

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13D
(Rule 13d-101)

Information to be Included in Statements Filed Pursuant to § 240.13d-1(a) and Amendments Thereto Filed Pursuant to § 240.13d-2(a)

Under the Securities Exchange Act of 1934*

TONIX PHARMACEUTICALS HOLDING CORP.

(Name of Issuer)

COMMON STOCK, PAR VALUE \$.001 PER SHARE

(Title of Class of Securities)

890260 201

(CUSIP Number)

Marc J. Ross, Esq.
James M. Turner, Esq.
Sichenzia Ross Friedman Ference LLP
61 Broadway, 32nd Floor,
New York, NY 10006
Tel: (212) 930-9700

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

May 20, 2013

(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 which is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 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(b) for other parties to whom copies are to be sent.

¹ 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 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	NAME OF REPORTING PERSONS Seth Lederman		
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 ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION United States		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	433,272
	8	SHARED VOTING POWER	56,791
	9	SOLE DISPOSITIVE POWER	433,272
	10	SHARED DISPOSITIVE POWER	56,791
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 490,063		
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)		20.7% (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

1	NAME OF REPORTING PERSONS Lederman & Co., LLC		
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)		AF
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	289,128
	8	SHARED VOTING POWER	0
	9	SOLE DISPOSITIVE POWER	289,128
	10	SHARED DISPOSITIVE POWER	0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 289,128		
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)		12.6% (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

1	NAME OF REPORTING PERSONS L&L Technologies, LLC		
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)		AF
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	56,791
	8	SHARED VOTING POWER	0
	9	SOLE DISPOSITIVE POWER	56,791
	10	SHARED DISPOSITIVE POWER	0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 56,791		
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)		2.6% (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

1	NAME OF REPORTING PERSONS Targent Pharmaceuticals, LLC		
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)		AF
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	67,222
	8	SHARED VOTING POWER	0
	9	SOLE DISPOSITIVE POWER	67,222
	10	SHARED DISPOSITIVE POWER	0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 67,222		
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)		3.1% (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

1	NAME OF REPORTING PERSONS Leder Laboratories, Inc.		
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)		AF
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	12,501
	8	SHARED VOTING POWER	0
	9	SOLE DISPOSITIVE POWER	12,501
	10	SHARED DISPOSITIVE POWER	0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 12,501		
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)		0.6% (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) CO		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

1	NAME OF REPORTING PERSONS Starling Pharmaceuticals, Inc.		
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)		AF
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER	12,501
	8	SHARED VOTING POWER	0
	9	SOLE DISPOSITIVE POWER	12,501
	10	SHARED DISPOSITIVE POWER	0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 12,501		
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)		0. (1)
14	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) CO		

(1) This percentage is calculated based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013.

Item 1. Security and Issuer.

This statement relates to the Common Stock, par value \$.001 per share (the "Common Stock"), of Tonix Pharmaceuticals Holding Corp., a Nevada Corporation (the "Issuer"). The Issuer's principal executive offices are located at 509 Madison Avenue, Suite 306, New York, New York 10022.

Item 2. Identity and Background.

This statement is filed on behalf of (1) Seth Lederman, a United States citizen ("Dr. Lederman"); (2) Lederman & Co., LLC, a Delaware limited liability company ("Lederman & Co"); (3) L&L Technologies, LLC, a Delaware limited liability company ("L&L Technologies"); (4) Targent Pharmaceuticals, LLC, a Delaware limited liability company ("Targent Pharmaceuticals"); (5) Leder Laboratories, Inc., a Delaware corporation ("Leder Laboratories"); and (5) Starling Pharmaceuticals, Inc., a Delaware corporation ("Starling Pharmaceuticals"). Such parties are referred to herein individually as a "Reporting Person" and collectively as the "Reporting Persons."

Dr. Lederman is the Managing Member of Lederman & Co and Targent Pharmaceuticals, the Manager of L&L Technologies and the Chairman of Leder Laboratories and Starling Pharmaceuticals. The Reporting Persons are making this single, joint filing because they may be deemed to constitute a "group" within the meaning of Section 13(d)(3) of the Securities Exchange Act of 1934, as amended. Each Reporting Person disclaims beneficial ownership of the shares of Common Stock owned by any person other than such Reporting Person except to the extent of any pecuniary interest therein.

The principal business address of each Reporting Person is c/o Tonix Pharmaceuticals Holding Corp., 509 Madison Avenue, Suite 306, New York, New York 10022.

None of the Reporting Persons has, during the past five years, been convicted in a criminal proceeding (excluding traffic violations and similar misdemeanors). None of the Reporting Persons has, during the past five years, been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such 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.

Item 3. Source and Amount of Funds or Other Consideration.*Share Exchange Agreement*

On October 7, 2011, pursuant to a Share Exchange Agreement entered into by and among the Issuer, Tonix Pharmaceuticals, Inc., a Delaware corporation ("Tonix") and the stockholders of Tonix, the stockholders of Tonix exchanged all of their shares of Tonix equity stock for newly issued shares of common stock of the Issuer. Dr. Lederman, Lederman & Co, L&L Technologies and Targent Pharmaceuticals were all stockholders of Tonix and received shares of common stock of the Issuer as follows:

<u>Reporting Person</u>	<u>Shares Acquired</u>
Dr. Lederman	37,309
Lederman & Co	128,643
L&L Technologies	20,290
Targent Pharmaceuticals	47,999

2011 Private Placement

Between October and November, 2011 the Issuer consummated a private placement financing (the "2011 Financing") pursuant to which it sold debentures ("Debentures"). The Debentures matured on the earlier of (i) the one year anniversary of the date of issuance or (ii) the date of closing of a private placement of equity, equity equivalent, convertible debt or debt financing in which the Issuer received gross proceeds, in one or more transactions, of at least \$3,875,000 (a "Subsequent Financing"). In addition, upon conversion or repayment of the Debenture, the holders were entitled to receive, at the holder's option, either (i) a warrant (the "Conversion Warrant") to purchase such number of shares of common stock equal to the principal amount of the Debenture divided by the offering price in a Subsequent Financing or (ii) shares of our common stock equal to 33% of the principal amount of the Debenture divided by the offering price in a Subsequent Financing (the "Incentive Shares"). The Issuer consummated a Subsequent Financing in January 2012.

Lederman & Co, L&L Technologies and Targent Pharmaceuticals were all investors in the 2011 Financing and received Incentive Shares and Conversion Warrants as follows:

Reporting Person	Incentive Shares Acquired	Conversion Warrants Acquired
Lederman & Co	1,485	-
L&L Technologies	-	500
Targent Pharmaceuticals	2,723	-

March 2012 Private Placement

Between January and March, 2012, the Issuer consummated a private placement financing transaction (the "March 2012 Financing") pursuant to which it issued an aggregate of 264.7106 units ("March Units") at a price of \$25,000 per March Unit. Each March Unit consisted of one thousand two hundred fifty (1,250) shares of our Common Stock, a Class A Warrant to purchase one thousand two hundred fifty (1,250) shares of common stock (the "March Class A Warrants"), and a Class B Warrant to purchase up to one thousand two hundred fifty (1,250) shares of common stock (the "March Class B Warrants"). The March Class B Warrants subsequently expired unexercised.

Lederman & Co, L&L Technologies and Targent Pharmaceuticals were all investors in the March 2012 Financing and received shares of Common Stock and March Class A Warrants as follows:

Reporting Person	Common Stock Acquired	March Class A Warrants Acquired
Lederman & Co	4,500	4,500
L&L Technologies	500	500
Targent Pharmaceuticals	8,250	8,250

December 2012 Private Placement

In December 2012, the Issuer consummated a private placement financing transaction (the "December 2012 Financing") pursuant to which it issued an aggregate of 8,904,167 units ("December Units") at a price of \$0.40 per December Unit (or a price of \$0.30 per December Unit for any investor exchanging previously issued debentures). Each December Unit consisted of 0.05 share of Common Stock, a Class A Warrant to purchase 0.05 share of Common Stock (the "December Class A Warrants"), and a Class B Warrant to purchase 0.05 share of Common Stock (the "December Class B Warrants").

Lederman & Co, L&L Technologies, Leder Laboratories and Starling Pharmaceuticals were all investors in the December 2012 Financing (and all exchanged previous issued debentures for their December Units) and received shares of Common Stock, December Class A Warrants and December Class B Warrants as follows:

<u>Reporting Person</u>	<u>Common Stock Acquired</u>	<u>December Class A Warrants Acquired</u>	<u>December Class B Warrants Acquired</u>
Lederman & Co	50,000	50,000	50,000
L&L Technologies	11,667	11,667	11,667
Leder Laboratories	4,167	4,167	4,167
Starling Pharmaceuticals	4,167	4,167	4,167

Compensatory Options

On May 9, 2012, Dr. Lederman was granted 35,000 options pursuant to the Issuer's equity compensation plan. The options vest 1/3rd on the first anniversary of issuance and 1/36th each month thereafter for 24 months.

On February 12, 2013, Dr. Lederman was granted 67,500 options pursuant to the Issuer's equity compensation plan. The options vest 1/3rd on the first anniversary of issuance and 1/36th each month thereafter for 24 months.

No cash consideration was paid to the Issuer by Dr. Lederman in connection with the issuance of such option grants. As of the date of this filing, options to purchase an aggregate of 13,611 shares have vested or will vest within 60 days.

Open Market Purchases

On May 20, 2013, Dr. Lederman made an open market purchase of 400 shares of Issuer's Common Stock at a price per share of \$7.75, for an aggregate purchase price of \$3,100.

On May 20, 2013, Dr. Lederman made an open market purchase of 600 shares of Issuer's Common Stock at a price per share of \$7.00, for an aggregate purchase price of \$4,200.

Item 4. Purpose of Transaction.

Lederman & Co, L&L Technologies, Targent Pharmaceuticals, Leder Laboratories and Starling Pharmaceuticals acquired all of their Common Stock, March Class A Warrants, December Class A Warrants and December Class B Warrants for investment purposes.

Dr. Lederman acquired all of his Common Stock for investment purposes. Dr. Lederman acquired the options as compensation for, and in connection with, his position as an officer and a member of the Board of Directors of the Issuer.

Dr. Lederman is the President and Chief Executive Officer of the Issuer a member of the Issuer's Board of Directors. In these capacities, Dr. Lederman takes and will continue to take an active role in the Issuer's management and strategic direction. Additionally, in their capacities as stockholders of the Issuer, the Reporting Persons review and intend to continue to review, on an ongoing and continued basis, their investments in the Issuer. Depending on the factors discussed below and subject to applicable law, any Reporting Person may from time to time acquire additional securities of the Issuer or otherwise dispose of some or all of such securities of the Issuer. Any transactions that any Reporting Person may pursue may be made at any time and from time to time without prior notice and will depend upon a variety of factors, including, without limitation, current and anticipated future trading prices of the securities of the Issuer, the financial condition, results of operations and prospects of the Issuer, general economic, financial market and industry conditions, other investment and business opportunities available to such Reporting Person, tax considerations and other factors.

Other than as described above and other than in his capacity as an officer and director of the Issuer, neither Dr. Lederman nor any other Reporting Person currently has plans or proposals that relate to or would result in any of the transactions involving the Issuer described in subparagraphs (a) through (j) of Item 4 of Schedule 13D (although either Reporting Person may from time to time consider pursuing or proposing any such transactions and, in that connection, may discuss, evaluate and/or pursue any such transactions with their respective advisors, the Issuer or other persons).

Item 5. Interest in Securities of the Issuer.

Dr. Lederman beneficially owns 490,063 shares of Issuer common stock, comprised of (i) 38,309 shares of common stock owned by Dr. Lederman, (ii) 13,611 shares of common stock issuable to Dr. Lederman upon exercise of options that are vested or will vest within 60 days of this Statement of Beneficial Ownership on Schedule 13D, (iii) 184,628 shares of common stock owned by Lederman & Co, (iv) 104,500 shares of common stock issuable to Lederman & Co upon exercise of warrants that are currently exercisable, (v) 32,457 shares of common stock owned by L&L Technologies, (vi) 24,334 shares of common stock issuable to L&L Technologies upon exercise of warrants that are currently exercisable, (vii) 58,972 shares of common stock owned by Targent Pharmaceuticals, (viii) 8,250 shares of common stock issuable to Targent Pharmaceuticals upon exercise of warrants that are currently exercisable, (ix) 4,167 shares of common stock owned by Leder Laboratories, (x) 8,334 shares of common stock issuable to Leder Laboratories upon exercise of warrants that are currently exercisable, (xi) 4,167 shares of common stock owned by Starling Pharmaceuticals, and (xii) 8,334 shares of common stock issuable to Starling Pharmaceuticals upon exercise of warrants that are currently exercisable. Dr. Lederman is the Managing Member of Lederman & Co and Targent Pharmaceuticals, the Manager of L&L Technologies and the Chairman of Leder Laboratories and Starling Pharmaceuticals. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by Dr. Lederman constitute approximately 20.7% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

Lederman & Co beneficially owns 289,128 shares of Issuer common stock, comprised of (i) 184,628 shares of common stock owned by Lederman & Co and (ii) 104,500 shares of common stock issuable to Lederman & Co upon exercise of warrants that are currently exercisable. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by Lederman and Co constitute approximately 12.6% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

L&L Technologies beneficially owns 56,791 shares of Issuer common stock, comprised of (i) 32,457 shares of common stock owned by L&L Technologies and (ii) 24,334 shares of common stock issuable to L&L Technologies upon exercise of warrants that are currently exercisable. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by L&L Technologies constitute approximately 2.6% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

Targent Pharmaceuticals beneficially owns 67,222 shares of Issuer common stock, comprised of (i) 58,972 shares of common stock owned by Targent Pharmaceuticals and (ii) 8,250 shares of common stock issuable to Targent Pharmaceuticals upon exercise of warrants that are currently exercisable. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by Targent Pharmaceuticals constitute approximately 3.1% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

Leder Laboratories beneficially owns 289,128 shares of Issuer common stock, comprised of (i) 4,167 shares of common stock owned by Leder Laboratories and (ii) 8,334 shares of common stock issuable to Leder Laboratories upon exercise of warrants that are currently exercisable. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by Leder Laboratories constitute approximately 0.6% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

Starling Pharmaceuticals beneficially owns 289,128 shares of Issuer common stock, comprised of (i) 4,167 shares of common stock owned by Starling Pharmaceuticals, and (ii) 8,334 shares of common stock issuable to Starling Pharmaceuticals upon exercise of warrants that are currently exercisable. Based upon 2,197,490 shares of the Issuer's common stock outstanding (as of May 9, 2013), as set forth in the Issuer's registration statement on Form S-1 as filed with the Securities and Exchange Commission on May 10, 2013, the shares of the Issuer's common stock beneficially owned by Starling Pharmaceuticals constitute approximately 0.6% of the common stock of the Issuer as calculated in accordance with Rule 13d-3(d)(1).

The following table sets forth the number of shares of common stock as to which the Reporting Persons have (i) the sole power to vote or direct the voting of the shares, (ii) the sole power to dispose or to direct the disposition of the shares or (iii) shared power to vote or direct the vote or dispose or direct disposition of the shares:

Reporting Person	Sole Voting Power	Shared Voting Power	Sole Dispositive Power	Shared Dispositive Power
Dr. Lederman	433,272	56,791	433,272	56,791
Lederman & Co	289,128	0	289,128	0
L&L Technologies	0	56,791	0	56,791
Targent Pharmaceuticals	67,222	0	67,222	0
Leder Laboratories	12,501	0	12,501	0
Starling Pharmaceuticals	12,501	0	12,501	0

The voting power and the dispositive power of the shares beneficially owned by L&L Technologies are shared with Dr. Donald Landry, another director of the Issuer.

Except as set out above, the Reporting Persons have not effected any other transactions in any securities of the Issuer in the past 60 days.

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

By virtue of the relationship among the Reporting Persons, the Reporting Persons may be deemed to be a “group” under the Federal securities laws. Other than the relationship between the Reporting Persons as described above under Items 2-5 above, there are no contracts, arrangements, understandings or relationships (legal or otherwise) between any of the Reporting Persons and any other person with respect to any securities of the Issuer.

Item 7. Material to be Filed as Exhibits.

1. Share Exchange Agreement, dated as of October 7, 2011 by and among Tamandare Explorations Inc., David J. Moss, Tonix Pharmaceuticals, Inc. and the shareholders of Tonix Pharmaceuticals, Inc. filed as an exhibit to the Current Report on Form 8-K, filed with the Securities and Exchange Commission on October 14, 2011 and incorporated herein by reference.
 2. Joint Filing Agreement, dated as of May 23, 2013, by and among Seth Lederman, Lederman & Co., LLC, L&L Technologies, LLC, Targent Pharmaceuticals, LLC, Leder Laboratories, Inc. and Starling Pharmaceuticals, Inc. (filed herewith).
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SIGNATURES

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 accurate.

May 23, 2013

LEDERMAN & CO., LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Managing Member

L&L TECHNOLOGIES, LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Member

TARGET PHARMACEUTICALS, LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Managing Member

LEDER LABORATORIES, INC.

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Chairman

STARLING PHARMACEUTICALS, INC.

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Chairman

/s/ SETH LEDERMAN

Seth Lederman

JOINT FILING AGREEMENT

This Joint Filing Agreement is filed as an exhibit to Schedule 13D being filed by Seth Lederman, Lederman & Co., LLC, L&L Technologies, LLC, Targent Pharmaceuticals, LLC, Leder Laboratories, Inc. and Starling Pharmaceuticals, Inc. in compliance with Rule 13d-1(k) of the Securities and Exchange Commission, which requires an agreement in writing indicating that the Schedule 13D to which this Agreement is attached is filed on behalf of the below-named entities, that they are each responsible for the timely filing of the Schedule 13D and any amendments thereto and for the completeness and accuracy of the information concerning such persons contained therein.

This Joint Filing Agreement may be executed in counterparts, each of which shall be deemed to be an original instrument, but all of such counterparts together shall constitute one agreement.

In evidence thereof, the undersigned, being duly authorized, hereby execute this Joint Filing Agreement as of May 23, 2013.

LEDERMAN & CO., LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Managing Member

L&L TECHNOLOGIES, LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Member

TARGET PHARMACEUTICALS, LLC

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Managing Member

LEDER LABORATORIES, INC.

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Chairman

STARLING PHARMACEUTICALS, INC.

By: /s/ SETH LEDERMAN

Name: Seth Lederman

Title: Chairman

/s/ SETH LEDERMAN

Seth Lederman
