

FORM 5**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

OMB APPROVAL

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☒ Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

ANNUAL STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

☒ Form 3 Holdings Reported.

☐ Form 4 Transactions Reported.

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person*			2. Issuer Name and Ticker or Trading Symbol		5. Relationship of Reporting Person(s) to Issuer (Check all applicable)	
Chen Lin Huey			SYNTA PHARMACEUTICALS CORP [SNTA]		Director <input checked="" type="checkbox"/> 10% Owner	
(Last)	(First)	(Middle)	3. Statement for Issuer's Fiscal Year Ended (Month/Day/Year)		Officer (give title below)	
184 EAST EMERSON ROAD			12/31/2009		Other (specify below)	
(Street)			4. If Amendment, Date of Original Filed (Month/Day/Year)		6. Individual or Joint/Group Filing (Check Applicable Line)	
LEXINGTON MA 02420					<input checked="" type="checkbox"/> Form filed by One Reporting Person	
(City)	(State)	(Zip)			Form filed by More than One Reporting Person	

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)	4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned at end of Issuer's Fiscal Year (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
				Amount	(A) or (D)	Price			
Common Stock	11/20/2009		G	46,200	D	\$0	824,195 ⁽¹⁾	I	By Wisteria Trust
Common Stock	11/20/2009		G	6,600	A	\$0	19,310	I	By Alexander Chen Wu 2002 Irrevocable Trust
Common Stock	11/20/2009		G	6,600	A	\$0	15,160	I	By Allison Chen Wu 2004 Irrevocable Trust
Common Stock			3				553,225 ⁽²⁾	I	By Spouse
Common Stock			3				243,481	I	By Ann Chen Trust
Common Stock			3				243,481	I	By Jane Chen Trust
Common Stock			3				12,946	I	By Chen Grandchildren's Trust
Common Stock			3				142,223	I	By LAJ Holdings LLC ⁽³⁾
Common Stock			3				66,810 ⁽⁴⁾	I	By Lan Bo Chen 2008 GRAT
Common Stock			3				133,621 ⁽⁵⁾	I	By Lin-Huey Chen 2008 GRAT
Common Stock			3				160,000	I	By Lan Bo Chen 2009 GRAT
Common Stock			3				1,000,000	I	By Lin-Huey Chen 2009 GRAT

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)	5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)		8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
					(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				

Explanation of Responses:

- Reflects (1) the inclusion of 186,379 shares previously owned directly by the Lin-Huey Chen 2008 GRAT and reported as indirectly owned by the Reporting Person which were distributed by the Lin-Huey Chen 2008 GRAT to the Wisteria Trust on October 28, 2009, and (2) the exclusion of 1,000,000 shares previously owned directly by the Wisteria Trust and reported as indirectly owned by the Reporting Person which were contributed to the Lin-Huey Chen 2009 GRAT on November 30, 2009.
- Reflects (1) the inclusion of 93,190 shares previously owned directly by the Lan Bo Chen 2008 GRAT and reported as indirectly owned by the Reporting Person which were distributed by the Lan Bo Chen 2008 GRAT to the Reporting Person's spouse on October 28, 2009, and (2) the exclusion of 160,000 shares previously owned directly by the Reporting Person's spouse and reported as indirectly owned by the Reporting Person which were contributed to the Lan Bo Chen 2009 GRAT on November 30, 2009.
- The Reporting Person disclaims beneficial ownership of these securities except to the extent of her pecuniary interest therein, if any, and the inclusion of these shares in this report shall not be deemed an admission of the beneficial ownership of all of the reported securities for purposes of Section 16 or for any other purpose.
- Excludes 93,190 shares which were distributed by the Lan Bo Chen 2008 GRAT to the Reporting Person's spouse on October 28, 2009.
- Excludes 186,379 shares which were distributed by the Lin-Huey Chen 2008 GRAT to the Wisteria Trust on October 28, 2009.

/s/ Ann Margaret Eames,
Attorney-in-Fact

02/12/2010

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.