UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) February 29, 2000

Aastrom Biosciences, Inc.

(Exact name of registrant as specified in charter)

Michigan	0-22025	94-3096597
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

24 Frank Lloyd Wright Drive, P.O. Box 376, Ann Arbor Michigan	48106
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code (734) 930-5555

Not Applicable

(Former name or former address, if changed since last report)

Item 5. Other Events.

On February 29, 2000 Aastrom sold 2,264,151 Units, each Unit consisting of one share of common stock and a warrant to purchase 1/2 share of common stock, for an aggregate price, before expenses, of $6,000,000 to one institutional investor. The warrants have a three-year term and may be exercised by the holder at a price of $3.695 per share. The warrants contain certain anti-dilution and other adjustment provisions that may be triggered by other financings or future stock prices. Subject to adjustments for stock splits, combinations and similar events, the exercise price may be adjusted, subject to a floor of $1.60 for adjustments based on subsequent market prices, and the number of shares issuable upon exercise of the warrants may be increased, up to a specified maximum number of shares. The warrants are subject to early termination after February 29, 2001 if the Closing Bid Price (as defined in the Warrant) of Aastrom's Common Stock the stock reaches $7.39 per share for 10 consecutive Trading Days.

The foregoing description of the Units is qualified in its entirety by the Securities Purchase Agreement, dated February 28, 2000, and the other agreements and instruments executed in connection therewith, copies of which are attached as exhibits to this Current Report on Form 8-K.

A strategic investor has the right, exercisable for a limited time, to purchase additional Units on the same terms as were set forth in the Securities Purchase Agreement and related agreements.

Item 7. Financial Statements and Exhibits.

(a) Financial statements of business acquired.

Not applicable.

(b) Pro forma financial information.

On February 29, 2000, Aastrom Biosciences, Inc. ("Aastrom" or the "Company") completed the sale of 2,264,151 Units, each Unit consisting of one share of common stock and a warrant to purchase 1/2 of a share of common stock for total proceeds, net of expected offering expenses, of $5,900,000. Also, during February 2000, all 1,950 shares of 1998 Series I Preferred Stock (Preferred Stock) outstanding as of January 31, 2000 were converted into 2,217,749 shares of common stock.

The unaudited pro forma consolidated and condensed statement of operations for the seven months ended January 31, 2000 is based on historical results of operations of Aastrom and gives effect to the sale of the Units and conversion of the Preferred Stock as if they occurred on July 1, 1998. The unaudited pro forma consolidated and condensed statement of operations for the year ended June 30, 1999 is based on historical results of operations of Aastrom and gives effect to the sales of Units and conversion of Preferred Stock as if they occurred on July 1, 1998. The unaudited pro forma consolidated and condensed balance sheet as of January 31, 2000 gives effect to the sale of the Units and conversion of the Preferred Stock as if they had occurred as of that date. The pro forma consolidated and condensed statement of operations and pro forma consolidated and condensed balance sheet and the accompanying notes (the "Pro Forma Financial Information") should be read in conjunction with, and are qualified by, the historical financial statements of Aastrom and the notes thereto.

The pro forma adjustments are based on estimates and assumptions available at the time of the filing of this Report on Form 8-K and the Company believes are reasonable under the circumstances. The Pro Forma Financial Information has been prepared in accordance with the rules and regulations of the Securities and Exchange Commission. The Pro Forma Financial Information is intended for informational purposes only and is not necessarily indicative of the future financial position or future results of operations of the Company, or of the financial position or results of operations of the Company that would have actually occurred had the transactions described been effected as of the dates indicated above.

AASTROM BIOSCIENCES, INC.
(a development stage company)

PRO FORMA CONSOLIDATED CONDENSED BALANCE SHEET
(Unaudited)

	January 31, 2000	Pro forma Adjustments		Pro forma January 31, 2000
Assets				
CURRENT ASSETS:				
Cash and cash equivalents	$ 3,468,000	$ 5,900,000	(a)	$ 9,368,000
Receivables	142,000	-		142,000
Inventory	41,000	-		41,000
Prepaid expenses and other	276,000	-		276,000
Total current assets	3,927,000	5,900,000		9,827,000
PROPERTY, NET	367,000	-		367,000
Total assets	$ 4,294,000	$ 5,900,000		$10,194,000
Liabilities and Shareholders' Equity				
CURRENT LIABILITIES:				
Accounts payable and accrued expenses	$ 1,092,000	$ -		$ 1,092,000
Accrued employee expenses	534,000	-		534,000
Total current liabilities	1,626,000	-		1,626,000
SHAREHOLDERS' EQUITY:				
Preferred stock, no par value; shares authorized - 5,000,000; 1,950 shares issued and outstanding at January 31, 2000, none outstanding pro forma	1,940,000	(1,940,000)	(b)	-
Common stock, no par value; shares authorized - 40,000,000; 26,034,294 shares issued and outstanding at January 31, 2000, 30,516,194 shares issued and outstanding pro forma	77,369,000	7,840,000	(c)	85,209,000
Deficit accumulated during the development stage	(76,641,000)	-		(76,641,000)
Total shareholders' equity	2,668,000	5,900,000		8,568,000
Total liabilities and shareholders' equity	$ 4,294,000	$ 5,900,000		$10,194,000

The accompanying notes are an integral part of these pro forma financial statements.

AASTROM BIOSCIENCES, INC.
(a development stage company)

PRO FORMA CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS
(Unaudited)

	Seven months ended January 31, 2000	Pro forma Adjustments		Pro forma seven months ended January 31, 2000	
REVENUES:					
Product sales and rentals	$ 172,000	$ -		$ 172,000	
Grants	676,000	-		676,000	
Total revenues	848,000	-		848,000	
COSTS AND EXPENSES:					
Cost of product sales and rentals	1,252,000	-		1,252,000	
Research and development	3,762,000	-		3,762,000	
Selling, general and administrative	2,089,000	-		2,089,000	
Total costs and expenses	7,103,000	-		7,103,000	
LOSS FROM OPERATIONS	(6,255,000)	-		(6,255,000)	
OTHER INCOME:	155,000	-		155,000	
NET LOSS	$ (6,100,000)	$ -		$ (6,100,000)	
COMPUTATION OF NET LOSS APPLICABLE TO COMMON SHARES:					
Net loss	$ (6,100,000)	$ -		$ (6,100,000)	
Dividends and yields on preferred stock	(207,000)	63,000	(d)	(144,000)	
Net loss applicable to Common Shares	$ (6,307,000)	$ 63,000		$ (6,244,000)	
NET LOSS PER COMMON SHARE (Basic and Diluted)	$ (.35)			$ (.28)	
Weighted average number of common shares outstanding	18,121,000			22,602,000	(e)

The accompanying notes are an integral part of these pro forma financial statements.

AASTROM BIOSCIENCES, INC.
(a development stage company)

PRO FORMA CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS
(Unaudited)

	Year ended June 30, 1999	Pro forma Adjustments	Pro forma Year ended June 30, 1999
REVENUES:			
Product sales	$ 34,000	$ -	$ 34,000
Grants	847,000	-	847,000
Total revenues	881,000	-	881,000
COSTS AND EXPENSES:			
Cost of product sales	6,000	-	6,000
Research and development	10,871,000	-	10,871,000
Selling, general and administrative	2,836,000	-	2,836,000
Total costs and expenses	13,713,000	-	13,713,000
LOSS FROM OPERATIONS	(12,832,000)	-	(12,832,000)
OTHER INCOME:	1,804,000	-	1,804,000
NET LOSS	$(11,028,000)	$ -	$(11,028,000)
COMPUTATION OF NET LOSS APPLICABLE TO COMMON SHARES:			
Net loss	$(11,028,000)	$ -	$(11,028,000)
Dividends and yields on preferred stock	(409,000)	107,000(f)	(392,000)
Charge related to issuance of preferred stock	(70,000)	-	(70,000)
Net loss applicable to Common Shares	$(11,507,000)	$ 107,000	$(11,490,000)
NET LOSS PER COMMON SHARE (Basic and Diluted)	$ (.75)		$ (.58)
Weighted average number of common shares outstanding	15,342,000		19,823,000(g)

The accompanying notes are an integral part of these pro forma financial statements.

AASTROM BIOSCIENCES, INC.
(A development stage company)
NOTES TO PRO FORMA FINANCIAL INFORMATION
(Unaudited)

1. General

The accompanying pro forma financial information reflects the sale of Units, each Unit which consists of one share of common stock and a warrant to purchase 1/2 share of common stock for $6,000,000, net of estimated expenses of $100,000, that occurred on February 29, 2000. The pro forma financial information also gives effect to the conversion of 1,950 shares of 1998 Series I Convertible Preferred Stock into 2,217,749 shares of common stock that occurred during February 2000. This pro forma financial information is for illustrative purposes only.

2. Pro forma adjustments and assumptions

(a) Adjustments to reflect the sale of Units for total proceeds of $6,000,000, less estimated expenses of $100,000, on February 29, 2000.

(b) Adjustments to reflect the conversion of 1,950 shares of 1998 Series I Preferred Stock into 2,217,749 shares of common stock that occurred during February 2000.

(c) Adjustments to reflect the net proceeds from the sale of the Units and conversion of Preferred Stock.

(d) Adjustments to eliminate the 5.5% yield on 1,950 shares of 1998 Series I Preferred Stock that is assumed to have been converted into common stock as of July 1, 1998.

(e) Shares used in the computation of net loss per common share have been adjusted to reflect the sale of common stock on February 29, 2000 and conversion of 1998 Series I Preferred Stock as if such events had occurred as of July 1, 1999.

(f) Adjustments to eliminate the 5.5% yield on 1,950 shares of 1998 Series I Preferred Stock that is assumed to have been converted into common stock as of July 1, 1998.

(g) Shares used in the computation of net loss per common share have been adjusted to reflect the sale of common stock on February 29, 2000 and conversion of 1998 Series I Preferred Stock as if such events had occurred as of July 1, 1998.

(c) Exhibits.

Exhibit No.	Description
4.1	Securities Purchase Agreement, dated February 28, 2000, by and between the Registrant and RGC International Investors, LDC ("RGC")
4.2	Registration Rights Agreement dated February 28, 2000, by and between the Registrant and RGC.
4.3	Stock Purchase Warrant dated February 29, 2000.
99.1	Press Release dated March 2, 2000.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Aastrom Biosciences, Inc.

Date: March 3, 2000

By: /s/ Todd E. Simpson

Vice President, Finance & Administration and Chief Financial Officer (Principal Financial and Accounting Officer)

EXHIBIT INDEX

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4.3	Stock Purchase Warrant dated February 29, 2000.
99.1	Press Release dated March 2, 2000.

EXHIBIT 4.1

SECURITIES PURCHASE AGREEMENT

SECURITIES PURCHASE AGREEMENT (this "Agreement"), dated as of February 28, 2000, by and among Aastrom Biosciences, Inc., a Michigan corporation, with headquarters located at 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106 ("Company"), and each of the purchasers set forth on the signature pages hereto (the "Buyers").

WHEREAS:

A. The Company and the Buyers are executing and delivering this Agreement in reliance upon the exemption from securities registration afforded by Rule 506 under Regulation D ("Regulation D") as promulgated by the United States Securities and Exchange Commission (the "SEC") under the Securities Act of 1933, as amended (the "1933 Act");

B. The Buyers desire to purchase and the Company desires to issue and sell, upon the terms and conditions set forth in this Agreement, two million two hundred sixty-four thousand one hundred fifty-one (2,264,151) units (the "Units"), each Unit consisting of (i) one (1) share of the Company's common stock, no par value (the "Common Stock"), and (ii) one-half (.5) detachable warrants in the form attached hereto as Exhibit "A" (each, a "Warrant" and, collectively, the "Warrants"), each Warrant exercisable for one (1) share of Common Stock (subject to adjustment as provided in the Warrants), for a per Unit purchase price of Two Dollars and 65/100 ($2.65), or an aggregate purchase price of Six Million Dollars ($6,000,000). The shares of Common Stock that are included in the Units, together with any shares of Common Stock issued in replacement thereof or as a dividend thereon or otherwise with respect thereto, and any shares of Common Stock issuable pursuant to Section 2(c) of the Registration Rights Agreement (as defined below), are hereinafter referred to as the "Common Shares." The shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants are hereinafter collectively referred to as the "Warrant Shares." The Common Shares, the Warrants and the Warrant Shares are sometimes hereinafter collectively referred to as the "Securities;"

C. Each Buyer wishes to purchase, upon the terms and conditions stated in this Agreement, the number of Units as is set forth immediately below its name on the signature pages hereto;

D. Contemporaneous with the execution and delivery of this Agreement, the parties hereto are executing and delivering a Registration Rights Agreement, in the form attached hereto as Exhibit "B" (the "Registration Rights Agreement"), pursuant to which the Company has agreed to provide certain registration rights under the 1933 Act and the rules and regulations promulgated thereunder, and applicable state securities laws; and

NOW THEREFORE, the Company and each of the Buyers severally (and not jointly) hereby agree as follows:

1. Purchase and Sale of Units and Warrants.

(a) Purchase of Units. On the Closing Date (as defined below), the Company shall issue and sell to each Buyer and each Buyer severally agrees to purchase from the Company such number of Units as is set forth immediately below such Buyer's name on the signature pages hereto.

(b) Form of Payment. On the Closing Date (as defined below), (i) each Buyer shall pay the purchase price for the Units to be issued and sold to it at the Closing (as defined below) (the "Purchase Price") by wire transfer of immediately available funds to the Company, in accordance with the Company's written wiring instructions, against delivery of duly executed certificates for the Common Shares and duly executed Warrants representing the number of Units set forth immediately below such Buyer's name on the signature pages hereto and (ii) the Company shall deliver such certificates and Warrants duly executed on behalf of the Company, to such Buyer, against delivery of such Purchase Price.

(c) Closing Date. Subject to the satisfaction (or waiver) of the conditions thereto set forth in Section 7 and Section 8 below, the date and time of the issuance and sale of the Units pursuant to this Agreement (the "Closing Date") shall be 12:00 noon Eastern Standard Time on February 29, 2000 or such other mutually agreed upon date and time. The closing of the transaction contemplated by this Agreement (the "Closing") shall occur on the Closing Date at the offices of Klehr, Harrison, Harvey, Branzburg & Ellers LLP, 260 South Broad Street, Philadelphia, Pennsylvania 19102, or at such other location as may be agreed to by the parties.

2. Buyers' Representations and Warranties. Each Buyer severally (and not jointly) represents and warrants to the Company solely as to such Buyer that:

(a) Investment Purpose. The Buyer is purchasing the Securities for its own account and not with a present view towards the public sale or distribution thereof, except pursuant to sales registered or exempted from registration under the 1933 Act; provided, however, that by making the representations herein, the Buyer does not agree to hold any of the Securities for any minimum or other specific term and reserves the right to dispose of the Securities at any time in accordance with or pursuant to a registration statement or an exemption under the 1933 Act.

(b) Accredited Investor Status. The Buyer is an "accredited investor" as that term is defined in Rule 501(a) of Regulation D (an "Accredited Investor").

(c) Reliance on Exemptions. The Buyer understands that the Securities are being offered and sold to it in reliance upon specific exemptions from the registration requirements of United States federal and state securities laws and that the Company is relying upon the truth and accuracy of, and the Buyer's compliance with, the representations, warranties, agreements,

acknowledgments and understandings of the Buyer set forth herein in order to determine the availability of such exemptions and the eligibility of the Buyer to acquire the Securities.

(d) Information. The Buyer and its advisors, if any, have been furnished with all materials relating to the business, finances and operations of the Company and materials relating to the offer and sale of the Securities which have been requested by the Buyer or its advisors. The Buyer and its advisors, if any, have been afforded the opportunity to ask questions of the Company. Neither such inquiries nor any other due diligence investigation conducted by Buyer or any of its advisors or representatives shall modify, amend or affect Buyer's right to rely on the Company's representations and warranties contained in Section 3 below. The Buyer has reviewed the risk factors discussed in the Company's SEC Documents (as defined below) and understands that its investment in the Securities involves a significant degree of risk.

(e) Governmental Review. The Buyer understands that no United States federal or state agency or any other government or governmental agency has passed upon or made any recommendation or endorsement of the Securities.

(f) Transfer or Re-sale. The Buyer understands that (i) except as provided in the Registration Rights Agreement, the sale or re-sale of the Securities has not been and is not being registered under the 1933 Act or any applicable state securities laws, and the Securities may not be transferred unless (a) the Securities are sold pursuant to an effective registration statement under the 1933 Act, (b) the Buyer shall have delivered to the Company an opinion of counsel (which opinion shall be reasonably acceptable to the Company) to the effect that the Securities to be sold or transferred may be sold or transferred pursuant to an exemption from such registration, (c) so long as the Buyer otherwise complies with applicable securities laws, the Securities are sold or transferred to an "affiliate"(as defined in Rule 144 promulgated under the 1933 Act (or a successor rule) ("Rule 144")) or (d) the Securities are sold pursuant to Rule 144; (ii) any sale of such Securities made in reliance on Rule 144 may be made only in accordance with the terms of said Rule and further, if said Rule is not applicable, any re-sale of such Securities under circumstances in which the seller (or the person through whom the sale is made) may be deemed to be an underwriter (as that term is defined in the 1933 Act) may require compliance with some other exemption under the 1933 Act or the rules and regulations of the SEC thereunder; and (iii) neither the Company nor any other person is under any obligation to register such Securities under the 1933 Act or any state securities laws or to comply with the terms and conditions of any exemption thereunder (in each case, other than pursuant to the Registration Rights Agreement). Notwithstanding the foregoing or anything else contained herein to the contrary, nothing herein shall restrict the Securities from being pledged as collateral in connection with a bona fide margin account or other lending arrangement.

(g) Legends. The Buyer understands that the Warrants and, until such time as the Common Shares and Warrant Shares have been registered under the 1933 Act as contemplated by the Registration Rights Agreement or otherwise may be sold pursuant to Rule 144 without any restriction as to the number of securities as of a particular date that can then be immediately sold, the Common Shares and Warrant Shares, may bear a restrictive legend in substantially the following form (and a stop-transfer order may be placed against transfer of the certificates for such Securities):

"The securities represented by this certificate have not been registered under the Securities Act of 1933, as amended. The securities may not be sold, transferred or assigned in the absence of an effective registration statement for the securities under said Act, or an opinion of counsel, in form, substance and scope reasonably acceptable to the Company, that registration is not required under said Act or unless sold pursuant to Rule 144 under said Act."

The legend set forth above shall be removed and the Company shall issue a certificate without such legend to the holder of any Security upon which it is stamped, if, unless otherwise required by applicable state securities laws, (a) such Security is registered for sale under an effective registration statement filed under the 1933 Act or otherwise may be sold pursuant to Rule 144 without any restriction as to the number of securities as of a particular date that can then be immediately sold and the manner of such sale, or (b) such holder provides the Company with an opinion of counsel, in form, substance and scope reasonably acceptable to the Company, to the effect that a public sale or transfer of such Security may be made without registration under the 1933 Act and such sale or transfer is effected or (c) such holder provides the Company with reasonable assurances that such Security can be sold pursuant to Rule 144. The Buyer agrees to sell all Securities, including those represented by a certificate(s) from which the legend has been removed, in compliance with applicable requirements for delivery of a prospectus, and the plan of distribution described therein, contained in an effective registration statement, if any, or if relying on clause (c) of the preceding sentence, with the requirements of Rule 144.

(h) Authorization; Enforcement. This Agreement and the Registration Rights Agreement have been duly and validly authorized. This Agreement has been duly executed and delivered on behalf of the Buyer, and this Agreement constitutes, and upon execution and delivery by the Buyer of the Registration Rights Agreement, such agreement will constitute, valid and binding agreements of the Buyer enforceable in accordance with their terms.

(i) Residency. The Buyer is a resident of the jurisdiction set forth immediately below such Buyer's name on the signature pages hereto.

(j) Additional Funding. The Buyer acknowledges that in addition to the equity funding to be received by the Company pursuant to this Agreement, the Company will need to raise additional capital in the near future and that there can be no assurance that the Company will be successful doing so or that the price per share for such future capital raises will be favorable to the Company or the holders of its securities.

3. Representations and Warranties of the Company. The Company represents and warrants to each Buyer that:

(a) Organization and Qualification. The Company is a corporation duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated, with full power and authority (corporate and other) to own, lease, use and operate its properties and to carry on its business as and where now owned, leased, used, operated and conducted. The Company has no Subsidiaries (as defined below). The Company is duly qualified as a foreign corporation to do business and is in good standing in every jurisdiction in which its ownership or use of property or the nature of the business conducted by it makes such qualification necessary except where the failure to be so qualified or in good standing would not have a Material Adverse Effect. "Material Adverse Effect" means any material adverse effect on (i) the Securities, (ii) the business, operations, assets, financial condition or prospects of the Company and its Subsidiaries, if any, taken as a whole, or (iii) on the transactions contemplated hereby or by the agreements or instruments to be entered into in connection herewith. "Subsidiaries" means any corporation or other organization, whether incorporated or unincorporated, in which the Company owns, directly or indirectly, any equity or other ownership interest.

(b) Authorization; Enforcement. (i) The Company has all requisite corporate power and authority to enter into and perform this Agreement, the Registration Rights Agreement and the Warrants and to consummate the transactions contemplated hereby and thereby and to issue the Securities, in accordance with the terms hereof and thereof, (ii) the execution and delivery of this Agreement, the Registration Rights Agreement and the Warrants by the Company and the consummation by it of the transactions contemplated hereby and thereby (including without limitation, the issuance of the Common Shares and Warrants and the issuance and reservation for issuance of the Warrant Shares issuable upon exercise of or otherwise pursuant to the Warrants) have been duly authorized by the Company's Board of Directors and no further consent or authorization of the Company, its Board of Directors, or its shareholders is required, (iii) this Agreement has been duly executed and delivered by the Company, and (iv) this Agreement constitutes, and upon execution and delivery by the Company of the Registration Rights Agreement and the Warrants, each of such agreement and instruments will constitute, a legal, valid and binding obligation of the Company enforceable against the Company in accordance with its terms.

(c) Capitalization. As of the date hereof, the authorized capital stock of the Company consists of (i) forty million (40,000,000) shares of Common Stock of which 28,257,668 shares are issued and outstanding, 1,657,152 shares are reserved for issuance pursuant to the Company's stock option and stock purchase plans, 69,444 shares are reserved for issuance pursuant to securities (other than the Warrants) exercisable for, or convertible into or exchangeable for shares of Common Stock and 2,264,151 (2x currently required) shares are reserved for issuance upon exercise of the Warrants (subject to adjustment pursuant to the Company's covenant set forth in Section 4(h) below); and (ii) five million (5,000,000) shares of preferred stock, none of which are issued and outstanding, five thousand (5,000) of which are designated as 1998 Series I Convertible Preferred Stock, none of which are issued and outstanding, and three thousand (3,000) of which are designated as the 1999 Series III Convertible Preferred Stock, none of which are issued and outstanding. All of such outstanding shares of capital stock are, or upon issuance will be, duly authorized, validly issued, fully paid and nonassessable. Except as disclosed on Schedule 3(c), no

shares of capital stock of the Company are subject to preemptive rights or any other similar rights of the stockholders of the Company or any liens or encumbrances imposed through the actions or failure to act of the Company. Except as disclosed in Schedule 3(c), as of the effective date of this Agreement, (i) there are no outstanding options, warrants, scrip, rights to subscribe for, puts, calls, rights of first refusal, agreements, understandings, claims or other commitments or rights of any character whatsoever relating to, or securities or rights convertible into or exchangeable for any shares of capital stock of the Company, or arrangements by which the Company is or may become bound to issue additional shares of capital stock of the Company, (ii) there are no agreements or arrangements under which the Company is obligated to register the sale of any of its or their securities under the 1933 Act (except the Registration Rights Agreement and the Registration Rights Agreement dated May 27, 1999 by and among the Company and RGC International Investors, LDC) and (iii) there are no anti-dilution or price adjustment provisions contained in any security issued by the Company (or in any agreement providing rights to security holders) that will be triggered by the issuance of the Common Shares, the Warrants, or the Warrant Shares. The Company has furnished to the Buyer true and correct copies of the Company's Certificate of Incorporation as in effect on the date hereof ("Certificate of Incorporation"), the Company's By-laws, as in effect on the date hereof (the "By-laws"), and the terms of all securities convertible into or exercisable for Common Stock of the Company and the material rights of the holders thereof in respect thereto. The Company shall provide the Buyer with a written update of this representation signed by the Company's Chief Executive or Chief Financial Officer on behalf of the Company as of the Closing Date.

(d) Issuance of Shares. The Common Shares are duly authorized and, upon issuance in accordance with the terms of this Agreement will be validly issued, fully paid and non-assessable, and free from all taxes, liens, claims and encumbrances with respect to the issue thereof and shall not be subject to preemptive rights or, except as disclosed on Schedule 3(d) hereof, other similar rights of stockholders of the Company and will not impose personal liability upon the holder thereof. The Warrant Shares are duly authorized and reserved for issuance, and, when issued upon exercise of the Warrants in accordance with the terms thereof, will be validly issued, fully paid and non-assessable, and free from all taxes, liens, claims and encumbrances and will not be subject to preemptive rights or other similar rights of stockholders of the Company and will not impose personal liability upon the holder thereof.

(e) Acknowledgment of Dilution. The Company understands and acknowledges the potentially dilutive effect to the Common Stock upon the issuance of the Warrant Shares upon exercise of the Warrants. The Company further acknowledges that its obligation to issue the Warrant Shares upon exercise of or otherwise pursuant to the Warrants in accordance with this Agreement and the Warrants is absolute and unconditional regardless of the dilutive effect that such issuance may have on the ownership interests of other stockholders of the Company.

(f) Series of Preferred Stock. The terms, designations, powers, preferences and relative, participating and optional or special rights, and the qualifications, limitations and restrictions of each series of preferred stock of the Company are as stated in the Certificate of

Incorporation, the Certificates of Designation filed to create the series of preferred stock referred to in Section 3(c) and the Bylaws.

(g) No Conflicts. The execution, delivery and performance of this Agreement, the Registration Rights Agreement and the Warrants by the Company and the consummation by the Company of the transactions contemplated hereby and thereby (including, without limitation, the issuance of the Common Shares and the Warrants and the issuance and reservation for issuance of the Warrant Shares) will not (i) conflict with or result in a violation of any provision of the Certificate of Incorporation or By-laws or (ii) violate or conflict with, or result in a breach of any provision of, or constitute a default (or an event which with notice or lapse of time or both could become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture, patent, patent license or instrument to which the Company is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including federal and state securities laws and regulations and regulations of any self-regulatory organizations to which the Company or its securities are subject) applicable to the Company or by which any property or asset of the Company is bound or affected (except for such conflicts, defaults, terminations, amendments, accelerations, cancellations and violations as would not, individually or in the aggregate, have a Material Adverse Effect). The Company is not in violation of its Certificate of Incorporation, By-laws or other organizational documents and the Company is not in default (and no event has occurred which with notice or lapse of time or both could put the Company in default) under, and the Company has not taken any action or failed to take any action that would give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture or instrument to which the Company is a party or by which any property or assets of the Company is bound or affected, except for possible defaults as would not, individually or in the aggregate, have a Material Adverse Effect. The business of the Company is not being conducted, and shall not be conducted so long as a Buyer owns any of the Securities, in violation of any law, ordinance or regulation of any governmental entity, which violations individually or in the aggregate would have a Material Adverse Effect. Except (i) as specifically contemplated by this Agreement and the Registration Rights Agreement, (ii) as required under the 1933 Act and any applicable state securities laws, and (iii) for filings with Nasdaq (as defined below), the Company is not required to obtain any consent, authorization or order of, or make any filing or registration with, any court, governmental agency, regulatory agency, or self regulatory organization or stock market or third party in order for it to execute, deliver or perform any of its obligations under this Agreement, the Registration Rights Agreement or the Warrants in accordance with the terms hereof or thereof or to issue and sell the Common Shares and the Warrants in accordance with the terms hereof and to issue the Warrant Shares upon exercise of or otherwise pursuant to the Warrants. Except as disclosed in Schedule 3(g), all consents, authorizations, orders, filings and registrations which the Company is required to obtain pursuant to the preceding sentence have been obtained or effected on or prior to the date hereof. Except as disclosed in Schedule 3(g), the Company is not in violation of the listing requirements of the Nasdaq National Market ("Nasdaq") applicable to continued listings and does not reasonably anticipate that the Common Stock will be delisted by Nasdaq in the foreseeable future. Except for anticipated losses as described in the SEC Documents (as defined below), the

Company is unaware of any facts or circumstances which might give rise to any of the foregoing.

(h) SEC Documents; Financial Statements. Since February 6, 1997, the Company has timely filed all reports, schedules, forms, statements and other documents required to be filed by it with the SEC pursuant to the reporting requirements of the Securities Exchange Act of 1934, as amended (the "1934 Act") (all of the foregoing filed prior to the date hereof and all exhibits included therein and financial statements and schedules thereto and documents (other than exhibits to such documents) incorporated by reference therein, being hereinafter referred to herein as the "SEC Documents"). The Company has delivered or made available to each Buyer true and complete copies of the SEC Documents, except for such exhibits and incorporated documents. As of their respective dates, the SEC Documents complied in all material respects with the requirements of the 1934 Act and the rules and regulations of the SEC promulgated thereunder applicable to the SEC Documents, and none of the SEC Documents, at the time they were filed with the SEC, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. None of the statements made in any such SEC Documents is, or has been, required to be amended or updated under applicable law (except for such statements as have been amended or updated in subsequent filings prior to the date hereof). As of their respective dates, the financial statements of the Company included in the SEC Documents complied as to form in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto. Such financial statements have been prepared in accordance with United States generally accepted accounting principles, consistently applied, during the periods involved (except (i) as may be otherwise indicated in such financial statements or the notes thereto, or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes or may be condensed or summary statements) and fairly present in all material respects the consolidated financial position of the Company and its consolidated Subsidiaries as of the dates thereof and the consolidated results of their operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal year-end audit adjustments). Except as set forth in Schedule (h) hereof and the financial statements of the Company included in the SEC Documents, the Company has no liabilities, contingent or otherwise, other than (i) liabilities incurred in the ordinary course of business subsequent to June 30, 1999 and (ii) obligations under contracts and commitments incurred in the ordinary course of business and not required under generally accepted accounting principles to be reflected in such financial statements, which, individually or in the aggregate, are not material to the financial condition or operating results of the Company.

(i) Absence of Certain Changes. Except for operating losses or changes incurred in the normal course of business and as disclosed in the Company's Quarterly Report on Form 10-Q for the quarter ended December 31, 1999 or in any press release or SEC Document filed after the date of filing of such quarterly report, since June 30, 1999, there has been no material adverse change and no material adverse development in the assets, liabilities, business, properties, operations, financial condition, results of operations or prospects of the Company.

(j) Absence of Litigation. There is no action, suit, claim, proceeding, inquiry or investigation before or by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the Company, threatened against or affecting the Company, or its officers or directors in their capacity as such, that could have a Material Adverse Effect. Schedule 3(j) contains a complete list and summary description of any pending or, to the Company's knowledge, threatened proceeding against or affecting the Company, without regard to whether it would have a Material Adverse Effect. Except as set forth on Schedule 3(j), the Company is unaware of any facts or circumstances which might give rise to any of the foregoing.

(k) Patents, Copyrights, etc. To the best of the Company's knowledge, the Company owns or possesses the requisite licenses or rights to use all patents, patent applications, patent rights, inventions, know-how, trade secrets, trademarks, trademark applications, service marks, service names, trade names and copyrights ("Intellectual Property") necessary to enable it to conduct its business as now operated (and, except as set forth in Schedule 3(k) hereof, to the best of the Company's knowledge, as presently contemplated to be operated in the future); there is no claim or action by any person pertaining to, or proceeding pending, or to the Company's knowledge threatened which challenges the right of the Company with respect to any Intellectual Property necessary to enable it to conduct its business as now operated (and, except as set forth in Schedule 3(k) hereof, to the best of the Company's knowledge, as presently contemplated to be operated in the future); to the best of the Company's knowledge, the Company's current and intended products, services and processes do not infringe on any Intellectual Property or other rights held by any person; and the Company is unaware of any facts or circumstances which might give rise to any of the foregoing. The Company has taken reasonable security measures to protect the secrecy, confidentiality and value of its Intellectual Property.

(l) No Materially Adverse Contracts, Etc. The Company is not subject to any charter, corporate or other legal restriction, or any judgment, decree, order, rule or regulation which in the judgment of the Company's officers has or is expected in the future to have a Material Adverse Effect. Except as set forth on Schedule 3(l), the Company is not a party to any contract or agreement which in the judgment of the Company's officers has or is expected to have a Material Adverse Effect.

(m) Tax Status. Except as set forth on Schedule 3(m), the Company has made or filed all federal, state and foreign income and all other tax returns, reports and declarations required by any jurisdiction to which it is subject (unless and only to the extent that the Company has set aside on its books provisions reasonably adequate for the payment of all unpaid and unreported taxes) and has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations, except those being contested in good faith and has set aside on its books provisions reasonably adequate for the payment of all taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company know of no basis for any such claim. The Company has not executed a waiver with respect to the statute of limitations relating to

the assessment or collection of any foreign, federal, state or local tax. Except as set forth on Schedule 3(m), none of the Company's tax returns is presently being audited by any taxing authority.

(n) Certain Transactions. Except as set forth on Schedule 3(n) and except for arm's length transactions pursuant to which the Company makes payments in the ordinary course of business upon terms no less favorable than the Company could obtain from third parties and other than the grant of stock options disclosed on Schedule 3(c), none of the officers, directors, or employees of the Company is presently a party to any transaction with the Company (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any corporation, partnership, trust or other entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee or partner.

(o) Disclosure. All information relating to or concerning the Company set forth in this Agreement and provided to the Buyers pursuant to Section 2(d) hereof and otherwise in connection with the transactions contemplated hereby is true and correct in all material respects and the Company has not omitted to state any material fact necessary in order to make the statements made herein or therein, in light of the circumstances under which they were made, not misleading. Other than the transactions contemplated by this Agreement, no event or circumstance has occurred or exists with respect to the Company or its business, properties, prospects, operations or financial conditions, which, under applicable law, rule or regulation, requires public disclosure or announcement by the Company but which has not been so publicly announced or disclosed (assuming for this purpose that the Company's reports filed under the 1934 Act are being incorporated into an effective registration statement filed by the Company under the 1933 Act).

(p) Acknowledgment Regarding Buyers' Purchase of Securities. The Company acknowledges and agrees that the Buyers are acting solely in the capacity of arm's length purchasers with respect to this Agreement and the transactions contemplated hereby. The Company further acknowledges that no Buyer is acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to this Agreement and the transactions contemplated hereby and that any statement made by any Buyer or any of their respective representatives or agents in connection with this Agreement and the transactions contemplated hereby is not advice or a recommendation and is merely incidental to the Buyers' purchase of the Securities and has not been relied upon by the Company, its officers or directors in any way. The Company further represents to each Buyer that the Company's decision to enter into this Agreement has been based solely on the independent evaluation of the Company and its representatives.

(q) No Integrated Offering. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf, has directly or indirectly made any offers or sales of any security or solicited any offers to buy any security under circumstances that would require

registration under the 1933 Act of the issuance of the Securities to the Buyers. Except as set forth on Schedule 3(q) hereof, the issuance of the Securities to the Buyers will not be integrated with any other issuance of the Company's securities (past, current or future) for purposes of any stockholder approval provisions applicable to the Company or its securities.

(r) No Brokers. The Company has taken no action which would give rise to any claim by any person for brokerage commissions, finder's fees or similar payments relating to this Agreement or the transactions contemplated hereby.

(s) Permits; Compliance. The Company is in possession of all franchises, grants, authorizations, licenses, permits, easements, variances, exemptions, consents, certificates, approvals and orders necessary to own, lease and operate its properties and to carry on its business as it is now being conducted (collectively, the "Company Permits"), except where the failure to possess such Company Permit would not have a Material Adverse Effect, and there is no action pending or, to the knowledge of the Company, threatened regarding suspension or cancellation of any of the Company Permits. The Company is not in conflict with, or in default or violation of, any of the Company Permits, except for any such conflicts, defaults or violations which, individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect. Since June 30, 1999, the Company has not received any notification with respect to possible conflicts, defaults or violations of applicable laws, except for notices relating to possible conflicts, defaults or violations, which conflicts, defaults or violations would not have a Material Adverse Effect.

(t) Environmental Matters.

(i) Except as set forth in Schedule 3(t), there are, to the Company's knowledge, with respect to the Company or any predecessor of the Company, no past or present violations of Environmental Laws (as defined below), releases of any material into the environment, actions, activities, circumstances, conditions, events, incidents, or contractual obligations which may give rise to any common law environmental liability or any liability under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 or similar federal, state, local or foreign laws and the Company has not received any notice with respect to any of the foregoing, nor is any action pending or, to the Company's knowledge, threatened in connection with any of the foregoing. The term "Environmental Laws" means all federal, state, local or foreign laws relating to pollution or protection of human health or the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata), including, without limitation, laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations issued, entered, promulgated or approved thereunder.

(ii) Other than those that are or were stored, used or disposed of in compliance with applicable law, no Hazardous Materials are contained on or about any real property

currently owned, leased or used by the Company, and no Hazardous Materials were released on or about any real property previously owned, leased or used by the Company during the period the property was owned, leased or used by the Company, except in the normal course of the Company's business.

(iii) To the Company's knowledge, there are no underground storage tanks on or under any real property owned, leased or used by the Company that are not in compliance with applicable law.

(u) Title to Property. The Company has good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by it which is material to the business of the Company, in each case free and clear of all liens, encumbrances and defects except such as are described in Schedule 3(u) or such as would not have a Material Adverse Effect. Any real property and facilities held under lease by the Company is held by it under valid, subsisting and enforceable leases with such exceptions as would not have a Material Adverse Effect.

(v) Insurance. The Company is insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as management of the Company believes to be prudent and customary in the businesses in which the Company is engaged. The Company has no reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(w) Internal Accounting Controls. The Company maintains a system of internal accounting controls sufficient, in the judgment of the Company's board of directors, to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(x) Foreign Corrupt Practices. Neither the Company, nor any director, officer, agent, employee or other person acting on behalf of the Company has, in the course of his actions for, or on behalf of, the Company, used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; violated or is in violation of any provision of the U.S. Foreign Corrupt Practices Act of 1977; or made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any foreign or domestic government official or employee.

(y) No Investment Company. The Company is not, and upon the issuance and sale of the Securities as contemplated by this Agreement and the Warrants will not be, an

"investment company" required to be registered under the Investment Company Act of 1940 (an "Investment Company"). The Company is not controlled by an Investment Company.

(z) Solvency. The Company (both before and after giving effect to the transactions contemplated by this Agreement) is solvent (i.e., its assets have a fair market value in excess of the amount required to pay its probable liabilities on its existing debts as they become absolute and matured) and currently subject to Schedule 3(z), the Company has no information that would lead it to reasonably conclude that the Company would not have, nor does it intend to take any action that would impair, its ability to pay its debts from time to time incurred in connection therewith as such debts mature.

4 COVENANTS.

(a) Best Efforts. The parties shall use their best efforts to satisfy timely each of the conditions described in Section 7 and 8 of this Agreement.

(b) Form D; Blue Sky Laws. The Company agrees to file a Form D with respect to the Securities as required under Regulation D and to provide a copy thereof to each Buyer promptly after such filing. The Company shall, on or before the Closing Date, take such action as the Company shall reasonably determine is necessary to qualify the Securities for sale to the Buyers at the Closing under applicable securities or "blue sky" laws of the states of the United States (or to obtain an exemption from such qualification), and shall provide evidence of any such action so taken to each Buyer on or prior to the Closing Date.

(c) Reporting Status; Eligibility to Use Form S-3. The Company's Common Stock is registered under Section 12(g) of the 1934 Act. So long as any Buyer beneficially owns any of the Securities, the Company shall timely file all reports required to be filed with the SEC pursuant to the 1934 Act, and the Company shall not terminate its status as an issuer required to file reports under the 1934 Act even if the 1934 Act or the rules and regulations thereunder would permit such termination. The Company currently meets, and will take all necessary action to continue to meet, the "registrant eligibility" requirements set forth in the general instructions to Form S-3.

(d) Use of Proceeds. The Company shall use the proceeds from the sale of the Common Shares and the Warrants in the manner set forth in Schedule 4(d) attached hereto and made a part hereof and shall not, directly or indirectly, use such proceeds for any loan to or investment in any other corporation, partnership, enterprise or other person that is not controlled by the Company prior to the transfer of such proceeds.

(e) Additional Equity Capital. Subject to the exceptions described below, the Company will not, without the prior written consent of Rose Glen Capital Management, L.P. ("RGC"), (i) register (other than pursuant to the Registration Rights Agreement) any equity financing (including debt financing with an equity component) or (ii) otherwise allow any public resales of equity interests in the Company's securities, issued after February 25, 2000, pursuant to

Rule 144 or otherwise, during the period (the "Lock-up Period") beginning on the Closing Date and ending ninety (90) days from the date the Registration Statement (as defined in the Registration Rights Agreement) is declared effective (plus any trading days after the Registration Statement is declared effective and prior to such 90th day during which sales cannot be made thereunder) (the limitations referred to in this sentence are referred to as the "Capital Raising Limitations"). The Capital Raising Limitations shall not apply to any transaction involving (i) issuances of securities in a firm commitment underwritten public offering (excluding a continuous offering pursuant to Rule 415 under the 1933 Act), (ii) issuances of securities as consideration for a merger, consolidation or purchase of assets, or in connection with any strategic partnership or joint venture (the primary purpose of which is not to raise equity capital), or in connection with the disposition or acquisition of a business, product or license by the Company, (iii) issuances of Common Stock and warrants to purchase Common Stock in connection with a bona fide credit facility in an aggregate principal amount equal to at least Fifteen Million Dollars ($15,000,000), provided that the exercise price of such warrants is not less than the lower of (A) the closing price of the Common Stock on the principal securities exchange on which the Common Stock is then listed or admitted for trading on the trading day prior to conversion (but in no event less than $2.65 per share) and (B) $6.00, (v) issuances of securities in connection with an investment in the Company for which more than fifty percent (50%) of the proceeds are provided by an investor engaged as its principal business in the biotechnology, medical device or pharmaceutical industry or (vi) issuances to one other entity of the same securities that the Company is issuing to the Buyers pursuant to this Agreement as disclosed in Schedule 3(c) hereof. The Capital Raising Limitations also shall not apply to the issuance of securities upon exercise or conversion of the Company's options, warrants or other convertible securities outstanding as of the date hereof or to the grant of additional options or warrants, or the issuance of additional securities, under any Company stock option or stock purchase plan previously in effect or approved by a majority of the Company's disinterested directors.

(f) Expenses. The Company shall reimburse RGC for all reasonable expenses incurred by it in connection with the negotiation, preparation, execution, delivery and performance of this Agreement and the other agreements to be executed in connection herewith, including, without limitation, attorneys' and consultants' fees and expenses. The Company's obligation to reimburse Rose Glen's expenses under this Section 4(f) and the Registration Rights Agreement shall be limited to an aggregate of Fifteen Thousand Dollars ($15,000).

(g) Financial Information. The Company agrees to send the following reports to each Buyer until such Buyer transfers, assigns, or sells all of the Securities: (i) within ten (10) days after the filing with the SEC, a copy of its Annual Report on Form 10-K, its Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K; (ii) within one (1) day after release, copies of all press releases issued by the Company or any of its Subsidiaries; and (iii) contemporaneously with the making available or giving to the stockholders of the Company, copies of any notices or other information the Company makes available or gives to such stockholders.

(h) Reservation of Shares. The Company shall at all times have authorized, and reserved for the purpose of issuance, a sufficient number of shares of Common Stock to provide for

the full exercise of the outstanding Warrants and issuance of the Warrant Shares in connection therewith (based on the Exercise Price of the Warrants in effect from time to time). The Company shall not reduce the number of shares of Common Stock reserved for issuance upon exercise of or otherwise pursuant to the Warrants without the consent of each Buyer. The Company shall use its best efforts at all times to maintain the number of shares of Common Stock so reserved for issuance at no less than two (2) times the number that is then actually issuable upon full exercise of the Warrants (based on the Exercise Price of the Warrants in effect from time to time). If at any time the number of shares of Common Stock authorized and reserved for issuance is below the number of Warrant Shares issued and issuable upon exercise of or otherwise pursuant to the Warrants (based on the Exercise Price of the Warrants in effect from time to time), the Company will promptly take all corporate action necessary to authorize and reserve a sufficient number of shares, including, without limitation, calling a special meeting of shareholders to authorize additional shares to meet the Company's obligations under this Section 4(h), in the case of an insufficient number of authorized shares, and using its best efforts to obtain shareholder approval of an increase in such authorized number of shares.

(i) Listing. The Company shall promptly secure the listing of the
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Common Shares and Warrant Shares upon each national securities exchange or automated quotation system, if any, upon which shares of Common Stock are then listed (subject to official notice of issuance) and, as long as any Buyer owns any of the Securities, shall maintain, so long as any other shares of Common Stock shall be so listed, such listing of all Common Shares and Warrant Shares from time to time issuable upon exercise of or otherwise pursuant to the Warrants. The Company will obtain, as long as any Buyer owns any of the Securities, and maintain the listing and trading of the Common Stock on Nasdaq, the Nasdaq SmallCap Market ("Nasdaq SmallCap"), the New York Stock Exchange ("NYSE"), or the American Stock Exchange ("AMEX") and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of the National Association of Securities Dealers ("NASD") and such exchanges, as applicable. The Company shall promptly provide to each Buyer copies of any notices it receives from Nasdaq and any other exchanges or quotation systems on which the Common Stock is then listed regarding the continued eligibility of the Common Stock for listing on such exchanges and quotation systems.

(j) Corporate Existence. So long as a Buyer beneficially owns any
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Securities, the Company shall maintain its corporate existence and shall not merge or consolidate, except in the event of a merger or consolidation where the surviving or successor entity (and, if an entity different from the surviving or successor entity, the entity whose securities into which the Warrants shall become exercisable pursuant to Section 4(e) of the Warrants) in such transaction assumes the Company's obligations hereunder and under the agreements and instruments entered into in connection herewith (including the Warrants).

(k) No Integration. The Company shall not make any offers or sales of
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any security (other than the Securities) under circumstances that would require registration of the Securities being offered or sold hereunder under the 1933 Act or cause the offering of the Securities

to be integrated with any other offering of securities by the Company for the purpose of any shareholder approval provision applicable to the Company or its securities.

(l) Increase in Authorized Shares. Each Buyer hereby agrees to vote all shares of Common Stock owned by such Buyer in favor of any resolution(s) soliciting approval of an increase in the authorized Common Stock of the Company up to 150,000,000 shares.

(m) Trading Guidelines. So long as a Buyer holds Common Shares or Warrants, such Buyer covenants and agrees that it will not create any daily low trading price in the Common Stock.

(n) Notice to Company Upon Sale. Each Buyer shall notify the Company in writing within three business days following the date on which such Buyer no longer holds any Common Shares or Warrant Shares.

5. EVENTS OF DEFAULT. The intent of the parties hereto is that the issuance of the Securities hereunder be treated as permanent equity under generally accepted accounting principles and should any question arise as to such treatment, the parties hereto will act in good faith to resolve such question. Events of Default (as defined below) will be strictly limited to items which are within the control of the Company. If any of the following events (each, an "Event of Default") shall occur during the period in which any Buyer (or any permitted assignee of a Buyer's rights hereunder) beneficially owns any Securities, then the Company shall repurchase the Securities in accordance with this Section 5. The following events shall constitute Events of Default: the Company (A) fails to issue Warrant Shares to the holders of Warrants upon exercise thereof in accordance with the terms of the Warrants, (B) fails to transfer or to cause its transfer agent to transfer (electronically or in certificated form) any certificate for Warrant Shares issued to the holders of Warrants upon exercise thereof as and when required by this Agreement, the Warrants and the Registration Rights Agreement or (C) fails to remove any restrictive legend (or to withdraw any stop transfer instructions in respect thereof) on any certificate or any Common Shares or Warrant Shares issued to the holders as and when required by this Agreement, the Warrants or the Registration Rights Agreement (or makes any announcement, statement or threat that it does not intend to honor the obligations described in this paragraph), in any such case as a result of circumstances within the Company's control, and any such failure shall continue uncured (or any announcement, statement or threat not to honor its obligations shall not be rescinded in writing) for ten (10) days after the Company shall have been notified thereof in writing by any holder of Securities.

Upon the occurrence and during the continuation of any Event of Default, at the option of the holders of at least fifty percent (50%) of the then outstanding Common Shares and Warrant Shares by written notice (the "Default Notice") to the Company of such Event of Default, the Company shall purchase each holder's outstanding Common Shares and Warrant Shares for an amount equal to the greater of (1) one hundred twenty percent (120%) of the product of (x) the number of Units then held by such holder, multiplied by (y) Two and 65/100 Dollars ($2.65) (subject to adjustment for stock splits, stock dividends and similar transactions) and (2) the "parity value" of the Common Shares and Warrant Shares to be repurchased, where parity value means the product

of (a) the number of Common Shares and Warrant Shares to be repurchased multiplied by (b) the highest Closing Price (as defined below) for the Common Stock (less the Exercise Price of the Warrants then in effect multiplied by the number of Warrant Shares to be repurchased) during the period beginning on the date of first occurrence of the Event of Default and ending one day prior to the date of payment (the "Stock Repurchase Date") of the Default Amount (the greater of such amounts being referred to as the "Default Amount"). The Default Amount shall be payable by the Company within five (5) business days after receipt by the Company of the Default Notice.

6. TRANSFER AGENT INSTRUCTIONS. The Company shall issue irrevocable instructions to its transfer agent to issue certificates, registered in the name of each Buyer or its nominee, for the Common Shares and Warrant Shares in such amounts as specified from time to time by each Buyer to the Company upon exercise of or otherwise pursuant to the Warrants in accordance with the terms thereof (the "Irrevocable Transfer Agent Instructions"). Prior to registration of the Common Shares and Warrant Shares under the 1933 Act or the date on which the Common Shares or Warrant Shares may be sold pursuant to Rule 144 without any restriction as to the number of securities as of a particular date that can then be immediately sold, all such certificates shall bear the restrictive legend specified in Section 2(g) of this Agreement. The Company warrants that no instruction, other than the Irrevocable Transfer Agent Instructions referred to in this Section 6 and stop transfer instructions to give effect to Section 2(f) hereof (in the case of the Common Shares and Warrant Shares, prior to registration of the Common Shares and Warrant Shares under the 1933 Act or the date on which the Common Shares or Warrant Shares may be sold pursuant to Rule 144 without any restriction as to the number of securities as of a particular date that can then be immediately sold), will be given by the Company to its transfer agent and that the Common Shares and Warrant Shares shall otherwise be freely transferable on the books and records of the Company as and to the extent provided in this Agreement and the Registration Rights Agreement. Nothing in this Section shall affect in any way the Buyer's obligations and agreement set forth in Section 2(g) hereof to comply with all applicable prospectus delivery requirements, if any, upon resale of the Securities and to comply with the plan of distribution portion of the prospectus contained in the Registration Statement (as defined in the Registration Rights Agreement). If a Buyer provides the Company with (i) an opinion of counsel, reasonably satisfactory to the Company in form, substance and scope, to the effect that a public sale or transfer of such Securities may be made without registration under the 1933 Act and such sale or transfer is effective or (ii) the Buyer provides reasonable assurances that the Securities can be sold pursuant to Rule 144 and that the Securities will be sold pursuant to Rule 144, the Company shall permit the transfer, and, in the case of the Common Shares and Warrant Shares, promptly instruct its transfer agent to issue one or more certificates, free from any restrictive legend, in such name and in such denominations as specified by such Buyer.

7. CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL. The obligation of the Company hereunder to issue and sell the Units to a Buyer at the Closing, is subject to the satisfaction, at or before the Closing Date, of each of the following conditions thereto, provided that these conditions are for the Company's sole benefit and may be waived by the Company at any time in its sole discretion:

(a) The applicable Buyer shall have executed this Agreement and the Registration Rights Agreement, and delivered the same to the Company.

(b) The applicable Buyer shall have delivered the Purchase Price for the Units which it is purchasing in accordance with Section 1(b) above.

(c) The representations and warranties of the applicable Buyer shall be true and correct in all material respects as of the date when made and as of the Closing Date as though made at that time (except for representations and warranties that speak as of a specific date, which representations and warranties shall be true and correct as of such date), and the applicable Buyer shall have performed, satisfied and complied in all material respects with the covenants, agreements and conditions required by this Agreement to be performed, satisfied or complied with by the applicable Buyer at or prior to the Closing Date.

(d) No litigation, statute, rule, regulation, executive order, decree, ruling or injunction shall have been enacted, entered, promulgated or endorsed by or in any court or governmental authority of competent jurisdiction or any self-regulatory organization having authority over the matters contemplated hereby which prohibits the consummation of any of the transactions contemplated by this Agreement.

8. CONDITIONS TO EACH BUYER'S OBLIGATION TO PURCHASE. The obligation of each Buyer hereunder to purchase the Units at the Closing is subject to the satisfaction, at or before the Closing Date, of each of the following conditions, provided that these conditions are for such Buyer's sole benefit and may be waived by such Buyer at any time in its sole discretion:

(a) The Company shall have executed this Agreement and the Registration Rights Agreement, and delivered the same to the Buyer.

(b) The Company shall have delivered to such Buyer duly executed certificates (in such denominations as the Buyer shall request) representing the Common Shares and duly executed Warrants in accordance with Section 1(b) above.

(c) The Irrevocable Transfer Agent Instructions, in form and substance satisfactory to a majority-in-interest of the Buyers, shall have been delivered to and acknowledged in writing by the Company's Transfer Agent.

(d) The representations and warranties of the Company shall be true and correct in all material respects as of the date when made and as of the Closing Date as though made at such time (except for representations and warranties that speak as of a specific date, which representations and warranties shall be true and correct as of such date, and in each case subject to the schedules referred to in such representations and warranties provided by the Company as of the Closing Date) and the Company shall have performed, satisfied and complied in all material respects with the

covenants, agreements and conditions required by this Agreement to be performed, satisfied or complied with by the Company at or prior to the Closing Date. The Buyer shall have received a certificate or certificates, executed on behalf of the Company by the chief executive officer of the Company, dated as of the Closing Date, to the foregoing effect and as to such other matters as may be reasonably requested by such Buyer including, but not limited to, those matters described in Section 3(c) above, and certificates with respect to the Company's Certificate of Incorporation, By-laws and Board of Directors' resolutions relating to the transactions contemplated hereby.

(e) No litigation, statute, rule, regulation, executive order, decree, ruling or injunction shall have been enacted, entered, promulgated or endorsed by or in any court or governmental authority of competent jurisdiction or any self-regulatory organization having authority over the matters contemplated hereby which prohibits the consummation of any of the transactions contemplated by this Agreement.

(f) The Company shall have filed all required materials with Nasdaq so that the Common Shares and the Warrant Shares shall be authorized for quotation on Nasdaq and trading in the Common Stock on Nasdaq shall not have been suspended by the SEC or Nasdaq.

(g) The Buyer shall have received an opinion of the Company's counsel, dated as of the Closing Date, in form, scope and substance reasonably satisfactory to the Buyer and in substantially the same form as Exhibit "D" attached hereto.

9. GOVERNING LAW; MISCELLANEOUS.

(a) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan applicable to agreements made and to be performed in the State of Michigan (without regard to principles of conflict of laws). Both parties irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in Delaware with respect to any suit or proceeding based on or arising under this Agreement, the agreements entered into in connection herewith or the transactions contemplated hereby or thereby and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. Both parties irrevocably waive the defense of an inconvenient forum to the maintenance of such suit or proceeding. Both parties further agree that service of process upon a party mailed by first class mail shall be deemed in every respect effective service of process upon the party in any such suit or proceeding. Nothing herein shall affect either party's right to serve process in any other manner permitted by law. Both parties agree that a final non-appealable judgment in any such suit or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on such judgment or in any other lawful manner.

(b) Counterparts; Signatures by Facsimile. This Agreement may be executed in two or more counterparts, all of which shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party. This Agreement, once executed by a party, may be delivered to the other party hereto by facsimile

transmission of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

(c) Headings. The headings of this Agreement are for convenience of reference and shall not form part of, or affect the interpretation of, this Agreement.

(d) Severability. If any provision of this Agreement shall be invalid or unenforceable in any jurisdiction, such invalidity or unenforceability shall not affect the validity or enforceability of the remainder of this Agreement or the validity or enforceability of this Agreement in any other jurisdiction.

(e) Entire Agreement; Amendments. This Agreement and the instruments referenced herein contain the entire understanding of the parties with respect to the matters covered herein and therein and, except as specifically set forth herein or therein, neither the Company nor the Buyer makes any representation, warranty, covenant or undertaking with respect to such matters. No provision of this Agreement may be waived or amended other than by an instrument in writing signed by the party to be charged with enforcement.

(f) Notices. Any notices required or permitted to be given under the terms of this Agreement shall be sent by certified or registered mail (return receipt requested) or delivered personally or by courier (including a recognized overnight delivery service) or by facsimile with confirmation of receipt and shall be effective five (5) days after being placed in the mail, if mailed by regular United States mail, or upon receipt, if delivered personally or by courier (including a recognized overnight delivery service) or by facsimile, in each case addressed to a party. The addresses for such communications shall be:

If to the Company:

Aastrom Biosciences, Inc.
24 Frank Lloyd Wright Drive
P.O. Box 376
Ann Arbor, Michigan 48106
Attention: R. Douglas Armstrong
President & Chief Executive Officer
Facsimile: (734) 930-5546

With copy to:

Gray Cary Ware & Freidenrich LLP
4365 Executive Drive, Suite 1600
San Diego, CA 92121-2189
Attention: Douglas J. Rein, Esquire
Facsimile: (858) 677-1477

If to a Buyer: To the address set forth immediately below such Buyer's name on the signature pages hereto.

With copy to:

Klehr, Harrison, Harvey, Branzburg & Ellers LLP
260 South Broad Street
Philadelphia, PA 19102
Attention: Robert W. Cleveland, Esquire
Facsimile: (215) 568-6603

Each party shall provide notice to the other party of any change in address.

(g) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and assigns. Neither the Company nor any Buyer shall assign this Agreement or any rights or obligations hereunder without the prior written consent of the other. Notwithstanding the foregoing, subject to Section 2(f), any Buyer may assign its rights hereunder to any person that purchases Securities in a private transaction from a Buyer or to any of its "affiliates," as that term is defined under the 1934 Act, without the consent of the Company.

(h) Third Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto and their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other person.

(i) Survival. The representations and warranties of the Company and the agreements and covenants set forth in Sections 3, 4, 5, 6 and 9 shall survive the Closing hereunder notwithstanding any due diligence investigation conducted by or on behalf of the Buyers.

(j) Publicity. The Company and each of the Buyers shall have the right to review a reasonable period of time before issuance of any press releases, SEC, Nasdaq or NASD filings, or any other public statements with respect to the transactions contemplated hereby; provided, however, that the Company shall be entitled, without the prior approval of each of the Buyers, to make any press release or SEC, Nasdaq or NASD filings with respect to such transactions as is required by applicable law and regulations (although each of the Buyers shall be consulted by the Company in connection with any such press release prior to its release and shall be provided with a copy thereof and be given an opportunity to comment thereon).

(k) Further Assurances. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(l) No Strict Construction. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

(m) Remedies. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to each Buyer, by vitiating the intent and purpose of the transactions contemplated hereby. Accordingly, the Company acknowledges that the remedy at law for a breach of its obligations under this Agreement will be inadequate and agrees, in the event of a breach or threatened breach by the Company of the provisions of this Agreement, that each Buyer shall be entitled, in addition to all other available remedies in law or in equity, to an injunction or injunctions to prevent or cure any breaches of the provisions of this Agreement and to enforce specifically the terms and provisions of this Agreement, without the necessity of showing economic loss and without any bond or other security being required.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the undersigned Buyers and the Company have caused this Agreement to be duly executed as of the date first above written.

AASTROM BIOSCIENCES, INC.

By: /s/ R. Douglas Armstrong, Ph.D.

R. Douglas Armstrong, Ph.D.
President & Chief Executive Officer

RGC INTERNATIONAL INVESTORS, LDC
By: Rose Glen Capital Management, L.P., Investment Manager
By: RGC General Partner Corp., as General Partner

By: /s/ Wayne D. Bloch

Wayne D. Bloch
Managing Director

RESIDENCE: Cayman Islands

ADDRESS:

c/o Rose Glen Capital Management, L.P.
3 Bala Plaza East, Suite 200
251 St. Asaphs Road
Bala Cynwyd, PA 19004
Facsimile: (610) 617-0570
Telephone: (610) 617-5900

AGGREGATE SUBSCRIPTION AMOUNT:

Number of Units:	2,264,151
Aggregate Purchase Price:	$6,000,000

EXHIBIT 4.2

REGISTRATION RIGHTS AGREEMENT

REGISTRATION RIGHTS AGREEMENT (this "Agreement"), dated as of February 28, 2000, by and among Aastrom Biosciences, Inc., a Michigan corporation, with its headquarters located at 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106 (the "Company"), and each of the undersigned (together with their respective affiliates and any assignee or transferee of all of their respective rights hereunder, the "Initial Investors").

WHEREAS:

A. In connection with the Securities Purchase Agreement by and among the parties hereto of even date herewith (the "Securities Purchase Agreement"), the Company has agreed, upon the terms and subject to the conditions contained therein, to issue and sell to the Initial Investors (i) 2,264,151 units (the "Units"), each Unit consisting of (i) one share of the Company's common stock, no par value (the "Common Stock"), and (ii) one-half (.5) warrant (the "Warrants"), each Warrant to acquire one (1) share of Common Stock, upon the terms and subject to the limitations and conditions set forth in the Warrants dated February 28, 2000; and

B. To induce the Initial Investors to execute and deliver the Securities Purchase Agreement, the Company has agreed to provide certain registration rights under the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute (collectively, the "1933 Act"), and applicable state securities laws;

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and each of the Initial Investors hereby agree as follows:

1. DEFINITIONS.

a. As used in this Agreement, the following terms shall have the following meanings:

(i) "Investors" means the Initial Investors and any transferee or assignee who agrees to become bound by the provisions of this Agreement in accordance with Section 9 hereof.

(ii) "register," "registered," and "registration" refer to a registration effected by preparing and filing a Registration Statement or Statements in compliance with the 1933 Act and pursuant to Rule 415 under the 1933 Act or any successor rule providing for offering

securities on a continuous basis ("Rule 415"), and the declaration or ordering of effectiveness of such Registration Statement by the United States Securities and Exchange Commission (the "SEC").

(iii) "Registrable Securities" means (A) the Common Shares issued pursuant to the Securities Purchase Agreement and (B) the Warrant Shares issued or issuable upon exercise of or otherwise pursuant to the Warrants, and any shares of capital stock issued or issuable as a dividend on or in exchange for or otherwise with respect to any of the foregoing (including, without limitation, any shares of Common Stock issued or issuable pursuant to Section 2(c) hereof).

(iv) "Registration Statement(s)" means a registration statement(s) of the Company under the 1933 Act.

b. Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Securities Purchase Agreement.

2. REGISTRATION.

a. Mandatory Registration. The Company shall prepare, and, on or prior to the date which is thirty (30) days after the date of the Closing under the Securities Purchase Agreement (the "Closing Date"), file with the SEC a Registration Statement on Form S-3 (or, if Form S-3 is not then available, on such form of Registration Statement as is then available to effect a registration of the Registrable Securities, subject to the consent of the Initial Investors, which consent will not be unreasonably withheld) covering the resale of the Registrable Securities, which Registration Statement, to the extent allowable under the 1933 Act and the rules and regulations promulgated thereunder (including Rule 416), shall state that such Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon exercise of or otherwise pursuant to the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions. The number of shares of Common Stock initially included in such Registration Statement shall be no less than the sum of (x) the aggregate number of Common Shares issued pursuant to the Securities Purchase Agreement and (y) two (2) times the aggregate number of Warrant Shares that are then issuable upon exercise of or otherwise pursuant to the Warrants, without regard to any limitation on the Investor's ability to exercise the Warrants. The Company acknowledges that the number of shares initially included in the Registration Statement represents the Common Shares plus a good faith estimate of the maximum number of shares issuable upon exercise of the Warrants.

b. Underwritten Offering. If any offering pursuant to a Registration Statement pursuant to Section 2(a) hereof involves an underwritten offering, the Investors who hold a majority in interest of the Registrable Securities subject to such underwritten offering, with the consent of a majority-in-interest of the Initial Investors, shall have the right to select one legal counsel and an investment banker or bankers and manager or managers to administer the offering, which investment banker or bankers or manager or managers shall be reasonably satisfactory to the Company.

c. Issuance of Additional Common Stock by the Company. The Company shall use its best efforts to obtain effectiveness of the Registration Statement as soon as practicable. If (i) the Registration Statement covering the Registrable Securities required to be filed by the Company pursuant to Section 2(a) hereof is not declared effective by the SEC within one hundred twenty (120) days after the Closing Date or if, after the Registration Statement has been declared effective by the SEC, sales of all of the Registrable Securities cannot be made pursuant to the Registration Statement, or (ii) the Common Stock is not listed or included for quotation on the Nasdaq National Market ("Nasdaq"), the Nasdaq SmallCap Market ("Nasdaq SmallCap"), the New York Stock Exchange (the "NYSE") or the American Stock Exchange (the "AMEX") after being so listed or included for quotation, then the Company will issue Additional shares of Common Stock to the Investors in such amounts and at such times as shall be determined pursuant to this Section 2(c) as partial relief for the damages to the Investors by reason of any such delay in or reduction of their ability to sell the Registrable Securities (which remedy shall not be exclusive of any other remedies available at law or in equity). Without limiting the generality of the preceding sentence, the Company shall issue to each holder of Registrable Securities an amount of Common Stock equal in value to (x) the aggregate purchase price paid by such holder pursuant to the Securities Purchase Agreement (or upon exercise of the Warrants) for the Common Shares and Warrant Shares held by such holder at the time of an event specified in clause (i) or (ii) above (the "Aggregate Purchase Price"), multiplied by the Applicable Percentage (as defined below), multiplied by (y) the sum of: (i) the number of months (prorated for partial months) after the end of such 120-day period and prior to the date the Registration Statement required to be filed pursuant to Section 2(a) is declared effective by the SEC; provided, however, that there shall be excluded from such period any delays which are solely attributable to changes required by the Investors in the Registration Statement with respect to information relating to the Investors, including, without limitation, changes to the plan of distribution, or to the failure of the Investors to conduct their review of the Registration Statement pursuant to Section 3(h) below in a reasonably prompt manner; (ii) the number of months (prorated for partial months) during the Registration Period (as defined below) that sales of all of the Registrable Securities cannot be made pursuant to the Registration Statement after the Registration Statement has been declared effective (including, without limitation, when sales cannot be made by reason of the Company's failure to properly supplement or amend the prospectus included therein in accordance with the terms of this Agreement (including Section 3(b) hereof or otherwise), but excluding any days during an Allowed Delay (as defined in Section 3(f)); and (iii) the number of months (prorated for partial months) that the Common Stock is not listed or included for quotation on the Nasdaq, Nasdaq SmallCap, NYSE or AMEX or that trading thereon is halted after the Registration Statement has been declared effective. The term "Applicable Percentage" means one and one-half hundredths (.015). (For example, if the Registration Statement becomes effective one (1) month after the end of such 120-day period, the Company would issue $15,000 worth of Common Stock for each $1,000,000 of Aggregate Purchase Price. If thereafter, and after excluding an Allowed Delay, sales could not be made pursuant to the Registration Statement for an additional period of one (1) month, the Company would issue an additional $15,000 worth of Common Stock for each $1,000,000 of Aggregate Purchase Price.) The shares of Common Stock will be valued at the lesser of (A) $2.65 and (B) 95% of the average of the closing bid prices of such shares for the five (5) consecutive trading days ending on the trading day immediately preceding the date of

issuance (which shares of Common Stock shall be Registrable Securities (but do not necessarily need to be registered at the time of issue if the Registration Statement is not then effective)). The Company shall deliver such shares of Common Stock not later than two (2) days after the end of each period that gives rise to such obligation, provided that, if any such period extends for more than thirty (30) days, interim payments shall be made for each such thirty (30) day period. For clarification purposes, the obligations of the Company under this Section 2(c) shall only be satisfied in Common Stock and not by the payment of cash.

d. Piggy-Back Registrations. Subject to the last sentence of this Section 2(d), if at any time prior to the expiration of the Registration Period (as hereinafter defined) the Company shall determine to file with the SEC a Registration Statement relating to an offering for its own account or the account of others under the 1933 Act of any of its equity securities (other than on Form S-4 or Form S-8 or their then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with stock option or other employee benefit plans), the Company shall send to each Investor who is entitled to registration rights under this Section 2(d) written notice of such determination and, if within fifteen (15) days after the effective date of such notice, such Investor shall so request in writing, the Company shall include in such Registration Statement all or any part of the Registrable Securities such Investor requests to be registered, except that if, in connection with any underwritten public offering for the account of the Company the managing underwriter(s) thereof shall impose a limitation on the number of shares of Common Stock which may be included in the Registration Statement because, in such underwriter(s)' judgment, marketing or other factors dictate such limitation is necessary to facilitate public distribution, then the Company shall be obligated to include in such Registration Statement only such limited portion of the Registrable Securities with respect to which such Investor has requested inclusion hereunder as the underwriter shall permit. Any exclusion of Registrable Securities shall be made pro rata among the Investors seeking to include Registrable Securities in proportion to the number of Registrable Securities sought to be included by such Investors; provided, however, that the Company shall not exclude any Registrable Securities unless the Company has first excluded all outstanding securities, the holders of which are not entitled to inclusion of such securities in such Registration Statement or are not entitled to pro rata inclusion with the Registrable Securities; and provided, further, however, that, after giving effect to the immediately preceding proviso, any exclusion of Registrable Securities shall be made pro rata with holders of other securities having the right to include such securities in the Registration Statement other than holders of securities entitled to inclusion of their securities in such Registration Statement by reason of demand registration rights. No right to registration of Registrable Securities under this Section 2(d) shall be construed to limit any registration required under Section 2(a) hereof. If an offering in connection with which an Investor is entitled to registration under this Section 2(d) is an underwritten offering, then each Investor whose Registrable Securities are included in such Registration Statement shall, unless otherwise agreed by the Company, offer and sell such Registrable Securities in an underwritten offering using the same underwriter or underwriters and, subject to the provisions of this Agreement, on the same terms and conditions as other shares of Common Stock included in such underwritten offering. Notwithstanding anything to the contrary set forth herein, the registration rights of the Investors pursuant to this Section 2(d) shall only be

available in the event the Company fails to timely file, obtain effectiveness or maintain effectiveness of any Registration Statement to be filed pursuant to Section 2(a) in accordance with the terms of this Agreement.

e. Eligibility for Form S-3. The Company represents and warrants that it meets the registrant eligibility and transaction requirements for the use of Form S-3 for registration of the sale by the Initial Investors and any other Investors of the Registrable Securities and the Company shall file all reports required to be filed by the Company with the SEC in a timely manner so as to maintain such eligibility for the use of Form S-3.

3. OBLIGATIONS OF THE COMPANY.

In connection with the registration of the Registrable Securities, the Company shall have the following obligations:

a. The Company shall prepare promptly, and file with the SEC not later than twenty (20) days after the Closing Date, a Registration Statement with respect to the number of Registrable Securities provided in Section 2(a), and thereafter use its best efforts to cause such Registration Statement relating to Registrable Securities to become effective as soon as possible after such filing (but in no event later than one hundred twenty (120) days after the Closing Date), and keep the Registration Statement effective pursuant to Rule 415 at all times until such date as is the earlier of (i) the date on which all of the Registrable Securities have been sold and (ii) the date on which the Registrable Securities (in the opinion of counsel to the Company, reasonably satisfactory in form and substance to the Initial Investors) may be immediately sold to the public without registration or restriction (including without limitation as to volume by each holder thereof) (the "Registration Period"), which Registration Statement (including any amendments or supplements thereto and prospectuses contained therein) shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein, or necessary to make the statements therein not misleading.

b. The Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to the Registration Statements and the prospectus used in connection with the Registration Statements as may be necessary to keep the Registration Statements effective at all times during the Registration Period, and, during such period, comply with the provisions of the 1933 Act with respect to the disposition of all Registrable Securities of the Company covered by the Registration Statements until such time as all of such Registrable Securities have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in the Registration Statements. In the event that on any Trading Day (as defined below) (such Trading Day being a "Registration Trigger Date") the number of shares available under a Registration Statement filed pursuant to this Agreement is insufficient to cover all of the Registrable Securities (based on the number of Common Shares then held by Investors and the number of Warrant Shares issued or issuable upon exercise of or otherwise pursuant to the Warrants, without giving effect to any limitations on the Investors' ability to exercise

the Warrants), the Company shall amend the Registration Statement, or file a new Registration Statement (on the short form available therefore, if applicable), or both, so as to cover in the aggregate two hundred percent (200%) of all of the Registrable Securities so issued or issuable (without giving effect to any limitations on exercise contained in the Warrants) as of the Registration Trigger Date, in each case, as soon as practicable, but in any event within twenty (20) business days after the necessity therefor arises (based on the market price of the Common Stock and other relevant factors on which the Company reasonably elects to rely). The Company shall use its best efforts to cause such amendment and/or new Registration Statement to become effective as soon as practicable following the filing thereof but in any event within one hundred twenty (120) days. The provisions of Section 2(c) above shall be applicable with respect to the Company's obligations under this Section 3(b).

c. The Company shall furnish to each Investor whose Registrable Securities are included in a Registration Statement and its legal counsel (i) promptly after the same is prepared and publicly distributed, filed with the SEC, or received by the Company, one copy of each Registration Statement and any amendment thereto, each preliminary prospectus and prospectus and each amendment or supplement thereto, and, in the case of the Registration Statement referred to in Section 2(a), each letter written by or on behalf of the Company to the SEC or the staff of the SEC, and each item of correspondence from the SEC or the staff of the SEC, in each case relating to such Registration Statement (other than any portion of any thereof which contains information for which the Company has sought confidential treatment), and (ii) such number of copies of a prospectus, including a preliminary prospectus, and all amendments and supplements thereto and such other documents as such Investor may reasonably request in order to facilitate the disposition of the Registrable Securities owned by such Investor. The Company will immediately notify each Investor by facsimile of the effectiveness of each Registration Statement or any post-effective amendment. The Company will promptly respond to any and all comments received from the SEC, with a view towards causing each Registration Statement or any amendment thereto to be declared effective by the SEC as soon as practicable and shall file an acceleration request as soon as practicable following the resolution or clearance of all SEC comments or, if applicable, following notification by the SEC that any such Registration Statement or any amendment thereto will not be subject to review.

d. The Company shall use reasonable efforts, to the extent required, to (i) register and qualify the Registrable Securities covered by the Registration Statements under such other securities or "blue sky" laws of such jurisdictions in the United States as the Investors who hold a majority in interest of the Registrable Securities being offered reasonably request, (ii) prepare and file in those jurisdictions such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during the Registration Period, (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period, and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; provided, however, that the Company shall not be required in connection
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therewith or as a condition thereto to (a) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(d), (b) subject itself to general

taxation in any such jurisdiction, (c) file a general consent to service of process in any such jurisdiction, (d) provide any undertakings that cause the Company undue expense or burden, or (e) make any change in its charter or bylaws, which in each case the Board of Directors of the Company determines to be contrary to the best interests of the Company and its stockholders.

e. In the event Investors who hold a majority-in-interest of the Registrable Securities being offered in the offering (with the approval of a majority-in-interest of the Initial Investors) select underwriters for the offering, the Company shall enter into and perform its obligations under an underwriting agreement, in usual and customary form, including, without limitation, customary indemnification and contribution obligations, with the underwriters of such offering.

f. As promptly as practicable after becoming aware of such event, the Company shall notify each Investor of the happening of any event, of which the Company has knowledge, as a result of which the prospectus included in any Registration Statement, as then in effect, includes an untrue statement of a material fact or omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and use its best efforts promptly to prepare a supplement or amendment to any Registration Statement to correct such untrue statement or omission, and deliver such number of copies of such supplement or amendment to each Investor as such Investor may reasonably request; provided that, for not more than twenty (20) consecutive trading days (or a total of not more than forty (40) trading days in any twelve (12) month period), the Company may delay the disclosure of material non-public information concerning the Company (as well as prospectus or Registration Statement updating) the disclosure of which at the time is not, in the good faith opinion of the Company, in the best interests of the Company (an "Allowed Delay"); provided, further, that the Company shall promptly (i) notify the Investors in writing of the existence of (but in no event, without the prior written consent of an Investor, shall the Company disclose to such Investor any of the facts or circumstances regarding) material non-public information giving rise to an Allowed Delay and (ii) advise the Investors in writing to cease all sales under such Registration Statement until the end of the Allowed Delay. Upon expiration of the Allowed Delay, the Company shall again be bound by the first sentence of this Section 3(f) with respect to the information giving rise thereto.

g. The Company shall use its best efforts to prevent the issuance of any stop order or other suspension of effectiveness of any Registration Statement, and, if such an order is issued, to obtain the withdrawal of such order at the earliest possible moment and to notify each Investor who holds Registrable Securities being sold (or, in the event of an underwritten offering, the managing underwriters) of the issuance of such order and the resolution thereof.

h. The Company shall permit a single firm of counsel designated by the Initial Investors to review such Registration Statement and all amendments and supplements thereto (as well as all requests for acceleration of effectiveness thereof) a reasonable period of time prior to their filing with the SEC, and not file any document in a form to which such counsel reasonably objects and will not request acceleration of such Registration Statement without prior notice to such counsel.

The sections of such Registration Statement covering information with respect to the Investors, the Investor's beneficial ownership of securities of the Company or the Investors intended method of disposition of Registrable Securities shall conform to the information provided to the Company by each of the Investors.

i. The Company shall make generally available to its security holders as soon as practicable, but not later than ninety (90) days after the close of the period covered thereby, an earnings statement (in form complying with the provisions of Rule 158 under the 1933 Act) covering a twelve-month period beginning not later than the first day of the Company's fiscal quarter next following the effective date of the Registration Statement.

j. At the request of any Investor, the Company shall furnish, on the date that Registrable Securities are delivered to an underwriter, if any, for sale in connection with any Registration Statement (i) an opinion, dated as of such date, from counsel representing the Company for purposes of such Registration Statement, in form, scope and substance as is customarily given in an underwritten public offering, addressed to the underwriters, if any, and the Investors and (ii) a letter, dated such date, from the Company's independent certified public accountants in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering, addressed to the underwriters, if any, and the Investors.

k. The Company shall make available for inspection by (i) any Investor, (ii) any underwriter participating in any disposition pursuant to a Registration Statement, (iii) one firm of attorneys and one firm of accountants or other agents retained by the Initial Investors, (iv) one firm of attorneys and one firm of accountants or other agents retained by all other Investors, and (v) one firm of attorneys retained by all such underwriters (collectively, the "Inspectors") all pertinent financial and other records, and pertinent corporate documents and properties of the Company (collectively, the "Records"), as shall be reasonably deemed necessary by each Inspector to enable each Inspector to exercise its due diligence responsibility, and cause the Company's officers, directors and employees to supply all information which any Inspector may reasonably request for purposes of such due diligence; provided, however, that
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each Inspector shall hold in confidence and shall not make any disclosure (except to an Investor) of any Record or other information which the Company determines in good faith to be confidential, and of which determination the Inspectors are so notified, unless (a) the disclosure of such Records is necessary to avoid or correct a misstatement or omission in any Registration Statement, (b) the release of such Records is ordered pursuant to a subpoena or other order from a court or government body of competent jurisdiction, or (c) the information in such Records has been made generally available to the public other than by disclosure in violation of this or any other agreement. The Company shall not be required to disclose any confidential information in such Records to any Inspector until and unless such Inspector shall have entered into confidentiality agreements (in form and substance satisfactory to the Company) with the Company with respect thereto, substantially in the form of this Section 3(k). Each Investor agrees that it shall, upon learning that disclosure of such Records is sought in or by a court or governmental body of competent jurisdiction or through other means, give prompt notice to the Company and allow the Company, at its expense, to undertake appropriate action to prevent

disclosure of, or to obtain a protective order for, the Records deemed confidential. Nothing herein (or in any other confidentiality agreement between the Company and any Investor) shall be deemed to limit the Investors' ability to sell Registrable Securities in a manner which is otherwise consistent with applicable laws and regulations.

l. The Company shall hold in confidence and not make any disclosure of information concerning an Investor provided to the Company unless (i) disclosure of such information is necessary to comply with federal or state securities laws, (ii) the disclosure of such information is necessary to avoid or correct a misstatement or omission in any Registration Statement, (iii) the release of such information is ordered pursuant to a subpoena or other order from a court or governmental body of competent jurisdiction, or (iv) such information has been made generally available to the public other than by disclosure in violation of this or any other agreement. The Company agrees that it shall, upon learning that disclosure of such information concerning an Investor is sought in or by a court or governmental body of competent jurisdiction or through other means, give prompt notice to such Investor prior to making such disclosure, and allow the Investor, at its expense, to undertake appropriate action to prevent disclosure of, or to obtain a protective order for, such information.

m. The Company shall use its best efforts to (i) cause all the Registrable Securities covered by the Registration Statement to be listed on each national securities exchange on which securities of the same class or series issued by the Company are then listed, if any, if the listing of such Registrable Securities is then permitted under the rules of such exchange, or (ii) to the extent the securities of the same class or series are not then listed on a national securities exchange, secure the designation and quotation, of all the Registrable Securities covered by the Registration Statement on the Nasdaq or, if not eligible for the Nasdaq, on the Nasdaq SmallCap and, without limiting the generality of the foregoing, to arrange for at least two market makers to register with the National Association of Securities Dealers, Inc. ("NASD") as such with respect to such Registrable Securities.

n. The Company shall provide a transfer agent and registrar, which may be a single entity, for the Registrable Securities not later than the effective date of the Registration Statement.

o. The Company shall cooperate with the Investors who hold Registrable Securities being offered and the managing underwriter or underwriters, if any, to facilitate the timely preparation and delivery of certificates (not bearing any restrictive legends) representing Registrable Securities to be offered pursuant to such Registration Statement and enable such certificates to be in such denominations or amounts, as the case may be, as the managing underwriter or underwriters, if any, or the Investors may reasonably request and registered in such names as the managing underwriter or underwriters, if any, or the Investors may reasonably request, and, within three (3) business days after a Registration Statement which includes Registrable Securities is ordered effective by the SEC, the Company shall deliver, and shall cause legal counsel selected by the Company to deliver, to the transfer agent for the Registrable Securities (with copies to the Investors

whose Registrable Securities are included in such Registration Statement) an instruction in the form attached hereto as Exhibit 1 and an opinion of such counsel in the form attached hereto as Exhibit 2.

p. At the request of the holders of a majority-in-interest of the Registrable Securities, the Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to a Registration Statement and the prospectus used in connection with the Registration Statement as may be necessary in order to change the plan of distribution set forth in such Registration Statement.

q. From and after the date of this Agreement, the Company shall not, and shall not agree to, allow the holders of any securities of the Company to include any of their securities in any Registration Statement under Section 2(a) hereof or any amendment or supplement thereto under Section 3(b) hereof without the consent of the holders of a majority-in-interest of the Registrable Securities. In addition, the Company shall not offer any securities for its own account or the account of others in any Registration Statement under Section 2(a) hereof or any amendment or supplement thereto under Section 3(b) hereof without the consent of the holders of a majority-in-interest of the Registrable Securities.

r. The Company shall take all other reasonable actions necessary to expedite and facilitate disposition by the Investors of Registrable Securities following their transfer pursuant to the Registration Statement.

4. OBLIGATIONS OF THE INVESTORS.

In connection with the registration of the Registrable Securities, the Investors shall have the following obligations:

a. It shall be a condition precedent to the obligations of the Company to complete the registration pursuant to this Agreement with respect to the Registrable Securities of a particular Investor that such Investor shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request. At least three (3) business days prior to the first anticipated filing date of the Registration Statement, the Company shall notify each Investor of the information the Company requires from each such Investor.

b. Each Investor, by such Investor's acceptance of the Registrable Securities, agrees to cooperate with the Company as reasonably requested by the Company in connection with the preparation and filing of the Registration Statements hereunder, unless such Investor has notified the Company in writing of such Investor's election to exclude all of such Investor's Registrable Securities from the Registration Statement.

c. In the event Investors holding a majority-in-interest of the Registrable Securities being registered (with the approval of the Initial Investors) determine to engage the services of an underwriter, each Investor agrees to enter into and perform such Investor's obligations under an underwriting agreement, in usual and customary form, including, without limitation, customary indemnification and contribution obligations, with the managing underwriter of such offering and take such other actions as are reasonably required in order to expedite or facilitate the disposition of the Registrable Securities, unless such Investor has notified the Company in writing of such Investor's election to exclude all of such Investor's Registrable Securities from such Registration Statement.

d. Each Investor agrees that, upon receipt of any notice from the Company of the happening of any event of the kind described in Section 3(f) or 3(g), such Investor will immediately discontinue disposition of Registrable Securities pursuant to the Registration Statement covering such Registrable Securities until such Investor's receipt of the copies of the supplemented or amended prospectus contemplated by Section 3(f) or 3(g) and, if so directed by the Company, such Investor shall deliver to the Company (at the expense of the Company) or destroy (and deliver to the Company a certificate of destruction) all copies in such Investor's possession, of the prospectus covering such Registrable Securities current at the time of receipt of such notice.

e. No Investor may participate in any underwritten registration hereunder unless such Investor (i) agrees to sell such Investor's Registrable Securities on the basis provided in any underwriting arrangements in usual and customary form entered into by the Company, (ii) completes and executes all questionnaires, powers of attorney, indemnities, underwriting agreements and other documents reasonably required under the terms of such underwriting arrangements, and (iii) agrees to pay its pro rata share of all underwriting discounts and commissions and any expenses in excess of those payable by the Company pursuant to Section 5 below.

f. The underwriters in connection with any firm commitment public offering of the Company's common stock resulting in gross proceeds of at least $20,000,000 led by at least one of the underwriters listed on Schedule 4(f) attached hereto and made a part hereof, shall have the right to require that the Investors enter into an agreement restricting the Investors from selling Common Stock pursuant to the Registration Statement held by such Investors in any public sale for a period not to exceed ninety (90) days following the closing of such underwriting, if they deem this to be reasonably necessary to effect such underwritten public offering; provided that all executive officers and directors shall have also agreed to identical (or more restrictive) restrictions. The Investors shall be subject to no more than one such restriction during the Registration Period.

5. EXPENSES OF REGISTRATION.

All reasonable expenses, other than underwriting discounts and commissions, incurred in connection with registrations, filings or qualifications pursuant to Sections 2 and 3, including, without limitation, all registration, listing and qualification fees, printers and accounting fees, the fees and disbursements of counsel for the Company, and subject to Section 4(f) of the Purchase Agreement, the reasonable fees and disbursements of one counsel selected by the Initial Investors pursuant to Sections 2(b) and 3(h) hereof shall be borne by the Company.

6. INDEMNIFICATION.

In the event any Registrable Securities are included in a Registration Statement under this Agreement:

a. To the extent permitted by law, the Company will indemnify, hold harmless and defend (i) each Investor who holds such Registrable Securities, (ii) the directors, officers, partners, employees, agents and each person who controls any Investor within the meaning of the 1933 Act or the Securities Exchange Act of 1934, as amended (the "1934 Act"), if any, (iii) any underwriter (as defined in the 1933 Act) for the Investors, and (iv) the directors, officers, partners, employees and each person who controls any such underwriter within the meaning of the 1933 Act or the 1934 Act, if any (each, an "Indemnified Person"), against any joint or several losses, claims, damages, liabilities or expenses (collectively, together with actions, proceedings or inquiries by any regulatory or self-regulatory organization, whether commenced or threatened, in respect thereof, "Claims") to which any of them may become subject insofar as such Claims arise out of or are based upon: (i) any untrue statement or alleged untrue statement of a material fact in a Registration Statement or the omission or alleged omission to state therein a material fact required to be stated or necessary to make the statements therein not misleading; (ii) any untrue statement or alleged untrue statement of a material fact contained in any preliminary prospectus if used prior to the effective date of such Registration Statement, or contained in the final prospectus (as amended or supplemented, if the Company files any amendment thereof or supplement thereto with the SEC) or the omission or alleged omission to state therein any material fact necessary to make the statements made therein, in light of the circumstances under which the statements therein were made, not misleading; or (iii) any violation or alleged violation by the Company of the 1933 Act, the 1934 Act, any other law, including, without limitation, any state securities law, or any rule or regulation thereunder relating to the offer or sale of the Registrable Securities (the matters in the foregoing clauses (i) through (iii) being, collectively, "Violations"). Subject to the restrictions set forth in Section 6(c) with respect to the number of legal counsel, the Company shall reimburse the Indemnified Person, promptly as such expenses are incurred and are due and payable, for any reasonable legal fees or other reasonable expenses incurred by them in connection with investigating or defending any such Claim. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section 6(a): (i) shall not apply to a Claim arising out of or based upon a Violation which occurs in reliance upon and in conformity with information furnished in writing to the Company by any Indemnified Person or underwriter for such Indemnified Person expressly for use in connection with the preparation of such Registration Statement or any such amendment thereof or supplement thereto; (ii) shall not apply to amounts paid in settlement of

any Claim if such settlement is effected without the prior written consent of the Company, which consent shall not be unreasonably withheld; and (iii) with respect to any preliminary prospectus, shall not inure to the benefit of any Indemnified Person if the untrue statement or omission of material fact contained in the preliminary prospectus was corrected on a timely basis in the prospectus, as then amended or supplemented, such corrected prospectus was timely made available by the Company pursuant to Section 3(c) hereof, and the Indemnified Person was promptly advised in writing not to use the incorrect prospectus prior to the use giving rise to a Violation and such Indemnified Person, notwithstanding such advice, used it. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Indemnified Person and shall survive the transfer of the Registrable Securities by the Investors pursuant to Section 9.

b. In connection with any Registration Statement in which an Investor is participating, each such Investor agrees severally and not jointly to indemnify, hold harmless and defend, to the same extent and in the same manner set forth in Section 6(a), the Company, each of its directors, each of its officers who signs the Registration Statement, each person, if any, who controls the Company within the meaning of the 1933 Act or the 1934 Act, any underwriter and any other stockholder selling securities pursuant to the Registration Statement or any of its directors or officers or any person who controls such stockholder or underwriter within the meaning of the 1933 Act or the 1934 Act (collectively and together with an Indemnified Person, an "Indemnified Party"), against any Claim to which any of them may become subject, under the 1933 Act, the 1934 Act or otherwise, insofar as such Claim arises out of or is based upon any Violation by such Investor, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished to the Company by such Investor expressly for use in connection with such Registration Statement; and subject to Section 6(c) such Investor will reimburse any legal or other expenses (promptly as such expenses are incurred and are due and payable) reasonably incurred by them in connection with investigating or defending any such Claim; provided, however, that the
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indemnity agreement contained in this Section 6(b) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of such Investor, which consent shall not be unreasonably withheld; provided, further, however, that the Investor shall be liable under
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this Agreement (including this Section 6(b) and Section 7) for only that amount as does not exceed the net proceeds to such Investor as a result of the sale of Registrable Securities pursuant to such Registration Statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Investors pursuant to Section 9. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section 6(b) with respect to any preliminary prospectus shall not inure to the benefit of any Indemnified Party if the untrue statement or omission of material fact contained in the preliminary prospectus was corrected on a timely basis in the prospectus, as then amended or supplemented.

c. Promptly after receipt by an Indemnified Person or Indemnified Party under this Section 6 of notice of the commencement of any action (including any governmental action), such Indemnified Person or Indemnified Party shall, if a Claim in respect thereof is to be made

against any indemnifying party under this Section 6, deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnified Person or the Indemnified Party, as the case may be; provided, however, that an Indemnified Person or Indemnified Party shall have the right to retain its own counsel with the fees and expenses to be paid by the indemnifying party, if, in the reasonable opinion of counsel retained by the indemnifying party, the representation by such counsel of the Indemnified Person or Indemnified Party and the indemnifying party would be inappropriate due to actual or potential differing interests between such Indemnified Person or Indemnified Party and any other party represented by such counsel in such proceeding. The indemnifying party shall pay for only one separate legal counsel for the Indemnified Persons or the Indemnified Parties, as applicable, and such legal counsel shall be selected by Investors holding a majority-in-interest of the Registrable Securities included in the Registration Statement to which the Claim relates (with the approval of a majority-in-interest of the Initial Investors), if the Investors are entitled to indemnification hereunder, or the Company, if the Company is entitled to indemnification hereunder, as applicable. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the Indemnified Person or Indemnified Party under this Section 6, except to the extent that the indemnifying party is actually prejudiced in its ability to defend such action. The indemnification required by this Section 6 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as such expense, loss, damage or liability is incurred and is due and payable.

7. CONTRIBUTION.

To the extent any indemnification by an indemnifying party is prohibited or limited by law, the indemnifying party agrees to make the maximum contribution with respect to any amounts for which it would otherwise be liable under Section 6 to the fullest extent permitted by law; provided, however, that (i) no contribution shall be made under circumstances where the maker would not have been liable for indemnification under the fault standards set forth in Section 6, (ii) no seller of Registrable Securities guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the 1933 Act) shall be entitled to contribution from any seller of Registrable Securities who was not guilty of such fraudulent misrepresentation, and (iii) contribution (together with any indemnification or other obligations under this Agreement) by any seller of Registrable Securities shall be limited in amount to the net amount of proceeds received by such seller from the sale of such Registrable Securities.

8. REPORTS UNDER THE 1934 ACT.

With a view to making available to the Investors the benefits of Rule 144 promulgated under the 1933 Act or any other similar rule or regulation of the SEC that may at any time permit the investors to sell securities of the Company to the public without registration ("Rule 144"), the Company agrees to:

a. make and keep public information available, as those terms are understood and defined in Rule 144;

b. file with the SEC in a timely manner all reports and other documents required of the Company under the 1933 Act and the 1934 Act so long as the Company remains subject to such requirements (it being understood that nothing herein shall limit the Company's obligations under Section 4(c) of the Securities Purchase Agreement) and the filing of such reports and other documents is required for the applicable provisions of Rule 144; and

c. furnish to each Investor so long as such Investor owns Registrable Securities, promptly upon request, (i) a written statement by the Company that it has complied with the reporting requirements of Rule 144, the 1933 Act and the 1934 Act, (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested to permit the Investors to sell such securities pursuant to Rule 144 without registration.

9. ASSIGNMENT OF REGISTRATION RIGHTS.

The rights under this Agreement shall be automatically assignable by the Investors to any transferee of all or any portion of Registrable Securities if: (i) the Investor agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company within a reasonable time after such assignment, (ii) the Company is, within a reasonable time after such transfer or assignment, furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) following such transfer or assignment, the further disposition of such securities by the transferee or assignee is restricted under the 1933 Act and applicable state securities laws, (iv) at or before the time the Company receives the written notice contemplated by clause (ii) of this sentence, the transferee or assignee agrees in writing with the Company to be bound by all of the provisions contained herein, (v) such transfer shall have been made in accordance with the applicable requirements of the Securities Purchase Agreement, and (vi) such transferee shall be an "accredited investor" as that term defined in Rule 501 of Regulation D promulgated under the 1933 Act.

10. AMENDMENT OF REGISTRATION RIGHTS.

Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with

written consent of the Company, each of the Initial Investors (to the extent such Initial Investor still owns Registrable Securities) and Investors who hold a majority interest of the Registrable Securities. Any amendment or waiver effected in accordance with this Section 10 shall be binding upon each Investor and the Company.

11. MISCELLANEOUS.

a. A person or entity is deemed to be a holder of Registrable Securities whenever such person or entity owns of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more persons or entities with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the registered owner of such Registrable Securities.

b. Any notices required or permitted to be given under the terms hereof shall be sent by certified or registered mail (return receipt requested) or delivered personally or by courier (including a recognized overnight delivery service) or by facsimile and shall be effective five days after being placed in the mail, if mailed by regular United States mail, or upon receipt, if delivered personally or by courier (including a recognized overnight delivery service) or by facsimile, in each case addressed to a party. The addresses for such communications shall be:

If to the Company:

Aastrom Biosciences, Inc.
24 Frank Lloyd Wright Drive
P.O. Box 376
Ann Arbor, Michigan 48106
Attention: R. Douglas Armstrong
President & Chief Executive Officer
Facsimile: 734-930-5546

With copy to:

Gray Cary Ware & Freidenrich LLP
4365 Executive Drive, Suite 1600
San Diego, CA 92121-2189
Attention: Douglas J. Rein
Facsimile: 858-677-1477

If to an Investor: to the address set forth immediately below such Investor's name on the signature pages to the Securities Purchase Agreement.

c. Failure of any party to exercise any right or remedy under this Agreement or otherwise, or delay by a party in exercising such right or remedy, shall not operate as a waiver thereof.

d. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan applicable to agreements made and to be performed in the State of Michigan (without regard to principles of conflict of laws). Both parties irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in Delaware with respect to any suit or proceeding based on or arising under this Agreement, the agreements entered into in connection herewith or the transactions contemplated hereby or thereby and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. Both parties irrevocably waive the defense of an inconvenient forum to the maintenance of such suit or proceeding. Both parties further agree that service of process upon a party mailed by first class mail shall be deemed in every respect effective service of process upon the party in any such suit or proceeding. Nothing herein shall affect either party's right to serve process in any other manner permitted by law. Both parties agree that a final non-appealable judgment in any such suit or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on such judgment or in any other lawful manner.

e. This Agreement, the Securities Purchase Agreement and the Warrants (including all schedules and exhibits thereto) constitute the entire agreement among the parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein and therein. This Agreement, the Securities Purchase Agreement and the Warrants supersede all prior agreements and understandings among the parties hereto with respect to the subject matter hereof and thereof.

f. Subject to the requirements of Section 9 hereof, this Agreement shall inure to the benefit of and be binding upon the successors and assigns of each of the parties hereto.

g. The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

h. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a party, may be delivered to the other party hereto by facsimile transmission of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

i. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

j. Except as otherwise provided herein, all consents and other determinations to be made by the Investors pursuant to this Agreement shall be made by Investors holding a majority of the Registrable Securities, determined as if the all of the Warrants then outstanding have been exercised for Registrable Securities.

k. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

l. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to each Investor by vitiating the intent and purpose of the transactions contemplated hereby. Accordingly, the Company acknowledges that the remedy at law for breach of its obligations hereunder will be inadequate and agrees, in the event of a breach or threatened breach by the Company of any of the provisions hereunder, that each Investor shall be entitled, in addition to all other available remedies in law or in equity, to an injunction or injunctions to prevent or cure breaches of the provisions of this Agreement and to enforce specifically the terms and provisions hereof, without the necessity of showing economic loss and without any bond or other security being required.

m. In the event that any provision of this Agreement is invalid or unenforceable under any applicable statute or rule of law, then such provision shall be deemed inoperative to the extent that it may conflict therewith and shall be deemed modified to conform with such statute or rule of law. Any provision hereof which may prove invalid or unenforceable under any law shall not affect the validity or enforceability of any other provision hereof.

n. The initial number of Registrable Securities included in any Registration Statement and each increase to the number of Registrable Securities included therein shall be allocated pro rata among the Investors based on the number of Registrable Securities held by each Investor at the time of such establishment or increase, as the case may be. In the event an Investor shall sell or otherwise transfer any of such holder's Registrable Securities, each transferee shall be allocated a pro rata portion of the number of Registrable Securities included in a Registration Statement for such transferor. Any shares of Common Stock included in a Registration Statement and which remain allocated to any person or entity which does not hold any Registrable Securities shall be allocated to the remaining Investors, pro rata based on the number of shares of Registrable Securities then held by such Investors. For the avoidance of doubt, the number of Registrable Securities held by an Investor shall be determined as if all Warrants then outstanding and held by an Investor were exercised for Registrable Securities.

IN WITNESS WHEREOF, the Company and the undersigned Initial Investors have caused this Agreement to be duly executed as of the date first above written.

AASTROM BIOSCIENCES, INC.

By: /s/ R. Douglas Armstrong, Ph.D.

R. Douglas Armstrong, Ph.D.
President & Chief Executive Officer

RGC INTERNATIONAL INVESTORS, LDC
By: Rose Glen Capital Management, L.P., Investment Manager
By: RGC General Partner Corp., as General Partner

By: /s/ Wayne D. Bloch

Wayne D. Bloch
Managing Director

THIS WARRANT AND THE SHARES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. EXCEPT AS OTHERWISE SET FORTH HEREIN OR IN A SECURITIES PURCHASE AGREEMENT DATED AS OF FEBRUARY 28, 2000, NEITHER THIS WARRANT NOR ANY OF SUCH SHARES MAY BE SOLD, TRANSFERRED OR ASSIGNED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR SUCH SECURITIES UNDER SAID ACT OR, AN OPINION OF COUNSEL, IN FORM, SUBSTANCE AND SCOPE, CUSTOMARY FOR OPINIONS OF COUNSEL IN COMPARABLE TRANSACTIONS, THAT REGISTRATION IS NOT REQUIRED UNDER SUCH ACT OR UNLESS SOLD PURSUANT TO RULE 144 UNDER SUCH ACT.

Right to Purchase 1,132,075 Shares of Common Stock, no par value per share

STOCK PURCHASE WARRANT

THIS CERTIFIES THAT, for value received, RGC International Investors, LDC or its registered assigns, is entitled to purchase from Aastrom Biosciences, Inc., a Michigan corporation (the "Company"), at any time or from time to time during the period specified in Paragraph 2 hereof, One Million One Hundred Thirty-Two Thousand Seventy-Five (1,132,075) fully paid and nonassessable shares of the Company's Common Stock, no par value per share (the "Common Stock"), at an initial exercise price of $3.695 per share (the "Exercise Price"); provided, however, on each February 29 and August 29 following the date hereof (each, a "Reset Date"), commencing August 29, 2000, the Exercise Price then in effect shall be reset, if lower, to the average of the Closing Bid Prices of the Common Stock for the five (5) Trading Days ending on the Trading Day immediately preceding such Reset Date, but in no event shall the Exercise Price be less than $1.60 (subject to adjustment for stock splits, combinations and similar events) (the "Floor Price"). If the Exercise Price is reduced as a result of the resets in the foregoing sentence, the number of shares into which this Warrant is exercisable shall be proportionately increased in accordance with the provisions of Section 4(d). Notwithstanding the foregoing, so long as (A) the Registration Statement

(as defined in the Registration Rights Agreement (as defined below)) required to be filed and to be effective pursuant to the Registration Rights Agreement is then in effect and has been in effect for at least 30 days prior to the ten (10) Trading Day period referred to below and sales of all of the Registrable Securities (as defined in the Registration Rights Agreement) can be made thereunder, (B) the Company has a sufficient number of shares of Common Stock reserved for issuance upon full exercise of this Warrant and (C) the shares of Common Stock issuable upon exercise of this Warrant are traded on the Nasdaq National Market ("Nasdaq"), the Nasdaq SmallCap Market (the "Nasdaq SmallCap"), the New York Stock Exchange ("NYSE") or the American Stock Exchange ("AMEX"), if the average of the Closing Bid Prices of the Common Stock for any ten (10) consecutive Trading Days exceeds $6.47 (subject to adjustment for stock splits, combinations and similar events), the Exercise Price then in effect shall not be subject to further resets pursuant to the proviso in the first sentence of this paragraph.

The term "Warrant Shares," as used herein, refers to the shares of Common Stock purchasable hereunder. The Warrant Shares and the Exercise Price are subject to adjustment as provided in Paragraph 4 hereof. The term Warrants means this Warrant and the other warrants issued pursuant to that certain Securities Purchase Agreement, dated February 28, 2000, by and among the Company and the Buyers listed on the execution page thereof (the "Securities Purchase Agreement").

This Warrant is subject to the following terms, provisions, and conditions:

1. Manner of Exercise; Issuance of Certificates; Payment for Shares.

Subject to the provisions hereof, this Warrant may be exercised by the holder hereof, in whole or in part, by the surrender of this Warrant, together with a completed exercise agreement in the form attached hereto (the "Exercise Agreement"), to the Company during normal business hours on any business day at the Company's principal executive offices (or such other office or agency of the Company as it may designate by notice to the holder hereof), and upon (i) payment to the Company in cash, by certified or official bank check or by wire transfer for the account of the Company of the Exercise Price for the Warrant Shares specified in the Exercise Agreement or (ii) if the resale of the Warrant Shares by the holder is not then registered pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "Securities Act"), delivery to the Company of a written notice of an election to effect a "Cashless Exercise" (as defined in Section 11(c) below) for the Warrant Shares specified in the Exercise Agreement. The Warrant Shares so purchased shall be deemed to be issued to the holder hereof or such holder's designee, as the record owner of such shares, as of the close of business on the date on which this Warrant shall have been surrendered, the completed Exercise Agreement shall have been delivered, and payment shall have been made for such shares (or an election to effect a Cashless Exercise has been made) as set forth above. Certificates for the Warrant Shares so purchased, representing the aggregate number of shares specified in the Exercise Agreement, shall be delivered to the holder hereof within a reasonable time, not exceeding two (2) business days, after this Warrant shall have been so exercised. The certificates so delivered shall be in such denominations as may be requested by the holder hereof and shall be registered in the name of such holder or such other name as shall be designated by such holder. If

this Warrant shall have been exercised only in part, then, unless this Warrant has expired, the Company shall, at its expense, at the time of delivery of such certificates, deliver to the holder a new Warrant representing the number of shares with respect to which this Warrant shall not then have been exercised.

Notwithstanding anything in this Warrant to the contrary, in no event shall the holder of this Warrant be entitled to exercise a number of Warrants (or portions thereof) in excess of the number of Warrants (or portions thereof) upon exercise of which the sum of (i) the number of shares of Common Stock beneficially owned by the holder of this Warrant and its affiliates (other than shares of Common Stock which may be deemed beneficially owned through the ownership of the unexercised Warrants and the unexercised or unconverted portion of any other securities of the Company subject to a limitation on conversion or exercise analogous to the limitation contained herein) and (ii) the number of shares of Common Stock issuable upon exercise of the Warrants (or portions thereof) with respect to which the determination described herein is being made, would result in beneficial ownership by the holder of this Warrant and its affiliates of more than 9.9% of the outstanding shares of Common Stock. For purposes of the immediately preceding sentence, beneficial ownership shall be determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, and Regulation 13D-G thereunder, except as otherwise provided in clause (i) hereof. Notwithstanding anything else contained herein to the contrary, this paragraph may not be amended without (i) written consent of the Company and the holder of this Warrant and (ii) the approval of a majority of the votes cast by all stockholders holding Common Stock of the Company.

2. Period of Exercise. This Warrant is exercisable at any time or from
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time to time on or after the date on which this Warrant is issued and delivered pursuant to the terms of the Securities Purchase Agreement (the "Issue Date") and before 5:00 p.m., New York City time on the third (3rd) anniversary of the Issue Date (the "Exercise Period"). Notwithstanding the foregoing, if, at any time after February 29, 2001, the Closing Bid Price (as defined below) of the Common Stock on Nasdaq (or, if the Common Stock is not then traded on Nasdaq, the principal trading market for the Common Stock on such date) is greater than $7.39 (subject to adjustment for stock splits, combinations and similar events) for a period (the "Trading Day Period") of ten (10) consecutive Trading Days (as defined below), then, so long as (i) all of the shares of Common Stock issuable upon exercise of or otherwise pursuant to this Warrant are then (x) authorized and reserved for issuance, (y) registered for re-sale under the Securities Act by the holder of this Warrant (or may otherwise be able to be resold publicly without registration or restriction) and (z) eligible to be traded on Nasdaq, the Nasdaq SmallCap, the NYSE or the AMEX and (ii) there is not then a continuing Repurchase Event (as defined in the Securities Purchase Agreement), this Warrant shall expire on the 30th day following the last day of the Trading Day Period (the "Expiration Date"); provided, however, the Expiration Date shall be delayed by one (1) Trading Day for each Trading Day occurring prior thereto and prior to the full exercise of this Warrant that (i) any Registration Statement (as defined in the Registration Rights Agreement, dated as of February 28, 2000, between the Company and RGC International Investors, LDC (the "Registration Rights Agreement")) required to be filed and to be effective pursuant to, and in accordance with the time periods specified in, the Registration Rights Agreement

is not effective or sales of all of the Registrable Securities (as defined in the Registration Rights Agreement) otherwise cannot be made thereunder during the Registration Period (as defined in the Registration Rights Agreement) (whether by reason of the Company's failure to properly supplement or amend the prospectus included therein in accordance with the terms of the Registration Rights Agreement or otherwise), (ii) any Repurchase Event (as defined in the Securities Purchase Agreement) exists, without regard to whether any cure periods shall have run or (iii) the Company is in breach of any of its obligations pursuant to Section 4(h) of the Securities Purchase Agreement.

3. Certain Agreements of the Company. The Company hereby covenants and agrees as follows:

(a) Shares to be Fully Paid. All Warrant Shares will, upon issuance in accordance with the terms of this Warrant, be validly issued, fully paid, and nonassessable and free from all taxes, liens, and charges with respect to the issue thereof.

(b) Reservation of Shares. During the Exercise Period, the Company shall at all times have authorized, and reserved for the purpose of issuance upon exercise of this Warrant, a sufficient number of shares of Common Stock to provide for the exercise of this Warrant.

(c) Listing. The Company shall promptly secure the listing of the shares of Common Stock issuable upon exercise of this Warrant upon each national securities exchange or automated quotation system, if any, upon which shares of Common Stock are then listed (subject to official notice of issuance upon exercise of this Warrant) and shall maintain, so long as any other shares of Common Stock shall be so listed, such listing of all shares of Common Stock from time to time issuable upon the exercise of this Warrant; and the Company shall so list on each national securities exchange or automated quotation system, as the case may be, and shall maintain such listing of, any other shares of capital stock of the Company issuable upon the exercise of this Warrant if and so long as any shares of the same class shall be listed on such national securities exchange or automated quotation system.

(d) Certain Actions Prohibited. The Company will not, by amendment of its charter or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed by it hereunder, but will at all times in good faith assist in the carrying out of all the provisions of this Warrant and in the taking of all such action as may reasonably be requested by the holder of this Warrant in order to protect the exercise privilege of the holder of this Warrant against dilution or other impairment, consistent with the tenor and purpose of this Warrant. Without limiting the generality of the foregoing, the Company (i) will not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, and (ii) will take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant.

(e) Successors and Assigns. This Warrant will be binding upon any entity succeeding to the Company by merger, consolidation, or acquisition of all or substantially all the Company's assets.

4. Antidilution Provisions. During the Exercise Period, the Exercise Price and the number of Warrant Shares shall be subject to adjustment from time to time as provided in this Paragraph 4.

In the event that any adjustment of the Exercise Price as required herein results in a fraction of a cent, such Exercise Price shall be rounded up to the nearest cent.

(a) Adjustment of Exercise Price and Number of Shares upon Issuance of Common Stock. Except as otherwise provided in Paragraphs 4(c) and 4(e) hereof, if and whenever on or after the Issue Date of this Warrant, the Company issues or sells, or in accordance with Paragraph 4(b) hereof is deemed to have issued or sold, any shares of Common Stock for no consideration or for a consideration per share (before deduction of reasonable expenses or commissions or underwriting discounts or allowances in connection therewith) less than the Exercise Price in effect on the date of issuance (or deemed issuance) of such Common Stock (a "Dilutive Issuance"), then immediately upon the Dilutive Issuance, the Exercise Price will be reduced to a price determined by multiplying the Exercise Price in effect immediately prior to the Dilutive Issuance by a fraction, (i) the numerator of which is an amount equal to the sum of (x) the number of shares of Common Stock actually outstanding immediately prior to the Dilutive Issuance, plus (y) the quotient of the aggregate consideration, calculated as set forth in Paragraph 4(b) hereof, received by the Company upon such Dilutive Issuance divided by the Exercise Price in effect immediately prior to the Dilutive Issuance, and (ii) the denominator of which is the total number of shares of Common Stock Deemed Outstanding (as defined below) immediately after the Dilutive Issuance.

(b) Effect on Exercise Price of Certain Events. For purposes of determining the adjusted Exercise Price under Paragraph 4(a) hereof, the following will be applicable:

(i) Issuance of Rights or Options. If the Company in any manner issues or grants any warrants, rights or options, whether or not immediately exercisable, to subscribe for or to purchase Common Stock or other securities convertible into or exchangeable for Common Stock ("Convertible Securities") (such warrants, rights and options to purchase Common Stock or Convertible Securities are hereinafter referred to as "Options") and the price per share for which Common Stock is issuable upon the exercise of such Options is less than the Exercise Price in effect on the date of issuance or grant of such Options, then the maximum total number of shares of Common Stock issuable upon the exercise of all such Options will, as of the date of the issuance or grant of such Options, be deemed to be outstanding and to have been issued and sold by the Company for such price per share. For purposes of the preceding sentence, the "price per share for which Common Stock is issuable upon the exercise of such Options" is determined by dividing (i) the total amount, if any, received or receivable by the Company as consideration for the issuance or granting of all such Options, plus the minimum aggregate amount of additional consideration, if any,

payable to the Company upon the exercise of all such Options, plus, in the case of Convertible Securities issuable upon the exercise of such Options, the minimum aggregate amount of additional consideration payable upon the conversion or exchange thereof at the time such Convertible Securities first become convertible or exchangeable, by (ii) the maximum total number of shares of Common Stock issuable upon the exercise of all such Options (assuming full conversion of Convertible Securities, if applicable). No further adjustment to the Exercise Price will be made upon the actual issuance of such Common Stock upon the exercise of such Options or upon the conversion or exchange of Convertible Securities issuable upon exercise of such Options.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities, whether or not immediately convertible (other than where the same are issuable upon the exercise of Options) and the price per share for which Common Stock is issuable upon such conversion or exchange is less than the Exercise Price in effect on the date of issuance of such Convertible Securities, then the maximum total number of shares of Common Stock issuable upon the conversion or exchange of all such Convertible Securities will, as of the date of the issuance of such Convertible Securities, be deemed to be outstanding and to have been issued and sold by the Company for such price per share. For the purposes of the preceding sentence, the "price per share for which Common Stock is issuable upon such conversion or exchange" is determined by dividing (i) the total amount, if any, received or receivable by the Company as consideration for the issuance or sale of all such Convertible Securities, plus the minimum aggregate amount of additional consideration, if any, payable to the Company upon the conversion or exchange thereof at the time such Convertible Securities first become convertible or exchangeable, by (ii) the maximum total number of shares of Common Stock issuable upon the conversion or exchange of all such Convertible Securities. No further adjustment to the Exercise Price will be made upon the actual issuance of such Common Stock upon conversion or exchange of such Convertible Securities.

(iii) Change in Option Price or Conversion Rate. If there is a change at any time in (i) the amount of additional consideration payable to the Company upon the exercise of any Options; (ii) the amount of additional consideration, if any, payable to the Company upon the conversion or exchange of any Convertible Securities; or (iii) the rate at which any Convertible Securities are convertible into or exchangeable for Common Stock (other than under or by reason of provisions designed to protect against dilution), the Exercise Price in effect at the time of such change will be readjusted to the Exercise Price which would have been in effect at such time had such Options or Convertible Securities still outstanding provided for such changed additional consideration or changed conversion rate, as the case may be, at the time initially granted, issued or sold.

(iv) Treatment of Expired Options and Unexercised Convertible Securities. If, in any case, the total number of shares of Common Stock issuable upon exercise of any Option or upon conversion or exchange of any Convertible Securities is not, in fact, issued and the rights to exercise such Option or to convert or exchange such Convertible Securities shall have expired or terminated, the Exercise Price then in effect will be readjusted to the Exercise Price which would have been in effect at the time of such expiration or termination had such Option or

Convertible Securities, to the extent outstanding immediately prior to such expiration or termination (other than in respect of the actual number of shares of Common Stock issued upon exercise or conversion thereof), never been issued.

(v) Calculation of Consideration Received. If any Common Stock, Options or Convertible Securities are issued, granted or sold for cash, the consideration received therefor for purposes of this Warrant will be the amount received by the Company therefor, before deduction of reasonable commissions, underwriting discounts or allowances or other reasonable expenses paid or incurred by the Company in connection with such issuance, grant or sale. In case any Common Stock, Options or Convertible Securities are issued or sold for a consideration part or all of which shall be other than cash, the amount of the consideration other than cash received by the Company will be the fair value of such consideration, except where such consideration consists of securities, in which case the amount of consideration received by the Company will be the Market Price thereof as of the date of receipt. In case any Common Stock, Options or Convertible Securities are issued in connection with any acquisition, merger or consolidation in which the Company is the surviving corporation, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving corporation as is attributable to such Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or securities will be determined in good faith by the Board of Directors of the Company.

(vi) Exceptions to Adjustment of Exercise Price. No adjustment to the Exercise Price will be made (i) upon the exercise of any warrants, options or convertible securities granted, issued and outstanding on the date of issuance of this Warrant; (ii) upon the grant or exercise of any stock or options which may hereafter be granted or exercised under any employee benefit plan of the Company now existing or to be implemented in the future, so long as the issuance of such stock or options is approved by a majority of the independent members of the Board of Directors of the Company or a majority of the members of a committee of independent directors established for such purpose; (iii) upon the exercise of the Warrants; (iv) upon the issuance of Common Stock in a firm commitment underwritten public offering led by at least one of the underwriters listed on Schedule 4(f) of the Registration Rights Agreement (as defined below); and (v) issuances of securities to any investor engaged as its principal business in the biotechnology, medical device or pharmaceutical industry.

(c) Subdivision or Combination of Common Stock. If the Company at any time subdivides (by any stock split, stock dividend, recapitalization, reorganization, reclassification or otherwise) the shares of Common Stock acquirable hereunder into a greater number of shares, then, after the date of record for effecting such subdivision, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced. If the Company at any time combines (by reverse stock split, recapitalization, reorganization, reclassification or otherwise) the shares of Common Stock acquirable hereunder into a smaller number of shares, then, after the date of record for effecting such combination, the Exercise Price in effect immediately prior to such combination will be proportionately increased.

(d) Adjustment in Number of Shares. Upon each adjustment of the Exercise Price pursuant to the provisions of this Paragraph 4, the number of shares of Common Stock issuable upon exercise of this Warrant shall be adjusted by multiplying a number equal to the Exercise Price in effect immediately prior to such adjustment by the number of shares of Common Stock issuable upon exercise of this Warrant immediately prior to such adjustment and dividing the product so obtained by the adjusted Exercise Price; provided, however, that no adjustment to the number of shares of Common Stock into which this Warrant is exercisable shall be made pursuant to this Section 4(d) when there are adjustments to the Exercise Price pursuant to this Section 4 which would cause the Exercise Price to be less than the Floor Price.

(e) Consolidation or Merger.

(i) In case of any consolidation of the Company with, or merger of the Company into any other corporation, then as a condition of such consolidation or merger, adequate provision will be made whereby the holder of this Warrant will have the right to acquire and receive upon exercise of this Warrant in lieu of the shares of Common Stock immediately theretofore acquirable upon the exercise of this Warrant, such shares of stock, securities or assets as may be issued or payable with respect to or in exchange for the number of shares of Common Stock immediately theretofore acquirable and receivable upon exercise of this Warrant had such consolidation or merger not taken place. In any such case, the Company will make appropriate provision to insure that the provisions of this Paragraph 4 hereof will thereafter be applicable as nearly as may be in relation to any shares of stock or securities thereafter deliverable upon the exercise of this Warrant. Subject to subparagraph (ii) below, the Company will not effect any consolidation or merger unless prior to the consummation thereof, the successor corporation (if other than the Company) (the "Surviving Entity") assumes by written instrument the obligations under this Paragraph 4 and the obligations to deliver to the holder of this Warrant such shares of stock, securities or assets as, in accordance with the foregoing provisions, the holder may be entitled to acquire.

(ii) In the event of a Qualified Merger Transaction (as defined below) or a Transfer of Control Transaction (as defined below) and notwithstanding anything to the contrary contained in this Section 4(e), so long as on the date the Optional Redemption Notice (as defined below) is delivered and at all times thereafter up to the Optional Redemption Date (as defined below) (a) the Registration Statement (as defined in the Registration Rights Agreement), required to be filed and be effective pursuant to the Registration Rights Agreement is then in effect and has been in effect for at least 30 days prior thereto (other than for any period prior to the date of delivery of the Optional Redemption Notice) and sales of all of the Registrable Securities (as defined in the Registration Rights Agreement) can be made thereunder, (b) the Company has a sufficient number of authorized shares of Common Stock reserved for issuance upon full exercise of this Warrant and (c) the shares of Common Stock issuable upon exercise of this Warrant are traded on Nasdaq, the Nasdaq SmallCap, the NYSE or the AMEX, then the Company shall have the right, exercisable on not less than twenty (20) Trading Days written notice prior to the consummation of the Qualified

Merger Transaction or Transfer of Control Transaction to the holder of this Warrant (which notice may not be sent to the holder of this Warrant until the Company is permitted to redeem this Warrant pursuant to this Section 4(e)(ii) (other than the requirement to deliver such notice) or at any time when there is material non-public information regarding the Company that has not been publicly announced or prior to the public announcement of such Qualified Merger Transaction or Transfer of Control Transaction), to redeem this Warrant simultaneously with the consummation of the Qualified Merger Transaction or Transfer of Control Transaction in accordance with this Section 4(e)(ii). A notice (the "Optional Redemption Notice") of any redemption hereunder (an "Optional Redemption") shall be delivered to the holder of this Warrant at its registered address appearing on the books and records of the Company and shall state (1) that the Company is exercising its right to redeem this Warrant and (2) the then current projected date of redemption, which date and time shall be the effective date of the Qualified Merger Transaction (the "Optional Redemption Date"), provided that the Company shall promptly notify the holder of this Warrant in writing if the projected date of redemption is changed. On the Optional Redemption Date, the Company shall make payment of the Optional Redemption Amount (as defined below) to or upon the order of the holder of this Warrant as specified by the holder in writing to the Company at least one (1) business day prior to the Optional Redemption Date. If the Company exercises its right to redeem this Warrant in accordance with this Section 4(e)(ii), the Company shall make payment to the holder of this Warrant of an amount in cash (the "Optional Redemption Amount") equal to 90% of the Black-Scholes Amount (as defined herein) multiplied by the number of shares of Common Stock for which this Warrant was exercisable (without regard to any limitations on exercise herein contained) on the date immediately preceding the date of such Qualified Merger Transaction or Transfer of Control Transaction. In the case of a Qualified Merger Transaction, the Company may, at its option, pay the Optional Redemption Amount in a number of shares of common stock of the Surviving Entity (the "Survivor Common Stock") equal to the Optional Redemption Amount divided by 95% of the average of the lowest Closing Bid Prices for any five (5) Trading Days (which need not be consecutive) during the fifteen (15) Trading Day period ending one Trading Day prior to the Optional Redemption Date; provided that such
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shares of Survivor Common Stock paid to the holder of this Warrant pursuant to this sentence (i) are traded on Nasdaq, the NYSE or the AMEX and (ii) may be immediately resold by the holder of this Warrant to the public without registration or restriction. Notwithstanding anything to the contrary contained herein, if, in the case of a Qualified Merger Transaction, the price paid per share of Common Stock is greater than or equal to 130% of the then effective Exercise Price (but in no event lower than $2.65 (subject to adjustment for stock splits, combinations and similar events)), or, in the case of a Transfer of Control Transaction, the average of the Closing Bid Prices for the twenty (20) Trading Day notice period during which the Company may give its Optional Redemption Notice is greater than or equal to 130% of the then effective Exercise Price (but in no event lower than $2.65 (subject to adjustment for stock splits, combinations and similar events)), the Company shall not be permitted to redeem this Warrant pursuant to this Section 4(e)(ii) and this Warrant shall be exercised simultaneously with the consummation of the Qualified Merger Transaction or Transfer of Control Transaction, as applicable, in accordance with the terms of Section 1. Notwithstanding the delivery of an Optional Redemption Notice, the holder of this Warrant shall at all times prior to the Optional Redemption Date maintain the right to exercise all or any portion of this Warrant in accordance with the terms

of Section 1 and any portion so exercised after receipt of an Optional Redemption Notice and prior to the Optional Redemption Date set forth in such notice and payment of the aggregate Optional Redemption Amount shall be deducted from the portion of this Warrant which is otherwise subject to redemption pursuant to such notice. If the Company delivers an Optional Redemption Notice and fails to pay the Optional Redemption Amount due to the holder of this Warrant on the Optional Redemption Date, the Company (or any successor thereto including the Surviving Entity) shall forever forfeit its right to redeem this Warrant pursuant to this Section 4(e)(ii).

The "Black-Scholes Amount" shall be an amount determined by calculating the "Black-Scholes" value of an option to purchase one share of Common Stock on the applicable page on the Bloomberg (as defined below) online page, using the following variable values: (i) the current market price of the Common Stock equal to the closing trade price on the last Trading Day prior to the date the Optional Redemption Notice is received by the holder of this Warrant; (ii) volatility of the Common Stock equal to the volatility of the Common Stock during the one hundred (100) Trading Day period ending on the Trading Day prior to the date the Optional Redemption Notice is received by the holder of this Warrant; (iii) a risk free rate equal to the interest rate on the United States treasury bill or treasury note with a 90-day maturity on the Trading Day prior to the date the Optional Redemption Notice is received by the holder of this Warrant; and (iv) an exercise price equal to the Exercise Price on the date the Optional Redemption Notice is received by the holder of this Warrant. In the event such calculation function is no longer available utilizing the Bloomberg (as defined below) online page, the holder of this Warrant shall calculate such amount in good faith using the closest available alternative mechanism and variable values to those available utilizing the Bloomberg (as defined below) online page for such calculation function and shall provide a copy of such calculation to the Company.

(iii) "Qualified Merger Transaction" shall mean a consolidation of the Company with, or merger of the Company into any other corporation where the Company is not the surviving entity and in which the Company is required as a condition of such transaction to redeem or force the exercise of the Warrants.

(iv) "Transfer of Control Transaction" shall mean the sale or exchange of shares of Common Stock constituting more than fifty percent (50%) of the total outstanding Common Stock, calculated on a fully diluted basis. For purposes of such calculation, all shares of Common Stock issuable upon the conversion, exercise or exchange of any securities of the Company shall be deemed to be outstanding.

(f) Distribution of Assets. In case the Company shall declare or make
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any distribution of its assets (including cash) to holders of Common Stock as a partial liquidating dividend, by way of return of capital or otherwise, then, after the date of record for determining shareholders entitled to such distribution, but prior to the date of distribution, the holder of this Warrant shall be entitled upon exercise of this Warrant for the purchase of any or all of the shares of Common Stock subject hereto, to receive the amount of such assets which would have been

payable to the holder had such holder been the holder of such shares of Common Stock on the record date for the determination of shareholders entitled to such distribution.

(g) Notice of Adjustment. Upon the occurrence of any event which requires any adjustment of the Exercise Price, then, and in each such case, the Company shall give notice thereof to the holder of this Warrant, which notice shall state the Exercise Price resulting from such adjustment and the increase or decrease in the number of Warrant Shares purchasable at such price upon exercise, setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based. Such calculation shall be certified by the chief financial officer of the Company.

(h) Minimum Adjustment of Exercise Price. No adjustment of the Exercise Price shall be made in an amount of less than 1% of the Exercise Price in effect at the time such adjustment is otherwise required to be made, but any such lesser adjustment shall be carried forward and shall be made at the time and together with the next subsequent adjustment which, together with any adjustments so carried forward, shall amount to not less than 1% of such Exercise Price.

(i) No Fractional Shares. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but the Company shall pay a cash adjustment in respect of any fractional share which would otherwise be issuable in an amount equal to the same fraction of the Market Price of a share of Common Stock on the date of such exercise.

(j) Other Notices. In case at any time:

(i) the Company shall declare any dividend upon the Common Stock payable in shares of stock of any class or make any other distribution (including dividends or distributions payable in cash out of retained earnings) to the holders of the Common Stock;

(ii) the Company shall offer for subscription pro rata to the holders of the Common Stock any additional shares of stock of any class or other rights;

(iii) there shall be any capital reorganization of the Company, or reclassification of the Common Stock, or consolidation or merger of the Company with or into, or sale of all or substantially all its assets to, another corporation or entity; or

(iv) there shall be a voluntary or involuntary dissolution, liquidation or winding-up of the Company;

then, in each such case, the Company shall give to the holder of this Warrant (a) notice of the date on which the books of the Company shall close or a record shall be taken for determining the holders of Common Stock entitled to receive any such dividend, distribution, or subscription rights or for determining the holders of Common Stock entitled to vote in respect of any such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding-up and (b) in the

case of any such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation or winding-up, notice of the date (or, if not then known, a reasonable approximation thereof by the Company) when the same shall take place. Such notice shall also specify the date (or if not then known, the best estimate of such date) on which the holders of Common Stock shall be entitled to receive such dividend, distribution, or subscription rights or to exchange their Common Stock for stock or other securities or property deliverable upon such reorganization, reclassification, consolidation, merger, sale, dissolution, liquidation, or winding-up, as the case may be. Such notice shall be given at least 30 days prior to the record date or the date on which the Company's books are closed in respect thereto. Failure to give any such notice or any defect therein shall not affect the validity of the proceedings referred to in clauses (i), (ii), (iii) and (iv) above.

(k) Certain Events. If any event occurs of the type contemplated by the adjustment provisions of this Paragraph 4 but not expressly provided for by such provisions, the Company will give notice of such event as provided in Paragraph 4(g) hereof, and the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of shares of Common Stock acquirable upon exercise of this Warrant so that the rights of the holder of this Warrant shall be neither enhanced nor diminished by such event.

(l) Certain Definitions.

(i) "Common Stock Deemed Outstanding" means the number of shares of Common Stock actually outstanding (not including shares of Common Stock held in the treasury of the Company), plus (x) pursuant to Paragraph 4(b)(i) hereof, the maximum total number of shares of Common Stock issuable upon the exercise of Options, as of the date of such issuance or grant of such Options, if any, and (y) pursuant to Paragraph 4(b)(ii) hereof, the maximum total number of shares of Common Stock issuable upon conversion or exchange of Convertible Securities, as of the date of issuance of such Convertible Securities, if any.

(ii) "Market Price," as of any date, (i) means the average of the last reported sale prices for the shares of Common Stock on Nasdaq for the five (5) Trading Days immediately preceding such date as reported by Bloomberg Financial Markets or an equivalent reliable reporting service mutually acceptable to and hereafter designated by the holder of this Warrant and the Company ("Bloomberg"), or (ii) if Nasdaq is not the principal trading market for the shares of Common Stock, the average of the last reported sale prices on the principal trading market for the Common Stock during the same period as reported by Bloomberg, or (iii) if market value cannot be calculated as of such date on any of the foregoing bases, the Market Price shall be the fair market value as reasonably determined in good faith by (a) the Board of Directors of the Company or (b) at the option and expense of a majority-in-interest of the holders of the outstanding Warrants, by an independent investment bank of nationally recognized standing in the valuation of businesses similar to the business of the Company. The manner of determining the Market Price of the Common Stock set forth in the foregoing definition shall apply with respect to any other security in respect of which a determination as to market value must be made hereunder.

(iii) "Common Stock," for purposes of this Paragraph 4, includes the Common Stock, no par value per share, and any additional class of stock of the Company having no preference as to dividends or distributions on liquidation, provided that the shares purchasable pursuant to this Warrant shall include only shares of Common Stock, no par value per share, in respect of which this Warrant is exercisable, or shares resulting from any subdivision or combination of such Common Stock, or in the case of any reorganization, reclassification, consolidation, merger, or sale of the character referred to in Paragraph 4(e) hereof, the stock or other securities or property provided for in such Paragraph.

(iv) "Closing Bid Price" means, for any security as of any date, the closing bid price on Nasdaq as reported by Bloomberg or, if Nasdaq is not the principal trading market for such security, the closing bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or, if no closing bid price of such security is available in any of the foregoing manners, the average of the bid prices of any market makers for such security that are listed in the "pink sheets" by the National Quotation Bureau, Inc. If the Closing Bid Price cannot be calculated for such security on such date in the manner provided above, the Closing Bid Price shall be the fair market value as mutually determined by the Company and the holder of this Warrant.

(v) "Trading Day" means any day on which the Common Stock is traded for any period on Nasdaq, or on the principal securities exchange or other securities market on which the Common Stock is then being traded.

5. Issue Tax. The issuance of certificates for Warrant Shares upon the exercise of this Warrant shall be made without charge to the holder of this Warrant or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the holder of this Warrant.

6. No Rights or Liabilities as a Shareholder. This Warrant shall not entitle the holder hereof to any voting rights or other rights as a shareholder of the Company. No provision of this Warrant, in the absence of affirmative action by the holder hereof to purchase Warrant Shares, and no mere enumeration herein of the rights or privileges of the holder hereof, shall give rise to any liability of such holder for the Exercise Price or as a shareholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

7. Transfer, Exchange, and Replacement of Warrant.

(a) Restriction on Transfer. This Warrant and the rights granted to the holder hereof are transferable, in whole or in part, upon surrender of this Warrant, together with a properly executed assignment in the form attached hereto, at the office or agency of the Company referred to in Paragraph 7(e) below, provided, however, that any transfer or assignment shall be subject to the conditions set forth in Paragraph 7(f) hereof and to the applicable provisions of the Securities Purchase Agreement. Until due presentment for registration of transfer on the books of the Company, the Company may treat the registered holder hereof as the owner and holder hereof for all purposes, and the Company shall not be affected by any notice to the contrary. Notwithstanding anything to the contrary contained herein, the registration rights described in Paragraph 8 are assignable only in accordance with the provisions of the Registration Rights Agreement.

(b) Warrant Exchangeable for Different Denominations. This Warrant is exchangeable, upon the surrender hereof by the holder hereof at the office or agency of the Company referred to in Paragraph 7(e) below, for new Warrants of like tenor representing in the aggregate the right to purchase the number of shares of Common Stock which may be purchased hereunder, each of such new Warrants to represent the right to purchase such number of shares as shall be designated by the holder hereof at the time of such surrender.

(c) Replacement of Warrant. Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction, or mutilation of this Warrant and, in the case of any such loss, theft, or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company, or, in the case of any such mutilation, upon surrender and cancellation of this Warrant, the Company, at its expense, will execute and deliver, in lieu thereof, a new Warrant of like tenor.

(d) Cancellation; Payment of Expenses. Upon the surrender of this Warrant in connection with any transfer, exchange, or replacement as provided in this Paragraph 7, this Warrant shall be promptly canceled by the Company. The Company shall pay all taxes (other than securities transfer taxes) and all other expenses (other than legal expenses, if any, incurred by the holder of this Warrant or transferees) and charges payable in connection with the preparation, execution, and delivery of Warrants pursuant to this Paragraph 7.

(e) Register. The Company shall maintain, at its principal executive offices (or such other office or agency of the Company as it may designate by notice to the holder hereof), a register for this Warrant, in which the Company shall record the name and address of the person in whose name this Warrant has been issued, as well as the name and address of each transferee and each prior owner of this Warrant.

(f) Exercise or Transfer Without Registration. If, at the time of the surrender of this Warrant in connection with any exercise, transfer, or exchange of this Warrant, this Warrant (or, in the case of any exercise, the Warrant Shares issuable hereunder), shall not be registered under the Securities Act and under applicable state securities or blue sky laws, the Company may require, as a condition of allowing such exercise, transfer, or exchange, (i) that the holder or transferee of this

Warrant, as the case may be, furnish to the Company a written opinion of counsel, which opinion and counsel are acceptable to the Company, to the effect that such exercise, transfer, or exchange may be made without registration under said Act and under applicable state securities or blue sky laws, (ii) that the holder or transferee execute and deliver to the Company an investment letter in form and substance acceptable to the Company and (iii) that the transferee be an "accredited investor" as defined in Rule 501(a) promulgated under the Securities Act; provided that no such opinion, letter or status as an "accredited investor" shall be required in connection with a transfer pursuant to Rule 144 under the Securities Act. The first holder of this Warrant, by taking and holding the same, represents to the Company that such holder is acquiring this Warrant for investment and not with a view to the distribution thereof.

8. Registration Rights. The initial holder of this Warrant (and certain assignees thereof) is entitled to the benefit of such registration rights in respect of the Warrant Shares as are set forth in Section 2 of the Registration Rights Agreement.

9. Notices. All notices, requests, and other communications required or permitted to be given or delivered hereunder to the holder of this Warrant shall be in writing, and shall be personally delivered, or shall be sent by certified or registered mail or by recognized overnight mail courier, postage prepaid and addressed, to such holder at the address shown for such holder on the books of the Company, or at such other address as shall have been furnished to the Company by notice from such holder. All notices, requests, and other communications required or permitted to be given or delivered hereunder to the Company shall be in writing, and shall be personally delivered, or shall be sent by certified or registered mail or by recognized overnight mail courier, postage prepaid and addressed, to the office of the Company at 24 Frank Lloyd Wright Drive, P.O. Box 376, Ann Arbor, Michigan 48106, Attention: Chief Executive Officer, or at such other address as shall have been furnished to the holder of this Warrant by notice from the Company. Any such notice, request, or other communication may be sent by facsimile, but shall in such case be subsequently confirmed by a writing personally delivered or sent by certified or registered mail or by recognized overnight mail courier as provided above. All notices, requests, and other communications shall be deemed to have been given either at the time of the receipt thereof by the person entitled to receive such notice at the address of such person for purposes of this Paragraph 9, or, if mailed by registered or certified mail or with a recognized overnight mail courier upon deposit with the United States Post Office or such overnight mail courier, if postage is prepaid and the mailing is properly addressed, as the case may be.

10. Governing Law. THIS WARRANT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF MICHIGAN APPLICABLE TO AGREEMENTS MADE AND TO BE PERFORMED IN THE STATE OF MICHIGAN (WITHOUT REGARD TO PRINCIPLES OF CONFLICT OF LAWS). BOTH PARTIES IRREVOCABLY CONSENT TO THE JURISDICTION OF THE UNITED STATES FEDERAL COURTS AND THE STATE COURTS LOCATED IN DELAWARE WITH RESPECT TO ANY SUIT OR PROCEEDING BASED ON OR ARISING UNDER THIS AGREEMENT, THE AGREEMENTS ENTERED INTO IN CONNECTION HEREWITH OR THE

TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY AND IRREVOCABLY AGREE THAT ALL CLAIMS IN RESPECT OF SUCH SUIT OR PROCEEDING MAY BE DETERMINED IN SUCH COURTS. BOTH PARTIES IRREVOCABLY WAIVE THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH SUIT OR PROCEEDING. BOTH PARTIES FURTHER AGREE THAT SERVICE OF PROCESS UPON A PARTY MAILED BY FIRST CLASS MAIL SHALL BE DEEMED IN EVERY RESPECT EFFECTIVE SERVICE OF PROCESS UPON THE PARTY IN ANY SUCH SUIT OR PROCEEDING. NOTHING HEREIN SHALL AFFECT EITHER PARTY'S RIGHT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW. BOTH PARTIES AGREE THAT A FINAL NON-APPEALABLE JUDGMENT IN ANY SUCH SUIT OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON SUCH JUDGMENT OR IN ANY OTHER LAWFUL MANNER.

11. Miscellaneous.

(a) Amendments. This Warrant and any provision hereof may only be amended by an instrument in writing signed by the Company and the holder hereof.

(b) Descriptive Headings. The descriptive headings of the several paragraphs of this Warrant are inserted for purposes of reference only, and shall not affect the meaning or construction of any of the provisions hereof.

(c) Cashless Exercise. Notwithstanding anything to the contrary contained in this Warrant, if the resale of the Warrant Shares by the holder is not then registered pursuant to an effective registration statement under the Securities Act, this Warrant may be exercised by presentation and surrender of this Warrant to the Company at its principal executive offices with a written notice of the holder's intention to effect a cashless exercise, including a calculation of the number of shares of Common Stock to be issued upon such exercise in accordance with the terms hereof (a "Cashless Exercise"). In the event of a Cashless Exercise, in lieu of paying the Exercise Price in cash, the holder shall surrender this Warrant for that number of shares of Common Stock determined by multiplying the number of Warrant Shares to which it would otherwise be entitled by a fraction, the numerator of which shall be the difference between the then current Market Price per share of the Common Stock and the Exercise Price, and the denominator of which shall be the then current Market Price per share of Common Stock.

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IN WITNESS WHEREOF, the Company has caused this Warrant to be signed by its duly authorized officer.

AASTROM BIOSCIENCES, INC.

By: /s/ R. Douglas Armstrong, Ph.D.

R. Douglas Armstrong, Ph.D.
President & Chief Executive Officer

Dated as of February 29, 2000

FORM OF EXERCISE AGREEMENT

Dated: _____ __, ____

To: Aastrom Biosciences, Inc.

The undersigned, pursuant to the provisions set forth in the within Warrant, hereby agrees to purchase _____ shares of Common Stock covered by such Warrant, and makes payment herewith in full therefor at the price per share provided by such Warrant in cash or by certified or official bank check in the amount of, or, if the resale of such Common Stock by the undersigned is not currently registered pursuant to an effective registration statement under the Securities Act of 1933, as amended, by surrender of securities issued by the Company (including a portion of the Warrant) having a market value (in the case of a portion of this Warrant, determined in accordance with Section 11(c) of the Warrant) equal to $_____. Please issue a certificate or certificates for such shares of Common Stock in the name of and pay any cash for any fractional share to:

Name: _____

Signature: _____
Address: _____
_____

Note: The above signature should correspond exactly with the name on the face of the within Warrant.

and, if said number of shares of Common Stock shall not be all the shares purchasable under the within Warrant, a new Warrant is to be issued in the name of said undersigned covering the balance of the shares purchasable thereunder less any fraction of a share paid in cash.

The above signatory represents and warrants that all offers and sales by the above signatory of the securities issuable to the above signatory upon exercise of this Warrant shall be made pursuant to registration of the securities under the Securities Act of 1933, as amended (the "Act"), or pursuant to an exemption from registration under the Act.

FORM OF ASSIGNMENT

FOR VALUE RECEIVED, the undersigned hereby sells, assigns, and transfers all the rights of the undersigned under the within Warrant, with respect to the number of shares of Common Stock covered thereby set forth hereinbelow, to:

Name of Assignee	Address	No of Shares
- ----------	-------	----------

, and hereby irrevocably constitutes and appoints _____ _____ as agent and attorney-in-fact to transfer said Warrant on the books of the within-named corporation, with full power of substitution in the premises.

Dated: _____ __, ____

In the presence of:

_____

Name: _____

Signature: _____

Title of Signing Officer or Agent (if any):

Address: _____
_____
_____

Note: The above signature should correspond exactly with the name on the face of the within Warrant.

EXHIBIT 99.1

AASTROM BIOSCIENCES COMPLETES PRIVATE EQUITY FINANCING

- -- Funds to Support Resumption of Clinical Testing of the AastromReplicell/TM/ System for Use in Cancer Treatment --

Ann Arbor, Michigan, March 2, 2000 -- Aastrom Biosciences, Inc. (Nasdaq: ASTM) announced today that it has raised $6 million in equity capital through the sale to a single investor of 2,264,151 units, each of which consists of one share of common stock and a three-year warrant to purchase one-half of one share of common stock at an exercise price of $3.70. Assuming full exercise of the stock purchase warrants, the Company could receive up to an additional $4.2 million, providing total funding, before expenses, of approximately $10.2 million. The completion of this financing will allow the Company to pursue its clinical trial programs for the AastromReplicell/TM/ Cell Production System (System) and to initiate expanded operations.

"The recent upturn in the biotechnology financial markets has opened up important new financing options for Aastrom," said R. Douglas Armstrong, Ph.D., President and CEO of Aastrom. Dr. Armstrong continued, "Investor interest in Aastrom has increased, giving the Company new options to raise the capital it needs to pursue its business plan. The immediate impact is demonstrated by this new financing and we intend to continue to evaluate additional funding options."

Management noted that the warrants have a three-year term, which is subject to early termination if the stock price reaches $7.39 for a specified period. The warrants also contain certain anti-dilution provisions, including an increase in the number of shares, and the exercise price may be adjusted, subject to a floor, pending other financing or stock pricing events.

The Company announced in October 1999 a reduction in business activity, including delaying U.S. clinical trial activity, as well as marketing activities in Europe, due to then existing limitations in available funding. Dr. Armstrong noted, "With these operational changes implemented, we aggressively pursued our available financing and strategic options and are pleased with the completion of this financing. Throughout this period, we continued preparatory activities for our clinical development programs and trials for the use of the AastromReplicell/TM/ System in the treatment of leukemia, solid cancers and severe osteoporosis. With the work completed by our diligent employees over this period, positive clinical results recently reported, and now the availability of needed capital resources, Aastrom is positioned for resumption of these clinical programs." The Company's plans for the potential initiation of sales of the AastromReplicell/TM/ System in Europe have not yet been finalized.

As a part of the October 1999 reduction in activities, Aastrom announced the retention of Salomon Smith Barney to assist the Company with its efforts, including exploration of potential merger or acquisition candidates. The Company noted that these activities

- more -

with Salomon Smith Barney have now concluded. With the financing just completed, the Company will continue exploring strategic alliances intended to allow the Company to pursue marketing of the AastromReplicell/TM/ System product line, and to broaden the market opportunities for its technologies.

In December 1999, the Company announced significant progress in the clinical use of the AastromReplicell/TM/ System in the treatment of cancer patients. Clinical results using the AastromReplicell/TM/ System were presented at the Annual Meeting of the American Society of Hematologists that addressed three important issues in stem cell transplantation: the effectiveness of stem cell transplantation in breast cancer patients; the ability of the SC-I Therapy Kit as a rescue procedure in patients when normal stem cell collection procedures are inadequate; and the ability of the CB-I Therapy Kit to facilitate the use of cord blood as an effective source of stem cells for treatment in leukemia patients.

Aastrom Biosciences, Inc. is pioneering the development of proprietary clinical systems including the AastromReplicell/TM/ System, a first of its kind product, to enable physicians and patients greater accessibility to cells used for therapy. Aastrom has received patents covering methods and devices for the ex vivo production of human stem and other types of cells. The AastromReplicell/TM/ System is under development, and is not available for sale at this time in the U.S., except for research and investigational use.

This document contains forward-looking statements, including without limitation statements concerning potential receipt of additional funding, product development objectives, clinical development programs, resumption of marketing activities in Europe, and potential advantages of the AastromReplicell/TM/ System, which involve certain risks and uncertainties. Actual results may differ significantly from the expectations contained in the forward-looking statements. Among the factors that may result in differences are the results obtained from clinical trial and development activities, regulatory approval requirements, market prices for Aastrom's common stock, the level of interest by possible strategic alliance partners in Aastrom's technologies and products under development, the adequacy of existing funding to support resumed activities, and the availability of resources. These and other significant factors are discussed in greater detail in Aastrom's Annual Report on Form-10K, as amended, and other filings with the Securities and Exchange Commission.

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