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

**SCHEDULE 13G  
(RULE 13d - 102)**

**Information to be included in statements filed pursuant  
to Rules 13d-1(b), (c) and (d) and amendments thereto filed  
pursuant to 13d-2(b)**

**(AMENDMENT NO. )\***

Synta Pharmaceuticals Corp.  
(Name of Issuer)

Common Stock, \$0.0001 par value  
(Title of Class of Securities)

87162T206  
(CUSIP Number)

February 6, 2007  
(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule  
pursuant to which this Schedule is filed:

- Rule 13d-1(b)  
 Rule 13d-1(c)  
 Rule 13d-1(d)

\*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).

(Continued on the Following Pages)

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Luxor Capital Partners, LP

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH  
REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

953,591

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

953,591

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

953,591

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

2.8%

12. TYPE OF REPORTING PERSON\*

PN

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Luxor Capital Partners Offshore, Ltd.

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

Cayman Islands

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

1,166,298

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

1,166,298

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

1,166,298

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

3.4%

12. TYPE OF REPORTING PERSON\*

CO

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Luxor Capital Group, LP

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

2,119,889

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

2,119,889

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,119,889

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

6.3%

12. TYPE OF REPORTING PERSON\*

PN

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Luxor Management, LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

2,119,889

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

2,119,889

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,119,889

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

6.3%

12. TYPE OF REPORTING PERSON\*

OO

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

LCG Holdings, LLC

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

953,591

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

953,591

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

953,591

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

2.8%

12. TYPE OF REPORTING PERSON\*

OO

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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1. NAME OF REPORTING PERSONS  
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Christian Leone

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP\*

(a)

(b)

3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

5. SOLE VOTING POWER

0

6. SHARED VOTING POWER

2,119,889

7. SOLE DISPOSITIVE POWER

0

8. SHARED DISPOSITIVE POWER

2,119,889

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,119,889

10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11)  
EXCLUDES CERTAIN SHARES\*

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

6.3%

12. TYPE OF REPORTING PERSON\*

IN, HC

**\*SEE INSTRUCTIONS BEFORE FILLING OUT!**

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**ITEM 1(a). NAME OF ISSUER:**

Synta Pharmaceuticals Corp. (the “Issuer”)

**ITEM 1(b). ADDRESS OF ISSUER’S PRINCIPAL EXECUTIVE OFFICES:**

45 Hartwell Avenue  
Lexington, Massachusetts 02421

**ITEM 2(a). NAME OF PERSON FILING:**

The names of the persons filing this statement on Schedule 13G are:

- Luxor Capital Partners, LP, a Delaware limited partnership (the “Onshore Fund”).
- Luxor Capital Partners Offshore, Ltd., a Cayman Islands exempted company (the “Offshore Fund”).
- Luxor Capital Group, LP, a Delaware limited partnership (“Luxor Capital Group”).
- Luxor Management, LLC, a Delaware limited liability company (“Luxor Management”).
- LCG Holdings, LLC, a Delaware limited liability company (“LCG Holdings”).
- Christian Leone, a United States Citizen (“Mr. Leone”).

Luxor Capital Group is a registered investment adviser and acts as the investment manager of the Onshore Fund and the Offshore Fund. Luxor Management is the general partner of Luxor Capital Group. Mr. Leone is the managing member of Luxor Management. LCG Holdings is the general partner of the Onshore Fund. Mr. Leone is the managing member of LCG Holdings.

Luxor Capital Group, Luxor Management and Mr. Leone may each be deemed to have voting and dispositive power with respect to the shares of Common Stock held by the Onshore Fund and the Offshore Fund. LCG Holdings may be deemed to have voting and dispositive power with respect to the shares of Common Stock held by the Onshore Fund.

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**ITEM 2(b). ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE:**

The business address of each of the Onshore Fund, Luxor Capital Group, Luxor Management, LCG Holdings and Mr. Leone is 767 Fifth Avenue, 19th Floor, New York, New York 10153.

The business address of the Offshore Fund is c/o M&C Corporate Services Limited, P.O. Box 309 GT, Ugland House, South Church Street, George Town, Grand Cayman, Cayman Islands.

**ITEM 2(c). CITIZENSHIP:**

Mr. Leone is a citizen of the United States.

Each of Luxor Management and LCG Holdings is a limited liability company formed under the laws of the State of Delaware.

Each of the Onshore Fund and Luxor Capital Group is a limited partnership formed under the laws of the State of Delaware.

The Offshore Fund is a company formed under the laws of the Cayman Islands.

**ITEM 2(d). TITLE OF CLASS OF SECURITIES:**

Common Stock, \$0.0001 par value per share (the "Common Stock")

**ITEM 2(e). CUSIP NUMBER:**

87162T206

**ITEM 3. IF THIS STATEMENT IS FILED PURSUANT TO RULE 13d-1(b), OR 13d-2(b) OR (c), CHECK WHETHER THE PERSON FILING IS A:**

- (a)  Broker or dealer registered under Section 15 of the Exchange Act.
  - (b)  Bank as defined in Section 3(a)(6) of the Exchange Act.
  - (c)  Insurance company defined in Section 3(a)(19) of the Exchange Act.
  - (d)  Investment company registered under Section 8 of the Investment Company Act.
  - (e)  An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E).
  - (f)  An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F).
  - (g)  A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G).
  - (h)  A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act.
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- (i)  A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (j)  Group, in accordance with Rule 13d-1(b)(1)(ii)(J).

If this statement is filed pursuant to Rule 13d-1(c), check this box

**ITEM 4. OWNERSHIP.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

(a) Amount beneficially owned:

- (i) The Onshore Fund owns 953,591 shares of Common Stock.
- (ii) The Offshore Fund owns 1,166,298 shares of Common Stock.
- (iii) Luxor Capital Group, as the investment manager of the Onshore Fund and the Offshore Fund, may be deemed to beneficially own the 2,119,889 shares of Common Stock held by them.
- (iv) Luxor Management and Mr. Leone may each be deemed to be the beneficial owners of the shares of Common Stock beneficially owned by Luxor Capital Group.
- (v) LCG Holdings may be deemed to be the beneficial owner of the shares of Common Stock held by the Onshore Fund.
- (vi) Mr. Leone may be deemed to be the beneficial owner of the shares of Common Stock beneficially owned by LCG Holdings.
- (vii) Collectively, the Reporting Persons beneficially own 2,119,889 shares of Common Stock.

(b) Percent of Class:

- (i) The Onshore Fund's ownership of 953,591 shares of Common Stock represents 2.8% of all of the outstanding shares of Common Stock based on the 33,817,434 shares of Common Stock outstanding as described in the Issuer's Prospectus on Form 424B4 filed with the Securities and Exchange Commission on February 7, 2007.
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- (ii) The Offshore Fund's ownership of 1,166,298 shares of Common Stock represents 3.4% of all of the outstanding shares of Common Stock.
  - (iii) LCG Holdings' beneficial ownership of the 953,591 shares of Common Stock represents 2.8% of all of the outstanding shares of Common Stock.
  - (iv) Luxor Capital Group's, Luxor Management's and Mr. Leone's beneficial ownership of 2,119,889 shares of Common Stock represents 6.3% of all of the outstanding shares of Common Stock.
  - (v) Collectively, the Reporting Persons' beneficial ownership of 2,119,889 shares of Common Stock represents 6.3% of all of the outstanding shares of Common Stock.
- (c) Number of shares as to which such person has:

- (i) Sole power to vote or to direct the vote

Not applicable.

- (ii) Shared power to vote or to direct the vote of shares of Common Stock:

The Onshore Fund, Luxor Capital Group, LCG Holdings, Luxor Management and Mr. Leone have shared power to vote or direct the vote of the 953,591 shares of Common Stock held by the Onshore Fund.

The Offshore Fund, Luxor Capital Group, Luxor Management and Mr. Leone have shared power to vote or direct the vote of the 1,166,298 shares of Common Stock held by the Offshore Fund.

- (iii) Sole power to dispose or to direct the disposition of shares of Common Stock:

Not applicable.

- (iv) Shared power to dispose or to direct the disposition of shares of Common Stock:

The Onshore Fund, Luxor Capital Group, LCG Holdings, Luxor Management and Mr. Leone have shared power to dispose or direct the disposition of the 953,591 shares of Common Stock held by the Onshore Fund.

The Offshore Fund, Luxor Capital Group, Luxor Management and Mr. Leone have shared power to dispose or direct the disposition of the 1,166,298 shares of Common Stock held by the Offshore Fund.

**ITEM 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS.**

If this statement is being filed to report the fact that as of the date hereof the Reporting Persons have ceased to be the beneficial owner of more than five percent of the class of securities, check the following .

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**ITEM 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER PERSON.**

Not applicable.

**ITEM 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT HOLDING COMPANY.**

Not applicable.

**ITEM 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP.**

See Exhibit B.

**ITEM 9. NOTICE OF DISSOLUTION OF GROUP.**

Not applicable.

**ITEM 10. CERTIFICATION.**

By signing below the undersigned certifies that, to the best of its or his knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

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**SIGNATURE**

After reasonable inquiry and to the best of its knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete, and correct.

Dated: February 16, 2007

LUXOR CAPITAL PARTNERS, LP  
By: LCG Holdings, LLC, as General Partner

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR CAPITAL PARTNERS OFFSHORE, LTD.  
By: LCG Capital Group, LP, as investment manager

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR CAPITAL GROUP, LP  
By: Luxor Management, LLC, as General Partner

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LCG HOLDINGS, LLC

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR MANAGEMENT, LLC

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

/s/ Adam Miller  
Adam Miller, as Attorney-in-Fact  
for Christian Leone

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**EXHIBIT A**  
**JOINT FILING AGREEMENT**

The undersigned hereby agree that the statement on Schedule 13G with respect to the Common Stock of Synta Pharmaceuticals Corp. dated as of February 16, 2007, and any amendments thereto signed by each of the undersigned shall be, filed on behalf of each of the undersigned pursuant to and in accordance with the provisions of Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended.

Dated: February 16, 2007

LUXOR CAPITAL PARTNERS, LP  
By: LCG Holdings, LLC, as General Partner

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR CAPITAL PARTNERS OFFSHORE, LTD.  
By: LCG Capital Group, LP, as investment manager

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR CAPITAL GROUP, LP  
By: Luxor Management, LLC, as General Partner

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LCG HOLDINGS, LLC

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

LUXOR MANAGEMENT, LLC

By: /s/ Norris Nissim  
Norris Nissim, General Counsel

/s/ Adam Miller  
Adam Miller, as Attorney-in-Fact  
for Christian Leone

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**EXHIBIT B**

Luxor Capital Partners, LP

Luxor Capital Partners Offshore, Ltd.

Luxor Capital Group, LP

LCG Holdings, LLC

Luxor Management, LLC

Christian Leone

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**EXHIBIT C  
POWER OF ATTORNEY**

The undersigned hereby makes, constitutes and appoints each of Adam Miller and Elena Cimador as the undersigned's true and lawful authorized representative, attorney-in-fact and agent, each with the power individually to execute for and on behalf of the undersigned and to file with and deliver to the United States Securities and Exchange Commission and any other authority or party required or entitled to receive the same: (a) any Forms 3, 4 and 5, and any amendments thereto, in accordance with Section 16(a) of the Securities Exchange Act of 1934, as amended (the "1934 Act"), and the rules promulgated thereunder; and (b) any Schedule 13D or Schedule 13G, and any amendments thereto, on behalf of the undersigned in accordance with Section 13 of the 1934 Act and the rules promulgated thereunder.

The undersigned also hereby grants to each such attorney-in-fact the full power and authority to do and perform all and every act and thing whatsoever requisite, necessary and proper to be done in the exercise of any of the rights and powers herein granted, hereby ratifying and confirming all that such attorney-in-fact shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that each of the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, is not assuming any of the undersigned's responsibilities to comply with Section 16 or Section 13 or any other provision of the 1934 Act or the rules promulgated thereunder.

This Power of Attorney shall remain in full force and effect until earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of January 20, 2006.

/s/ Christian Leone  
Christian Leone

**ACKNOWLEDGEMENT IN NEW YORK STATE**

STATE OF NEW YORK     )  
                                  : ss.  
COUNTY OF NEW YORK )

On January 20, 2006, before me, the undersigned personally appeared, Christian Leone, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

/s/ Michael J. Sadler  
Michael J. Sadler  
Notary Public

[Notary Stamp and Seal]