

FORM 4

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).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

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

(Print or Type Responses)

1. Name and Address of Reporting Person Merrill Lynch Ventures LP 2001	2. Issuer Name and Ticker or Trading Symbol SENOMYX INC [SNMX]	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) ____ Director ☒ 10% Owner ____ Officer (give title below) Other (specify below)
(Last) (First) (Middle) 4 WORLD FINANCIAL CENTER, 23RD FLOOR,	3. Date of Earliest Transaction (Month/Day/Year) 01/13/2005	
(Street) NEW YORK, NY 10080	4. If Amendment, Date Original Filed(Month/Day/Year)	6. Individual or Joint/Group Filing (Check Applicable Line) ____ Form filed by One Reporting Person ☒ Form filed by More than One Reporting Person
(City) (State) (Zip)	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 Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock, \$.001 par value per share	01/13/2005		S		63,895	D	\$ 8.5	2,793,246	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		2,358	D	\$ 8.51	2,790,888	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		1,100	D	\$ 8.52	2,789,788	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		7,542	D	\$ 8.53	2,782,246	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		1,000	D	\$ 8.54	2,781,246	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		21,598	D	\$ 8.55	2,759,648	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		1,200	D	\$ 8.56	2,758,448	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		700	D	\$ 8.57	2,757,748	D (U)	
Common Stock, \$.001 par value per share	01/13/2005		S		607	D	\$ 8.58	2,757,141	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		83,957	D	\$ 8.6	2,673,184	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		3,203	D	\$ 8.61	2,669,981	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		3,410	D	\$ 8.62	2,666,571	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		100	D	\$ 8.63	2,666,471	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		5,430	D	\$ 8.64	2,661,041	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		600	D	\$ 8.65	2,660,441	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		200	D	\$ 8.66	2,660,241	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		400	D	\$ 8.68	2,659,841	D (U)	
Common Stock, \$.001 par value per share	01/14/2005		S		2,700	D	\$ 8.7	2,657,141	D (U)	
Common Stock, \$.001 par value per share	01/18/2005		S		20,000	D	\$ 8.60	2,637,141	D (U)	
Common Stock, \$.001 par value per share	01/18/2005		S		980,000	D	\$ 8.50	1,657,141	D (U)	

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

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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 Underlying Securities (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 of Derivative Security: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Merrill Lynch Ventures LP 2001 4 WORLD FINANCIAL CENTER, 23RD FLOOR NEW YORK, NY 10080		X		
MERRILL LYNCH VENTURES LLC 4 WORLD FINANCIAL CENTER NEW YORK, NY 10080		X		
MERRILL LYNCH & CO INC 4 WORLD FINANCIAL CTR NEW YORK, NY 10080		X		
Merrill Lynch Group, Inc 4 WORLD FINANCIAL CENTER ATTN FRANK J MARINARO NEW YORK, NY 10080		X		

Signatures

Mandakini Puri, Executive VP of Merrill Lynch Ventures, LLC, General Partner of Merrill Lynch Ventures L.P. 2001		01/18/2005
 Signature of Reporting Person		Date
Mandakini Puri, Executive VP of Merrill Lynch Ventures, LLC		01/18/2005
 Signature of Reporting Person		Date
Frank Marinaro, Attorney-in-Fact of Merrill Lynch Group, Inc.		01/18/2005
 Signature of Reporting Person		Date
Frank Marinaro, Attorney-in-Fact of Merrill Lynch & Co., Inc.		01/18/2005
 Signature of Reporting Person		Date

Explanation of Responses:

- * 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).
- (1) The Reporting Person is a partership in which Merrill Lynch Ventures, LLC is the general partner, which is a wholly-owned subsidiary of Merrill Lynch Group, Inc., which is a wholly-owned subsidiary of Merrill Lynch & Co., Inc. Each of the Reporting Owners disclaims beneficial ownership of these securities.

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

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