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# SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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## PRE-EFFECTIVE AMENDMENT NO. 4 TO FORM S-1 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

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### NEUROMETRIX, INC.

(Exact Name of Registrant as Specified in its Charter)

**Delaware**

(State or Other Jurisdiction  
of Incorporation or Organization)

**3841**

(Primary Standard Industrial  
Classification Code Number)

**04-3308180**

(I.R.S. Employer  
Identification Number)

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**62 Fourth Avenue  
Waltham, Massachusetts 02451  
(781) 890-9989**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive office)

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**Shai N. Gozani, M.D., Ph.D.  
President and Chief Executive Officer  
NeuroMetrix, Inc.  
62 Fourth Avenue  
Waltham, Massachusetts 02451  
(781) 890-9989**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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**Copies to:**

**H. David Henken, PC  
Goodwin Procter LLP  
Exchange Place  
Boston, Massachusetts 02109  
(617) 570-1000  
Fax: (617) 523-1231**

**Jeffrey S. Marcus, Esq.  
Christopher Arana, Esq.  
Morrison & Foerster LLP  
1290 Avenue of the Americas  
New York, New York 10104  
(212) 468-8000  
Fax: (212) 468-7900**

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**Approximate date of commencement of proposed sale to public:** As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is used to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a)**

of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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## EXPLANATORY NOTE

NeuroMetrix, Inc. has prepared this Amendment No. 4 to the Registration Statement on Form S-1 (No. 333-115440) for the purpose of filing with the Securities and Exchange Commission additional exhibits to the Registration Statement. This Amendment No. 4 does not modify any provision of the Prospectus that forms a part of the Registration Statement and accordingly such Prospectus has not been included herein.

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**PART II**  
**INFORMATION NOT REQUIRED IN PROSPECTUS**

**Item 13. Other Expenses of Issuance and Distribution**

The following table sets forth the estimated expenses (excluding the underwriting discount) expected to be incurred in connection with the issuance and distribution of the common stock registered hereby:

Nature of Expense	Amount
SEC Registration Fee	\$ 5,246
National Association of Securities Dealers, Inc.—filing fee	4,640
Nasdaq National Market Listing Fee	100,000
Accounting Fees and Expenses	550,000
Legal Fees and Expenses	700,000
Printing Expenses	175,000
Blue Sky Qualification Fees and Expenses	10,000
Transfer Agent's Fee	3,000
Miscellaneous	52,114
TOTAL	\$ 1,600,000

The amounts set forth above, except for the SEC registration fee and the NASD filing fee, are estimated.

**Item 14. Indemnification of Directors and Officers**

Section 145 of the General Corporation Law of the State of Delaware provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he is or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

As permitted by the Delaware General Corporation Law, our Third Amended and Restated Certificate of Incorporation, or certificate of incorporation, includes a provision that eliminates the personal liability of our directors for monetary damages for breach of fiduciary duty as a director, except for liability (1) for any breach of the director's duty of loyalty to us or our stockholders, (2) for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law, (3) under section 174 of the Delaware General Corporation Law (regarding unlawful dividends and stock purchases) or (4) for any transaction from which the director derived an improper personal benefit.

As permitted by the Delaware General Corporation Law, our Second Amended and Restated by-laws, or by-laws, provide that (1) we are required to indemnify our directors and officers to the fullest extent permitted by the Delaware General Corporation Law, subject to certain very limited exceptions, (2) we may indemnify other employees as set forth in the Delaware General Corporation

Law, (3) we are required to advance expenses, as incurred, to our directors and executive officers in connection with a legal proceeding to the fullest extent permitted by the Delaware General Corporation Law, subject to certain very limited exceptions and (4) the rights conferred in our by-laws are not exclusive.

We have entered into indemnification agreements with each of our directors to give such directors additional contractual assurances regarding the scope of the indemnification set forth in our certificate of incorporation and to provide additional procedural protections. We also intend to enter into indemnification agreements with any new directors in the future. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees with respect to which we may have indemnification obligations.

The indemnification provisions in our certificate of incorporation, by-laws and the indemnification agreements entered into between us and each of our directors and executive officers may be sufficiently broad to permit indemnification of our directors and executive officers for liabilities arising under the Securities Act of 1933.

We intend to obtain liability insurance for our officers and directors.

#### **Item 15. Recent Sales of Unregistered Securities**

Set forth below is information regarding shares of capital stock issued, warrants issued and options granted, by us within the past three years. Also included is the consideration, if any, received by us for such shares, warrants and options and information relating to the section of the Securities Act, or rules of the SEC under which exemption from registration was claimed. All share numbers below have been adjusted to reflect a planned one-for-four reverse stock split of our common stock prior to the effectiveness of this offering. Certain of the transactions described below involved directors, officers and five percent stockholders. See "Certain Relationships and Related Party Transactions."

No underwriters were involved in the following sales of securities. The securities described in paragraphs (a)(i)-(iii) and (b) below were issued to U.S. investors in reliance upon exemptions from the registration provisions of the Securities Act set forth in Section 4(2) thereof relative to sales by an issuer not involving any public offering, to the extent an exemption from such registration was required. All purchasers of shares of our preferred stock described below represented to us in connection with their purchase that they were accredited investors and were acquiring the shares for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from registration. The issuance of stock options and the common stock issuable upon the exercise of stock options as described in paragraphs (a)(iv) and (c) below were issued pursuant to written compensatory benefit plans or arrangements with our employees, directors and consultants, in reliance on the exemption provided by Rule 701 promulgated under the Securities Act, as well as Section 4(2) of the Securities Act.

**(a) Issuances of Capital Stock**

- (i) In February 2001, we issued an aggregate of 4,444,445 shares of our Series E Preferred Stock for an aggregate purchase price of \$12,500,002, or \$2.8125 per share, to the following existing stockholders:

Name of Stockholder	Shares of Series E Preferred Stock
Massachusetts Institute of Technology	355,555
Harris & Harris Group, Inc.	266,665
Whitney Strategic Partners III, L.P.	50,195
J.H. Whitney III, L.P.	2,083,140
Delphi Ventures IV, L.P.	435,465
Delphi BioInvestments IV, L.P.	8,980
Commonwealth Capital Ventures II L.P.	338,805
CCV II Associates L.P.	16,750
BancBoston Ventures Inc.	888,890

- (ii) In December 2002, we issued an aggregate of 1,333,334 shares of our Series E-1 Preferred Stock for an aggregate purchase price of \$2,000,001, or \$1.50 per share, to the following existing stockholders:

Name of Stockholder	Shares of Series E-1 Preferred Stock
Massachusetts Institute of Technology	102,142
Harris & Harris Group, Inc.	235,521
Whitney Strategic Partners III, L.P.	13,034
J.H. Whitney III, L.P.	540,914
Delphi Ventures IV, L.P.	175,935
Delphi BioInvestments IV, L.P.	3,627
Commonwealth Capital Ventures II L.P.	95,818
CCV II Associates L.P.	4,737
BancBoston Ventures Inc.	161,606

- (iii) In March 2004, we issued an aggregate of 7,050,771 shares of our Series E-1 Preferred Stock for an aggregate purchase price of \$10,576,157, or \$1.50 per share, to the following existing stockholders and affiliates of existing stockholders:

Name of Stockholder	Shares of Series E-1 Preferred Stock
Massachusetts Institute of Technology	500,251
Harris & Harris Group, Inc.	1,166,666
Whitney Strategic Partners III, L.P.	73,725
J.H. Whitney III, L.P.	3,059,607
Whitney & Co., LLC	383,858
Delphi Ventures IV, L.P.	326,599
Delphi BioInvestments IV, L.P.	6,733
Commonwealth Capital Ventures II L.P.	952,891
CCV II Associates L.P.	47,108
BancBoston Ventures Inc.	533,333

- (iv) Since January 2001, we have issued an aggregate of 54,390 shares of common stock to our officers, directors, consultants, employees and advisors pursuant to the exercise of stock options under our Amended and Restated 1998 Equity Incentive Plan. The aggregate exercise price paid upon the exercise of these options was \$48,769. Since January 2001, an aggregate of

17,671 shares of common stock have been issued to our officers, directors, consultants, employees and advisors pursuant to the exercise of stock options under our Amended and Restated 1996 Stock Option/Restricted Stock Plan. All of these shares initially were owned by Dr. Gozani prior to their issuance under our Amended and Restated 1996 Stock Option/Restricted Stock Plan. The aggregate exercise price paid upon the exercise of these options was \$1,341.

**(b) Grant of Warrant**

On May 21, 2003, we issued a warrant to purchase 400,000 shares of our Series E-1 Preferred Stock at an exercise price of \$1.50 per share to Lighthouse Capital Partners IV, L.P. in connection with the procurement of financing from this warrant holder.

**(c) Grant of Stock Options**

- (i) As of June 21, 2004, options to purchase 6,250 shares of common stock were outstanding under our Amended and Restated 1996 Stock Option/Restricted Stock Plan all of which are fully exercisable within 60 days of such date. All such options were granted between November 1, 1996 and June 2, 1997 to our officers, directors, consultants, employees and advisors.
- (ii) As of June 21, 2004, options to purchase 1,012,426 shares of common stock were outstanding under our Amended and Restated 1998 Equity Incentive Plan, of which options to purchase 270,618 shares are exercisable within 60 days of such date. All such options were granted between April 6, 1998 and June 21, 2004 to our officers, directors, consultants, employees and advisors.

**Item 16. Exhibits and Financial Statement Schedules**

**(a) Exhibits**

See the Exhibit Index on the page immediately preceding the exhibits for a list of exhibits filed as part of this registration statement on Form S-1, which Exhibit Index is incorporated herein by reference.

**(b) Financial Statement Schedules**

The following schedule to be filed under Item 16(b) is contained on page II-7 of this registration statement: Schedule II—Valuation and Qualifying Accounts

All other schedules are omitted because they are not applicable or the required information is shown in the Financial Statements or notes thereto.

**Item 17. Undertakings**

(a) The undersigned registrant hereby undertakes:

- (1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
- (2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement

relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

- (b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.
- (c) The registrant hereby undertakes to provide to the underwriter at the closing specified in the underwriting agreements, certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.



**Schedule II—Valuation and Qualifying Accounts**

For the three years ended December 2001, 2002 and 2003:

	<b>Balance at Beginning of Period</b>		<b>Additions</b>		<b>Deductions</b>		<b>Balance at End of Period</b>
<b>Allowance for Doubtful Accounts:</b>							
2001	\$ 100,000	\$	200,000	\$	—	\$	300,000
2002	300,000		35,320		135,320		200,000
2003	200,000		200,326		100,326		300,000
<b>Deferred Tax Asset Valuation Allowance:</b>							
2001	\$ 5,668,203	\$	3,361,305	\$	—	\$	9,029,508
2002	9,029,508		1,966,499		—		10,996,007
2003	10,996,007		1,453,471		—		12,449,478

## EXHIBIT INDEX

Exhibit Number	Description
+1.1	Form of Underwriting Agreement
+3.1	Amended and Restated Certificate of Incorporation of NeuroMetrix, Inc.
+3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation of NeuroMetrix, Inc.
+3.3	Form of Second Amended and Restated Certificate of Incorporation of NeuroMetrix, Inc.
+3.4	Form of Third Amended and Restated Certificate of Incorporation of NeuroMetrix, Inc.
+3.5	Amended and Restated By-laws of NeuroMetrix, Inc., as currently in effect
+3.6	Form of Second Amended and Restated By-laws of NeuroMetrix, Inc.
+3.7	Second Certificate of Amendment to the Amended and Restated Certificate of Incorporation of NeuroMetrix, Inc.
+4.1	Specimen certificate for shares of common stock
*5.1	Opinion of Goodwin Procter LLP as to the legality of the securities
+10.1	Lease Agreement dated October 18, 2000 between Fourth Avenue LLC and NeuroMetrix, Inc.
+10.2	Amended and Restated 1996 Stock Option/Restricted Stock Plan
+10.3	Amended and Restated 1998 Equity Incentive Plan
+10.4	First Amendment to Amended and Restated 1998 Equity Incentive Plan
+10.5	2004 Stock Option and Incentive Plan
+10.6	2004 Employee Stock Purchase Plan
+10.7	Series E-1 Convertible Preferred Stock Purchase Agreement by and among NeuroMetrix, Inc. and the purchasers thereto, dated as of December 20, 2002, with amendments dated as of May 21, 2003 and March 12, 2004
+10.8	Form of Indemnification Agreement
+10.9	Employment Agreement, dated June 21, 2004, by and between NeuroMetrix, Inc. and Shai N. Gozani, M.D., Ph.D.
+10.10	Letter Agreement, dated June 19, 2002, by and between NeuroMetrix, Inc. and Gary L. Gregory
+10.11	NeuroMetrix, Inc. Stock Option Agreements (1998 Plan) dated as of July 1, 2002 and April 8, 2004 by and between NeuroMetrix, Inc. and Gary L. Gregory
+10.12	NeuroMetrix, Inc. Confidentiality and Non-Compete Agreement, dated as of June 28, 2002, by and between Gary L. Gregory and NeuroMetrix, Inc.
+10.13	NeuroMetrix, Inc. Confidentiality & Non-Compete Agreement dated as of June 21, 2004, by and between Shai N. Gozani, M.D., Ph.D. and NeuroMetrix, Inc.
+10.14	Loan and Security Agreement, dated as of May 21, 2003, by and between Lighthouse Capital Partners IV, L.P. and NeuroMetrix, Inc.
+10.15	Preferred Stock Purchase Warrant, dated May 21, 2003, issued to Lighthouse Capital Partners IV, L.P.
†+10.16	Contract Manufacturing Agreement, dated as of November 20, 2002, by and between Advanced Electronics, Inc. and NeuroMetrix, Inc.
+10.17	NeuroMetrix, Inc. Non-Statutory Stock Option Agreement (1998 Plan) dated as of June 21, 2004, by and between Shai N. Gozani M.D., Ph.D., and NeuroMetrix, Inc.
+10.18	Second Amendment to Amended and Restated 1998 Equity Incentive Plan

- +10.19 NeuroMetrix, Inc. Non-Statutory Stock Option Agreement (1998 Plan) dated as of June 21, 2004 by and between Gary Gregory and NeuroMetrix, Inc.
  - +10.20 Indemnification Agreement dated June 21, 2004, by and between Shai N. Gozani, M.D., Ph.D., and NeuroMetrix, Inc.
  - +10.21 Consent, Waiver and Amendment dated as of June 18, 2004 by and among NeuroMetrix, Inc. and the parties listed on the signature pages thereto
  - +10.22 NeuroMetrix, Inc. Confidentiality & Non-Compete Agreement, dated as of May 1, 2000, by and between Michael Williams and NeuroMetrix, Inc.
  - +10.23 NeuroMetrix, Inc. Confidentiality & Non-Compete Agreement, dated as of November 1, 2000, by and between Nicholas J. Alessi and NeuroMetrix, Inc.
  - +10.24 NeuroMetrix, Inc. Confidentiality & Non-Compete Agreement, dated as of October 13, 1998, by and between Guy Daniello and NeuroMetrix Inc.
  - \*23.1 Consent of Goodwin Procter LLP (included in Exhibit 5.1 hereto)
  - +23.2 Consent of PricewaterhouseCoopers LLP
  - +24.1 Power of Attorney (included in signature page)
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+ Previously filed.

\* Filed herewith.

† Portions of this exhibit have been omitted pursuant to a request for confidential treatment

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## QuickLinks

### [PART II INFORMATION NOT REQUIRED IN PROSPECTUS](#)

[Item 13. Other Expenses of Issuance and Distribution](#)

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[Schedule II—Valuation and Qualifying Accounts](#)

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July 20, 2004

NeuroMetrix, Inc.  
62 Fourth Avenue  
Waltham, MA 02451

Ladies and Gentlemen:

This opinion is delivered in our capacity as counsel to NeuroMetrix, Inc. (the "Company") in connection with the Company's registration statement on Form S-1 (Registration No. 333-115440) (as amended or supplemented, the "Registration Statement") filed with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), to register the sale of up to 3,450,000 shares (the "Shares") of common stock, par value \$0.0001 per share, of the Company ("Common Stock"), which includes up to 450,000 shares of Common Stock purchasable by the underwriters upon their exercise of an over-allotment option that may be granted to the underwriters by the Company.

We have examined such documents and made such other investigation as we have deemed appropriate to render the opinions set forth below. As to matters of fact material to our opinions, we have relied, without independent verification, on representations made in certificates and other inquiries of officers of the Company.

The opinions expressed below are limited to Massachusetts law, the Delaware General Corporation Law (which includes applicable provisions of the Delaware General Corporation Law and reported judicial decisions interpreting the Delaware General Corporation Law and applicable provisions of the Delaware Constitution) and the federal law of the United States.

Based upon the foregoing and subject to the additional qualifications and assumptions set forth below, we are of the opinion that the Shares, when specifically authorized for issuance by the Pricing Committee of the Company's Board of Directors and when issued as described in the Registration Statement, upon receipt by the Company of the consideration provided for in such authorization and in a manner consistent with such authorization, will be legally issued, fully paid and nonassessable.

We hereby consent to the references in the Registration Statement to our firm under the caption "Legal Matters" and to the inclusion of this opinion as an exhibit to the Registration Statement. In giving this consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations promulgated thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

Goodwin Procter LLP

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## QuickLinks

[Exhibit 5.1](#)