investor.
- (d) Mr. Gollust has not during the last five years, been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).
- (e) Mr. Gollust has not during the last five years, been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such a proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to federal or state securities laws or finding any violation with respect to such laws.
- (f) Mr. Gollust is a United States citizen.

Item 3. Source and Amount of Funds or Other Consideration

Of the 1,954,046 shares of Common Stock that are the subject of this Amendment No. 1 to Schedule 13D, 376,079 shares, beneficially owned by and held in the name of Keith R. Gollust (which includes options to purchase 212,000 shares of Synta’s Common Stock exercisable within 60 days of January 8, 2010), were acquired as set forth below. All share amounts and purchase prices prior to the completion of Synta’s initial public offering on February 9, 2007 (the “IPO”) reflect the 1-for-4 reverse stock split of Synta’s Common Stock effected on February 2, 2007 in connection with the IPO.

- 28,773 shares were acquired on November 10, 2004 pursuant to the exercise of a Common Stock warrant that had been issued to Mr. Gollust as part of the consideration paid to Mr. Gollust in exchange for his shares of Principia Associates, Inc. (“Principia”) in connection with Synta’s acquisition of Principia and its subsidiary SBR Pharmaceuticals Corp. (the “Principia Acquisition”) at a purchase price of \$2.00 per share for an aggregate purchase price of \$57,546. The purchase price for the acquired shares was paid out of Mr. Gollust’s personal funds;
- 909 shares were acquired on January 18, 2005, 1,818 shares were acquired on October 14, 2005, 2,857 shares were acquired on November 17, 2006, 4,819 shares were acquired on June 30, 2007, 8,097 shares were acquired on June 11, 2008, and 16,806 shares were acquired on July 1, 2009, pursuant to restricted stock grants issued by Synta to Mr. Gollust as compensation for his service on Synta’s Board of Directors;
- Options to purchase (i) an aggregate of 200,000 shares with an exercise price of \$10.84 per share, (ii) an aggregate of 8,000 shares with an exercise price of \$7.03 per share, and (iii) an aggregate of 4,000 shares with an exercise price of \$2.38 per share, exercisable within 60 days of January 8, 2010, have been granted to Mr. Gollust by Synta as compensation for his service on Synta’s Board of Directors; and
- 100,000 shares were acquired on January 8, 2010 in connection with Mr. Gollust’s participation in Synta’s underwritten public offering of 5,555,556 shares of Common Stock at the public offering price of \$4.50 per share for an aggregate purchase price of \$450,000, which closed on January 13, 2010. The purchase price for the acquired shares was paid out of Mr. Gollust’s personal funds.

Of the 1,954,046 shares of Common Stock that are the subject of this Amendment No. 1 to Schedule 13D, 1,577,967 shares, beneficially owned by Mr. Gollust and held in the name of Wyandanch Partners, L.P., were acquired as set forth below. All share amounts and purchase prices prior to the completion of Synta’s IPO

reflect the 1-for-4 reverse stock split of Synta's Common Stock effected on February 2, 2007 in connection with the IPO.

- 50,000 shares were purchased by the Gollust Trust II (the "Trust"), a trust established for the benefit of Mr. Gollust's minor children, in a private placement of Synta's Common Stock on August 7, 2001, at a purchase price of \$2.00 per share for an aggregate purchase price of \$100,000. The purchase price for the acquired shares was paid out of the Trust's available cash. These shares were transferred to Wyandanch Partners, L.P. on August 21, 2007;
- 250,000 shares were purchased by Wyandanch Partners, L.P. in a private placement of Synta's Common Stock on August 7, 2001, at a purchase price of \$2.00 per share for an aggregate purchase price of \$500,000. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 284,971 shares were issued to Mr. Gollust by Synta on September 20, 2002 as part of the consideration paid to Mr. Gollust in exchange for his shares of Principia in connection with the Principia Acquisition. These shares were transferred to Wyandanch Partners, L.P. on July 31, 2003;
- 92,223 shares were purchased by Mr. Gollust in a private placement of Synta's Common Stock on November 7, 2002 at a purchase price of \$10.843 per share for an aggregate purchase price of \$999,973.98. The purchase price for the acquired shares was paid out of Mr. Gollust's personal funds. These shares were transferred to Wyandanch Partners, L.P. on July 31, 2003;
- 100,000 shares were purchased by Wyandanch Partners, L.P. in a private placement of Synta's Common Stock on October 15, 2003 at a purchase price of \$16.00 per share for an aggregate purchase price of \$1,600,000. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 188,322 shares were purchased by Wyandanch Partners, L.P. in a private placement of Synta's Common Stock on November 10, 2004 at a purchase price of \$20.00 per share for an aggregate purchase price of \$3,766,440. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 235,454 shares were acquired upon the February 9, 2007 conversion of 300,000 shares of Synta's Series A Convertible Preferred Stock, which Wyandanch Partners, L.P. purchased in a private placement on June 2, 2006 at a purchase price of \$5.00 per share for an aggregate purchase price of \$1,500,000. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 180,000 shares were purchased by Wyandanch Partners, L.P. in connection with Synta's initial public offering on February 9, 2007 at the public offering price of \$10.00 per share for an aggregate purchase price of \$1,800,000. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 40,000 shares were purchased by Wyandanch Partners, L.P. on the open market on May 16, 2008 at a purchase price of \$7.0697 per share for an aggregate purchase price of \$282,788. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 10,000 shares were purchased by Wyandanch Partners, L.P. on the open market on May 19, 2008 at a purchase price of \$6.9473 per share for an aggregate purchase price of \$69,473. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;

- 24,061 shares were purchased by Wyandanch Partners, L.P. on the open market on May 29, 2008 at a purchase price of \$7.178 per share for an aggregate purchase price of \$172,709.85. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 5,939 shares were purchased by Wyandanch Partners, L.P. on the open market on May 30, 2008 at a purchase price of \$7.0995 per share for an aggregate purchase price of \$42,163.93. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 50,000 shares were purchased by Wyandanch Partners, L.P. on the open market on August 11, 2008 at a purchase price of \$7.2834 per share for an aggregate purchase price of \$364,170. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash;
- 35,000 shares were purchased by Wyandanch Partners, L.P. on the open market on August 12, 2008 at a purchase price of \$7.5786 per share for an aggregate purchase price of \$265,251. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash; and
- 31,997 shares were purchased by Wyandanch Partners, L.P. on the open market on August 13, 2008 at a purchase price of \$7.7766 per share for an aggregate purchase price of \$248,827.87. The purchase price for the acquired shares was paid out of Wyandanch Partners, L.P.'s available cash.

Item 4. Purpose of Transaction

Mr. Gollust has acquired shares of Common Stock of Synta for investment purposes and in connection with his service as a member of Synta's Board of Directors. Based on a review of his investments, Mr. Gollust may, in the open market or otherwise, acquire, cause to be acquired, dispose of, or cause to be disposed of Common Stock or other securities of Synta, or derivatives or other instruments related to the securities of Synta.

Mr. Gollust currently serves as a director and Chairman of the Board of Synta. In that capacity, he participates in the ordinary course in Board of Directors related activities and may participate in the management of Synta.

Except as set forth in this Amendment No. 1 to Schedule 13D, Mr. Gollust does not have any plans or proposals that relate to or would result in:

- (a) The acquisition by any person of additional securities of the Issuer, or the disposition of securities of the Issuer;
- (b) An extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries;
- (c) A sale or transfer of a material amount of assets of the Issuer or any of its subsidiaries;
- (d) Any change in the present board of directors or management of the Issuer, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board;
- (e) Any material change in the present capitalization or dividend policy of the Issuer;
- (f) Any other material change in the Issuer's business or corporate structure;
- (g) Changes in the Issuer's charter, bylaws or instruments corresponding thereto or other actions which may impede the acquisition of control of the Issuer by any person;
- (h) Causing a class of securities of the Issuer to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association;
- (i) A class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Securities Exchange Act of 1934, as amended; or
- (j) Any action similar to any of those enumerated above.

Item 5. Interest in Securities of the Issuer

(a) Mr. Gollust has sole and direct beneficial ownership of 376,079 shares of Common Stock, which includes options to purchase 212,000 shares of Common Stock exercisable within 60 days of January 8, 2010. Mr. Gollust, as the president and sole stockholder of Gollust Management, Inc., the sole general partner of Wyandanch Partners, L.P., has sole and indirect beneficial ownership of 1,577,967 shares of Common Stock owned by Wyandanch Partners, L.P. The number of shares beneficially owned by Mr. Gollust as of the date of this Amendment No. 1 to Schedule 13D, 1,954,046 shares, represents approximately 4.9% of the 39,533,856 shares of Synta's issued and outstanding Common Stock as of January 13, 2010.

(b) Mr. Gollust has the sole power to vote and dispose of the 1,954,046 shares of Common Stock reported on this Amendment No. 1 to Schedule 13D.

(c) The only transaction by Mr. Gollust in the Common Stock of Synta during the past 60 days was his purchase of 100,000 shares of Synta Common Stock on January 8, 2010 in connection with Mr. Gollust's participation in Synta's underwritten public offering of 5,555,556 shares of Common Stock at the public offering price of \$4.50 per share for an aggregate purchase price of \$450,000, which closed on January 13, 2010.

(d) No other person is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of securities covered by this Amendment No. 1 to Schedule 13D.

(e) Following the closing of Synta's underwritten public offering of 5,555,556 shares of Synta Common Stock on January 13, 2010, Mr. Gollust ceased to be the beneficial owner of more than 5% of Synta Common Stock.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

In connection with Synta's underwritten public offering of 5,555,556 shares of Synta Common Stock, which closed on January 13, 2010, Mr. Gollust has agreed, subject to certain exceptions, with Lazard Capital Markets LLC not to dispose of or hedge any shares of Synta Common Stock or securities convertible into or exercisable or exchangeable for Common Stock for 90 days after January 8, 2010 without first obtaining the written consent of Lazard Capital Markets LLC.

Pursuant to Synta's Director Compensation Policy, Mr. Gollust received stock options in connection with his appointment to the Board of Directors and receives annual compensation for his service as a director and as Chairman of the Board of Directors in the form of stock options and, at his election, cash or restricted stock.

Except as set forth above, there are no contracts, arrangements, understandings or relationships (legal or otherwise) between Mr. Gollust and any other person with respect to any securities of Synta, including, but not limited to transfer or voting of any of the securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or losses, or the giving or with-holding of proxies.

Item 7. Material to be Filed as Exhibits

Exhibit 1: Form of Lock-Up Agreement by and between Mr. Gollust and Lazard Capital Markets LLC. (Incorporated by reference to the Form of Lock-Up Agreement set forth as Exhibit A to Exhibit 1.1 to Synta's Form 8-K filed with the SEC on January 8, 2010 (File No. 001-33277)).

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: January 15, 2010

Date

/s/ Keith R. Gollust

Signature

Keith R. Gollust

Name/Title