

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) June 2, 1999  
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Aastrom Biosciences, Inc.

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(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.)  
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24 Frank Lloyd Wright Drive, P.O. Box 376, Ann Arbor Michigan 94-3096597

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Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code (734) 930-5555  
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Not Applicable

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

Item 5. Other Events.

On May 27, 1999 the Registrant sold to one investor for an aggregate purchase price of \$3 million: (i) 3,000 shares of its newly created 1999 Series III Convertible Preferred Stock (the "Series III Preferred"), (ii) a warrant to purchase 150,000 shares of the common stock of the Registrant at an exercise price of \$2.275, and (iii) a warrant to purchase 150,000 shares of the common stock of the Registrant at an exercise price equal to 130% of an average market price of the Registrants common stock on November 15, 1999, with such date subject to acceleration based upon certain events. The shares of Series III Preferred are convertible, at the option of the holder, into shares of the Registrant's Common Stock at the lower of (i) \$2.34, or (ii) a price based on the market price of the Registrant's Common Stock prior to conversion. With limited exceptions, the shares of Series III Preferred are not convertible into Common Stock until November 23, 1999 and, subject to extension under certain circumstances, will automatically convert into Common Stock on May 27, 2002, unless sooner converted. In general, the Registrant may require the holders to convert the Series III Preferred if the average closing bid price of the Registrant's Common Stock exceeds \$4.68 for specified periods after May 27, 2000, or upon certain other events.

The foregoing description of the Series III Preferred financing is qualified in its entirety by the Securities Purchase Agreement, dated May 27, 1998, 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.

Item 7. Exhibits.

(a) Financial statements of business acquired.

Not applicable.

(b) Pro forma financial information.

Not applicable.

(c) Exhibits.

Exhibit No.	Description
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3.1	Certificate of Designation for 1999 Series III Preferred Stock
4.1	Securities Purchase Agreement, dated May 27, 1999, by and between the Registrant and RGC International Investors, LDC ("RGC")
4.2	Registration Rights Agreement dated May 27, 1999, by and between the Registrant and RGC.
4.3	Stock Purchase Warrants of the Registrant, dated May 27, 1999

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.

By: /s/ Todd E. Simpson

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

Date: June 2, 1999

EXHIBIT INDEX

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CERTIFICATE OF  
DESIGNATIONS, PREFERENCES, AND RIGHTS

of

1999 SERIES III CONVERTIBLE PREFERRED STOCK

of

AASTROM BIOSCIENCES, INC.

(Pursuant to Section 450.1302 of the  
Michigan Business Corporation Act)

Aastrom Biosciences, Inc., a corporation organized and existing under the Michigan Business Corporation Act (the "Corporation"), hereby certifies that the following resolutions were adopted by the Board of Directors of the Corporation on April 29, 1999 pursuant to authority of the Board of Directors as required by Section 450.1302 of the Michigan Business Corporation Act:

RESOLVED, that pursuant to the authority granted to and vested in the Board of Directors of this Corporation (the "Board of Directors" or the "Board") in accordance with the provisions of its Articles of Incorporation, the Board of Directors hereby authorizes a series of the Corporation's previously authorized Preferred Stock, no par value, (the "Preferred Stock"), and hereby states the designation and number of shares, and fixes the relative rights, preferences, privileges, powers and restrictions thereof as follows:

1999 Series III Convertible Preferred Stock:

I. Designation and Amount

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The designation of this series, which consists of 3,000 shares of Preferred Stock, is 1999 Series III Convertible Preferred Stock (the "1999 Series III Preferred Stock") and the stated value shall be One Thousand Dollars (\$1,000) per share (the "Stated Value").

II. Certain Definitions

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For purposes of this Certificate of Designation, the following terms shall have the following meanings:

- A. "Applicable Percentage" means 94%; provided, however, that for conversions taking place prior to November 30, 1999, the Applicable Percentage shall mean 100% if the Market Price is less than \$2.00.
- B. "Applicable Premium" means, with respect to a share or shares of 1999 Series III Preferred Stock, an amount equal to five and one half percent (5.5%) per annum of the Stated Value of such share or shares; provided, however, that if the Corporation has elected to increase the Applicable Premium pursuant to Section 2(c)(2) of the Registration Rights Agreement, the Applicable Premium shall mean fifteen percent (15%) per annum of the Stated Value of such share or shares for the periods specified in the Registration Rights Agreement.
- C. "Bloomberg" means Bloomberg Financial Markets or an equivalent reliable reporting service mutually acceptable to and hereafter designated by the holders of a majority in interest of the shares of 1999 Series III Preferred Stock and the Corporation.
- D. "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 the foregoing do not apply, the closing bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no closing bid price of such security in the over-the-counter market on the electronic bulletin board for such security or 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 Corporation and the holders of a majority in interest of shares of 1999 Series III Preferred Stock being converted for which the calculation

of the Closing Bid Price is required in order to determine the Conversion Price of such 1999 Series III Preferred Stock.

- E. "Closing Price" as of any date, means the last sale price of the Common Stock on Nasdaq as reported or, if Nasdaq is not the principal trading market for such security, the last sale 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 the foregoing do not apply, the last sale price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last sale price of such security or in the over-the-counter market on the electronic bulletin board for such security 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 Price cannot be calculated for such security on such date in the manner provided above, the Closing Price shall be the fair market value as mutually determined by the Corporation and the holders of a majority in interest of shares of 1999 Series III Preferred Stock being converted for which the calculation of the Closing Price is required in order to determine the Conversion Price of such 1999 Series III Preferred Stock.
- F. "Common Stock" means the Corporation's common stock, no par value.
- G. "Fixed Conversion Price" means 130% times the average of the Closing Bid Prices during the five consecutive (5) Trading Day period ending one (1) Trading Day prior to the Issue Date.
- H. "Issue Date" means the date of issuance of the 1999 Series III Preferred Stock.
- I. "Market Price" means the average of the Closing Bid Prices during the Market Price Days.
- J. "Market Price Days" means any five (5) consecutive Trading Days designated by the converting holder at the time of conversion, from among the days comprising the Pricing Period, as such designation is set forth in the Notice of Conversion (as defined in Article VIII.E).
- K. "Merger Redemption Percentage" means 120% for any Change in Control Transaction (as defined in Article V.B) occurring prior to January 31, 2000 and 125% thereafter.
- L. "Nasdaq" means the Nasdaq National Market.
- M. "Person" means any individual, corporation, limited liability company, partnership, association, trust or other entity or organization.

- N. "Pricing Period" means the twenty (20) consecutive Trading Day period ending one (1) Trading Day prior to the Conversion Date (as defined in Article VIII.E).
- O. "Purchase Agreement" means that certain Securities Purchase Agreement dated as of the Issue Date, by and between the Corporation and the signatories thereto.
- P. "Redemption Market Price" means the Closing Price of the Common Stock on the Conversion Date (as defined in Article VIII.F(d)).
- Q. "Redemption Threshold" means \$1.50.
- R. "Registration Rights Agreement" means that certain Registration Rights Agreements dated as of the Issue Date, by and among the Corporation and the signatories thereto.
- S. "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.
- T. "Variable Conversion Price" means the Applicable Percentage multiplied by the Market Price.

### III. Rank

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The 1999 Series III Preferred Stock shall rank (i) prior to the Common Stock; (ii) prior to any class or series of capital stock of the Corporation hereafter created (unless, with the consent of the holders of 1999 Series III Preferred Stock obtained in accordance with Article XI hereof, such class or series of capital stock specifically, by its terms, ranks senior to or pari passu with the 1999 Series III Preferred Stock) (collectively, with the Common Stock, "Junior Securities"); (iii) pari passu with (A) any class or series of the Corporation's preferred stock existing as of the date hereof and (B) any class or series of capital stock of the Corporation hereafter created specifically ranking, by its terms, on parity with the 1999 Series III Preferred Stock (collectively, "Pari Passu Securities"); and (iv) junior to any class or series of capital stock of the Corporation hereafter created (with the consent of the holders of 1999 Series III Preferred Stock obtained in accordance with Article XI hereof) specifically ranking, by its terms, senior to the 1999 Series III Preferred Stock ("Senior Securities"), in each case as to distribution of assets upon liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary.

### IV. Dividends

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The 1999 Series III Preferred Stock shall not bear any dividends. In no event, so long as any 1999 Series III Preferred Stock shall remain outstanding, shall any dividend whatsoever



be declared or paid upon, nor shall any distribution be made upon (excluding any distribution received in connection with a Change in Control Transaction (as defined below)), any Junior Securities, nor shall any shares of Junior Securities be purchased or redeemed by the Corporation nor shall any moneys be paid to or made available for a sinking fund for the purchase or redemption of any Junior Securities (other than a distribution of Junior Securities), without, in each such case, the written consent of the holders of a majority of the outstanding shares of 1999 Series III Preferred Stock, voting together as a class.

V. Liquidation Preference  
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A. If the Corporation shall commence a voluntary case under the Federal bankruptcy laws or any other applicable Federal or State bankruptcy, insolvency or similar law, or consent to the entry of an order for relief in an involuntary case under any law or to the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator (or other similar official) of the Corporation or of any substantial part of its property, or make an assignment for the benefit of its creditors, or admit in writing its inability to pay its debts generally as they become due, or if a decree or order for relief in respect of the Corporation shall be entered by a court having jurisdiction in the premises in an involuntary case under the Federal bankruptcy laws or any other applicable Federal or state bankruptcy, insolvency or similar law resulting in the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator (or other similar official) of the Corporation or of any substantial part of its property, or ordering the winding up or liquidation of its affairs, and any such decree or order shall be unstayed and in effect for a period of thirty (30) consecutive days and, on account of any such event, the Corporation shall liquidate, dissolve or wind up, or if the Corporation shall otherwise liquidate, dissolve or wind up (each such event being considered a "Liquidation Event"), no distribution shall be made to the holders of any shares of capital stock of the Corporation (other than Senior Securities and, subject to the following sentence, Pari Passu Securities) upon liquidation, dissolution

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or winding up unless prior thereto, the holders of shares of 1999 Series III Preferred Stock, subject to Article VIII, shall have received the Liquidation Preference (as defined in Article V.C) with respect to each share. If upon the occurrence of a Liquidation Event, the assets and funds available for distribution among the holders of the 1999 Series III Preferred Stock and holders of Pari Passu Securities shall be insufficient to permit the payment to

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such holders of the preferential amounts payable thereon, then the entire assets and funds of the Corporation legally available for distribution to the 1999 Series III Preferred Stock and the Pari Passu Securities shall be distributed

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ratably among such shares in proportion to the ratio that the Liquidation Preference payable on each such share bears to the aggregate liquidation preference payable on all such shares.

B. Subject to Article VII.B below, so long as on the date the Change in Control Redemption Notice (as defined below) is delivered and at all times thereafter up to the consummation of the Change in Control Transaction (as defined below) (i) all of the shares of Common Stock issuable upon conversion of all outstanding shares of 1999 Series III Preferred Stock are then (x) authorized and reserved for issuance, (y) registered for re-sale under the 1933 Act by the holders of the 1999 Series III Preferred Stock (or may otherwise be resold publicly without restriction) and (z) eligible to be traded

on Nasdaq, the New York Stock Exchange (the "NYSE"), the American Stock Exchange (the "AMEX") or Nasdaq SmallCap Market (the "Nasdaq SmallCap"), (ii) there is not then a continuing Redemption Event or 19.99% Redemption Event, (iii) the Corporation provides the holders of 1999 Series III Preferred Stock at least twenty (20) Trading Days written notice prior to the consummation of the Change in Control Transaction (as defined below) (which notice may not be provided at any time when there is material non-public information regarding the Corporation that has not been publicly announced or prior to the public announcement of such Change in Control Transaction) (the "Change in Control Redemption Notice") and (iv) the Corporation is required, as a condition to such Change in Control Transaction (as defined below), to redeem or convert the 1999 Series III Preferred Stock, at the option of the Corporation, the sale, conveyance or disposition of all or substantially all of the assets of the Corporation, the effectuation by the Corporation of a transaction or series of related transactions in which more than 50% of the voting power of the Corporation is disposed of, or the consolidation, merger or other business combination of the Corporation with or into any other Person or Persons when the Corporation is not the survivor (other than a merger or other business combination solely for the purposes of reincorporating to a new jurisdiction) (each, a "Change in Control Transaction") shall either: (i) be deemed to be a liquidation, dissolution or winding up of the Corporation pursuant to which the Corporation shall be required to distribute upon consummation of and as a condition to such transaction an amount equal to the Merger Redemption Percentage times the Liquidation Preference with respect to each outstanding share of 1999 Series III Preferred Stock in accordance with and subject to the terms of this Article V or (ii) be treated pursuant to Article VIII.C(b) hereof. For purposes of the Michigan Business Corporation Act (the "MCBA") and Article XI(a) of this Certificate, any such Change in Control Transaction shall be deemed to alter or change the powers, preferences, or special rights of the holders of shares of 1999 Series III Preferred Stock so as to affect such holders adversely.

C. For purposes hereof, the "Liquidation Preference" with respect to a share of the 1999 Series III Preferred Stock shall mean an amount equal to the sum of (i) the Stated Value thereof plus (ii) the Applicable Premium for the period beginning on the Issue Date and ending on the date of final distribution to the holder thereof (prorated for any portion of such period). The liquidation preference with respect to any Pari Passu Securities shall be as set forth in

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the Certificate of Designation filed in respect thereof.

## VI. Redemption

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A. If any of the following events (each, a "Redemption Event") shall occur:

(i) The Corporation fails to issue shares of Common Stock to the holders of 1999 Series III Preferred Stock upon exercise by the holders of their conversion rights in accordance with the terms of this Certificate of Designation (for a period of at least sixty (60) days if such failure is solely as a result of the circumstances governed by the second paragraph of Article VIII.F below and the Corporation is using all commercially reasonable efforts to authorize a sufficient number of shares of Common Stock as soon as practicable), fails to transfer or to cause its transfer agent to transfer (electronically or in certificated form) any certificate for shares of

Common Stock issued to the holders upon conversion of the 1999 Series III Preferred Stock as and when required by this Certificate of Designation or the Registration Rights Agreement, fails to remove any restrictive legend (or to withdraw any stop transfer instructions in respect thereof) on any certificate or any shares of Common Stock issued to the holders of 1999 Series III Preferred Stock upon conversion of the 1999 Series III Preferred Stock as and when required by this Certificate of Designation, the Purchase Agreement or the Registration Rights Agreement, or fails to fulfill its obligations pursuant to Sections 4(c), 4(e), 4(h), 4(i), 4(j) or 5 of the Purchase Agreement (or makes any announcement, statement or threat that it does not intend to honor the obligations described in this paragraph) 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) business days after the Corporation shall have been notified thereof in writing by any holder of 1999 Series III Preferred Stock;

(ii) The Corporation fails to obtain effectiveness with the Securities and Exchange Commission (the "SEC"), prior to one hundred eighty (180) days from the Issue Date, of the Registration Statement required to be filed pursuant to Section 2(a) of the Registration Rights Agreement, or fails to obtain effectiveness of any additional Registration Statement (required to be filed pursuant to Section 3(b) of the Registration Rights Agreement) within one hundred twenty (120) days after the Registration Trigger Date (as defined in the Registration Rights Agreement) or any such Registration Statement lapses in effect after its initial effectiveness and during the Registration Period (as defined in the Registration Rights Agreement) or sales of all Registrable Securities (as defined in the Registration Rights Agreement, the "Registrable Securities") otherwise cannot be made thereunder (whether by reason of the Corporation's failure to amend or supplement the prospectus included therein in accordance with the Registration Rights Agreement, the Corporation's failure to file and obtain effectiveness with the SEC of any additional Registration Statement required pursuant to Section 3(b) of the Registration Rights Agreement or otherwise) for more than thirty (30) consecutive days or more than sixty (60) days in any twelve (12) month period after such Registration Statement becomes effective;

(iii) the Corporation shall make an assignment for the benefit of creditors, or apply for or consent to the appointment of a receiver or trustee for it or for all or substantially all of its property or business; or such a receiver or trustee shall otherwise be appointed;

(iv) Bankruptcy, insolvency, reorganization or liquidation proceedings or other proceedings for relief under any bankruptcy law or any law for the relief of debtors shall be instituted by or against the Corporation or any subsidiary of the Corporation; provided, however, that in the case of any

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involuntary bankruptcy, such involuntary bankruptcy shall continue undischarged or undismissed for a period of thirty (30) days; or

(v) The Corporation shall fail to maintain the listing of the Common Stock on Nasdaq, the Nasdaq SmallCap, the NYSE or the AMEX,

then, upon the occurrence and during the continuation of any Redemption Event specified in subparagraphs (i), (ii) or (v) at the option of the holders of at least 50% of the then outstanding shares of 1999 Series III Preferred Stock exercisable by delivery of written notice (the "Redemption Notice") to the Corporation of such Redemption Event, or upon the occurrence of any Redemption Event specified in subparagraphs (iii) or (iv), the then outstanding shares of 1999 Series III Preferred Stock shall become immediately redeemable and the Corporation shall purchase each holder's outstanding shares of 1999 Series III Preferred Stock for an amount equal to the greater of (1) 117.5% multiplied by the sum of (a) the aggregate Stated Value of the shares to be redeemed plus (b) the Applicable Premium for the period beginning on the Issue Date and ending on the date of payment of the Redemption Amount (the "Redemption Date") plus (c) all Conversion Default Payments (as defined in Article VIII.E below), Delivery Default Payments (as defined in Article VIII.D below) and any other amounts owed to such holder pursuant to Section 2(c) of the Registration Rights Agreement, or (2) the parity value of the shares to be redeemed, where "parity value" means the product of (a) the highest number of shares of Common Stock issuable upon conversion of such shares of 1999 Series III Preferred Stock in accordance with Article VIII below (without giving any effect to any limitations on conversions of shares contained herein, and treating the Trading Day immediately preceding the Redemption Date as the "Conversion Date" (as defined in Article VIII.B(a)) for purposes of determining the lowest applicable Conversion Price), unless the Redemption Event arises as a result of a breach in respect of a specific Conversion Date, in which case such Conversion Date shall be the Conversion Date), multiplied by (b) the Closing Price for the Common Stock on such "Conversion Date" (the greater of such amounts being referred to as the "Redemption Amount").

In the case of a Redemption Event, if the Corporation fails to pay the Redemption Amount for each share within five (5) business days of written notice that such amount is due and payable, then (assuming there are sufficient authorized shares) in addition to all other available remedies, each holder of 1999 Series III Preferred Stock shall have the right at any time, so long as the Redemption Event continues, to require the Corporation, upon written notice, to immediately issue (in accordance with and subject to the terms of Article VIII below), in lieu of the Redemption Amount, with respect to each outstanding share of 1999 Series III Preferred Stock held by such holder, the number of shares of Common Stock of the Corporation equal to the Redemption Amount divided by the Conversion Price then in effect.

B. If the 1999 Series III Preferred Stock held by any holder ceases to be convertible by any holder as a result of the limitations described in Article VIII.A(c) below (a "19.99% Redemption Event"), and the Corporation has not prior to, or within thirty (30) days of, the date that such 19.99% Redemption Event arises, (i) obtained the Stockholder Approval (as defined in Article VIII.A(c)) or (ii) eliminated any prohibitions under applicable law on the rules or regulations of any stock exchange, interdealer quotation system or other self-regulatory organization with jurisdiction over the Corporation or any of its securities on the Corporation's ability to issue shares of Common Stock in excess of the Maximum Share Amount (as defined in Article VIII.A(c)), then the Corporation shall be obligated to redeem immediately all of the then outstanding 1999 Series III Preferred Stock, in accordance with this Article VI.B. An irrevocable redemption notice

(the "19.99% Redemption Notice") shall be delivered promptly to the holders of 1999 Series III Preferred Stock at their registered address appearing on the records of the Corporation and shall state (1) that 19.99% of the Outstanding Common Amount (as defined in Article VIII.A) has been issued upon exercise of the 1999 Series III Preferred Stock, (2) that the Corporation is obligated to redeem all of the outstanding 1999 Series III Preferred Stock and (3) the Redemption Date, which shall be a date within five (5) business days of the earlier of (i) the date of the 19.99% Redemption Notice or (ii) the date on which the holders of the 1999 Series III Preferred Stock notify the Corporation of the occurrence of a 19.99% Redemption Event. On Redemption Date, the Corporation shall make payment of the Redemption Amount (as defined in Article VI.A above) in cash.

C. Notwithstanding anything to the contrary contained in this Article VI, 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) (i) no Redemption Event or 19.99% Redemption Event shall have occurred and be continuing, (ii) the Registration Statement required to be filed and be effective pursuant to the Registration Rights Agreement is then in effect and has been in effect and sales of all of the Registrable Securities can be made thereunder for at least twenty (20) days prior to the Optional Redemption Date (as defined below) and (iii) the Corporation has a sufficient number of authorized shares of Common Stock reserved for issuance upon full conversion of the 1999 Series III Preferred Stock), then at any time after the date which is ninety (90) days following the date the Registration Statement is declared effective by the SEC (subject to extension for each Trading Day following effectiveness that sales of all Registrable Securities cannot be made pursuant to the Registration Statement (whether by reason of the Corporation's failure to properly supplement or amend the prospectus included therein in accordance with the terms of the Registration Rights Agreement or otherwise, including during an Allowed Delay (as defined in Section 3(f) of the Registration Rights Agreement))), the Corporation shall have the right, on any Trading Day on which the average of the Closing Bid Prices of the Common Stock for the five (5) consecutive Trading Days immediately preceding such date is below the Redemption Threshold, to deliver written notice to the holders of 1999 Series III Preferred Stock (which notice may not be delivered to the holders of the 1999 Series III Preferred Stock until the Corporation is permitted to redeem the 1999 Series III Preferred Stock pursuant to this Article VI.C) of its intention to redeem all of the outstanding shares of 1999 Series III Preferred Stock in accordance with this Article VI. A notice (the "Optional Redemption Notice") of any redemption hereunder (an "Optional Redemption") shall be delivered to the holders of 1999 Series III Preferred Stock at their registered addresses appearing on the books and records of the Corporation and shall state (1) that the Corporation is exercising its right to redeem all of the outstanding shares of 1999 Series III Preferred Stock issued on the Issue Date and (2) the date of redemption (the "Optional Redemption Date"), which date shall be fifteen (15) Trading Days after the date of delivery of the Optional Redemption Notice. On the Optional Redemption Date, the Corporation shall make payment of the Optional Redemption Amount (as defined below) to or upon the order of the holders as specified by the holders in writing to the Corporation at least one (1) business day prior to the Optional Redemption Date. If the Corporation exercises its right to redeem the 1999 Series III Preferred Stock, the Corporation shall make payment to the holders of an amount in cash per share (the "Optional Redemption Amount") equal to the sum of (i) 117.5% multiplied by the Stated Value thereof plus

(ii) the Applicable Premium for the period beginning on the Issue Date and ending on the Optional Redemption Date plus (iii) all Conversion Default Payments (as defined in Article VIII.E below), Delivery Default Payments (as defined in Article VII.D below) and any other amounts owed to such holder pursuant to Section 2(c) of the Registration Rights Agreement, for each share of 1999 Series III Preferred Stock then held. Notwithstanding notice of an Optional Redemption, the holders shall at all times prior to the Optional Redemption Date maintain the right to convert all or any shares of 1999 Series III Preferred Stock in accordance with Article VIII and any shares of 1999 Series III Preferred Stock so converted 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 shares of 1999 Series III Preferred Stock which are otherwise subject to redemption pursuant to such notice. If the Corporation delivers an Optional Redemption Notice and fails to pay the Optional Redemption Amount due to the holders of the 1999 Series III Preferred Stock within three (3) business days following the Optional Redemption Date, the Corporation should forever forfeit its right to redeem the 1999 Series III Preferred Stock pursuant to this Article VI.C.

D. Notwithstanding anything to the contrary contained in this Article VI and subject to the terms of this Article VI.D, if the Closing Price of the Common Stock is below the Redemption Threshold on any day a Notice of Conversion (as defined in Article VIII) is given, the Corporation shall have the option, in lieu of issuing shares of Common Stock to the holders of 1999 Series III Preferred Stock upon conversion in accordance with the terms of Article VIII below, to redeem all of the shares of 1999 Series III Preferred Stock submitted for conversion for an amount in cash equal to the number of shares of Common Stock that would have otherwise been issued upon conversion of the 1999 Series III Preferred Stock at the applicable Conversion Price (as defined in Article VIII) multiplied by the Redemption Market Price. If the Closing Price of the Common Stock is below the Redemption Threshold, the Corporation shall promptly notify the holders of 1999 Series III Preferred Stock as to whether the Corporation will issue shares of Common Stock or deliver cash in redemption in respect of 1999 Series III Preferred Stock submitted for conversion pursuant to Article VIII. The Corporation will be bound by such notice for a period of twenty (20) Trading Days (the "Term") from the date of such notice, after which the Corporation may elect to renew such notice. A failure to issue or renew within two (2) business days after the expiration of any Term shall be deemed to be an election to issue Common Stock upon conversion of the 1999 Series III Preferred Stock during the subsequent Term. Any redemption amounts payable hereunder shall be paid to the converting holders within two (2) Trading Days of the Conversion Date.

#### VII. Conversion by the Corporation

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A. So long as (i) all of the shares of Common Stock issuable upon conversion of all outstanding shares of 1999 Series III Preferred Stock are then (x) authorized and reserved for issuance, (y) registered for re-sale under the 1933 Act by the holders of the 1999 Series III Preferred Stock (or may otherwise be resold publicly without restriction) and (z) eligible to be traded on Nasdaq, the NYSE, the AMEX or Nasdaq SmallCap and (ii) there is not then a continuing Redemption Event or 19.99% Redemption Event, then, at any time after the one (1) year anniversary of the date the

Registration Statement is declared effective by the SEC (subject to extension for each Trading Day following effectiveness that sales of all of the Registrable Securities cannot be made pursuant to the Registration Statement (whether by reason of the Corporation's failure to properly supplement or amend the prospectus included therein in accordance with the terms of the Registration Rights Agreement or otherwise, including during any Allowed Delay (as defined in the Registration Rights Agreement))), the Corporation shall have the right, on any Trading Day on which the average of the Closing Bid Prices of the Common Stock for the five (5) consecutive Trading Days immediately preceding such date is greater than 200% of the Fixed Conversion Price, to deliver written notice to the holders of 1999 Series III Preferred Stock (which notice may not be sent to the holders of the 1999 Series III Preferred Stock until the Corporation is permitted to convert the 1999 Series III Preferred Stock pursuant to this Article VII.A) of its intention to convert all of the outstanding shares of 1999 Series III Preferred Stock into shares of Common Stock in accordance with this Article VII.A and Article VIII; provided, however, that the holders of 1999

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Series III Preferred Stock shall not be required to convert their shares of 1999 Series III Preferred Stock in accordance with this Article VII.A unless the Closing Bid Price of the Common Stock on the Trading Day immediately preceding the Corporation Conversion Date (as defined below) is at least equal to 200% of the Fixed Conversion Price. Any conversion hereunder (a "Corporation Conversion") shall be as of the fifteenth (15th) Trading Day (the "Corporation Conversion Date") following the date on which the Corporation Conversion Notice is delivered to the holders of 1999 Series III Preferred Stock at their registered addresses appearing on the books and records of the Corporation, which notice shall contain substantially the same information as the Notice of Conversion described in Article VIII.E. The Corporation Conversion Date shall be the "Conversion Date" for purposes of determining the Conversion Price and the time within which certificates representing the Common Stock must be delivered to the holder upon a Corporation Conversion. Notwithstanding notice of a Corporation Conversion Notice, the holders shall at all times prior to the Corporation Conversion Date maintain the right to convert all or any shares of 1999 Series III Preferred Stock in accordance with Article VIII.

B. If, in the event of a Change in Control Transaction (as defined in Article V.B above), the consideration per share to be received by the holders of the Common Stock of the Corporation in such Change in Control Transaction is equal to at least 115% of the Fixed Conversion Price, then, at the option of the Corporation, simultaneously with the consummation of the Change in Control Transaction, each share of 1999 Series III Preferred Stock issued and outstanding at that time automatically shall be converted into shares of Common Stock on such date at the then effective Conversion Price in accordance with, and subject to, the provisions of this Article VII.B and Article VIII hereof (the "Change in Control Conversion"). The date on which the Change in Control Transaction is consummated shall be the "Conversion Date" for purposes of determining the Conversion Price and the time within which certificates representing the Common Stock must be delivered to the holder upon a Change in Control Conversion

VIII. Conversion at the Option of the Holder

A. (a) Subject to the conversion schedule set forth in Article VIII.A(b) below, each holder of shares of 1999 Series III Preferred Stock may, at its option at any time and from time to time, upon surrender of the certificates therefor, convert any or all of its shares of 1999 Series III Preferred Stock into Common Stock as set forth below (an "Optional Conversion"). Each share of 1999 Series III Preferred Stock shall be convertible into such number of fully paid and nonassessable shares of Common Stock as such Common Stock exists on the Issue Date, or any other shares of capital stock or securities of the Corporation into which such Common Stock is thereafter charged or reclassified, as is determined by dividing (1) the sum of (a) the Stated Value thereof plus (b) the Applicable Premium for the period beginning on the Issue Date and ending on and including the Conversion Date (as defined in Article VIII.B, below), by (2) the then effective Conversion Price (as defined below); provided, however, that in no event (other than pursuant to the

Automatic Conversion (as defined in Article IX)) shall a holder of shares of 1999 Series III Preferred Stock be entitled to convert any such shares in excess of that number of shares upon conversion of which the sum of (x) the number of shares of Common Stock beneficially owned by the holder and its affiliates (other than shares of Common Stock which may be deemed beneficially owned through the ownership of the unconverted portion of the shares of 1999 Series III Preferred Stock or the unexercised or unconverted portion of any other securities of the Corporation (including without limitation, the warrants issued by the Corporation pursuant to the Purchase Agreement) subject to a limitation on conversion or exercise analogous to the limitation contained herein) and (y) the number of shares of Common Stock issuable upon the conversion of the shares of 1999 Series III Preferred Stock with respect to which the determination of this proviso is being made, would result in beneficial ownership by a holder and such holder's affiliates of more than 4.9% of the outstanding shares of Common Stock. For purposes of the proviso to 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 (x) of such proviso.

(b) Each holder of shares of 1999 Series III Preferred Stock may convert only up to that percentage of the aggregate Stated Value of all shares of 1999 Series III Preferred Stock received by such holder on the Issue Date specified below during the time period set forth opposite such percentage.

Percentage	Time Period
0.0%	0-180 days following the Issue Date
33.3%	181-210 days following the Issue Date
66.6%	211-240 days following the Issue Date
100.0%	241 days following the Issue Date

;provided, however, that the restrictions on conversion set forth above shall

not apply to conversions taking place on any Conversion Date (i) on which the Common Stock trades on Nasdaq or the



principal trading market on which the Common Stock is then listed as reported by Bloomberg at a price greater than or equal to (a) 117% of the Market Price in effect on such Conversion Date or (b) the Fixed Conversion Price or (ii) occurring on or after the date the Corporation makes a public announcement that it intends to merge or consolidate with any other corporation or sell or transfer substantially all of the assets of the Corporation or (iii) occurring on or after the date any person, group or entity (including the Corporation) publicly announces a tender offer to purchase 50% or more of the Corporation's Common Stock or otherwise publicly announces an intention to replace a majority of the Corporation's Board of Directors by waging a proxy battle or otherwise or (iv) occurring on or after the date on which there is a material adverse change in the business, operation, assets, financial condition or prospects of the Corporation or its subsidiaries, taken as a whole, or (v) occurring on or after the occurrence of a Redemption Event or on or after the delivery by the Company of an Optional Redemption Notice.

(c) Unless (i) permitted by the applicable rules and regulations of the principal securities market on which the Common Stock is listed or traded or (ii) the Corporation has obtained approval of the issuance of the Common Stock upon conversion of the 1999 Series III Preferred Stock in accordance with applicable law and the rules and regulations of any stock exchange, interdealer quotation system or other self-regulatory organization with jurisdiction over the Corporation or any of its securities (the "Stockholder Approval"), in no event shall the total number of shares of Common Stock issued upon conversion of the 1999 Series III Preferred Stock (including any shares of capital stock or rights to acquire shares of capital stock issued by the Corporation which are aggregated or integrated with the Common Stock issued or issuable upon conversion of the 1999 Series III Preferred Stock for purposes of any such rule or regulation) exceed the maximum number of shares of Common Stock that the Corporation can so issue pursuant to any rule of the principal United States securities market on which the Common Stock trades (including Rule 4460(i) of the Nasdaq Stock Market or any successor rule) (the "Maximum Share Amount") which, as of the Issue Date, shall be 3,384,340 (19.99% of the total shares of Common Stock outstanding on the Issue Date), subject to equitable adjustments from time to time for stock splits, stock dividends, combinations, capital reorganizations and similar events relating to the Common Stock occurring after the Issue Date. With respect to each holder of 1999 Series III Preferred Stock, the Maximum Share Amount shall refer to such holder's pro rata share thereof

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determined in accordance with Article XII below. In the event that the sum of (x) the aggregate number of shares of Common Stock actually issued upon conversion of the outstanding 1999 Series III Preferred Stock plus (y) the

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aggregate number of shares of Common Stock that remain issuable upon conversion of the 1999 Series III Preferred Stock at the then effective Conversion Price, represents at least one hundred percent (100%) of the Maximum Share Amount (the "Triggering Event"), the Corporation will use its best efforts to seek and obtain Stockholder Approval (or obtain such other relief as will allow conversions hereunder in excess of the Maximum Share Amount) as soon as practicable following the Triggering Event.

B. The "Conversion Price" shall be the lesser of (i) the Variable Conversion Price and (ii) the Fixed Conversion Price, subject to adjustments pursuant to the provisions of Article VIII.C below.

C. The Conversion Price shall be subject to adjustment from time to time as follows:

(a) Adjustment to Conversion Price Due to Stock Split, Stock

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Dividend, Etc. If at any time when 1999 Series III Preferred Stock is issued and

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outstanding, the number of outstanding shares of Common Stock is increased or decreased by a stock split, stock dividend, combination, reclassification, rights offering below the Trading Price (as defined in Article VIII.D) to all holders of Common Stock or other similar event, which event shall have taken place during the reference period for determination of the Conversion Price for any Optional Conversion or Automatic Conversion of the 1999 Series III Preferred Stock, then the Conversion Price shall be calculated giving appropriate effect to the stock split, stock dividend, combination, reclassification or other similar event. In such event, the Corporation shall notify the Transfer Agent of such change on or before the effective date thereof.

(b) Adjustment Due to Merger, Consolidation, Etc. If, at any

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time when 1999 Series III Preferred Stock is issued and outstanding and prior to the conversion of all 1999 Series III Preferred Stock, there shall be any merger, consolidation, exchange of shares, recapitalization, reorganization, or other similar event, as a result of which shares of Common Stock of the Corporation shall be changed into the same or a different number of shares of another class or classes of stock or securities of the Corporation or another entity, or in case of any sale or conveyance of all or substantially all of the assets of the Corporation other than in connection with a plan of complete liquidation of the Corporation, then the holders of 1999 Series III Preferred Stock shall thereafter have the right to receive upon conversion of the 1999 Series III Preferred Stock, upon the basis and upon the terms and conditions specified herein and in lieu of the shares of Common Stock immediately theretofore issuable upon conversion, such stock, securities or assets which the holders of 1999 Series III Preferred Stock would have been entitled to receive in such transaction had the 1999 Series III Preferred Stock been converted in full immediately prior to such transaction (without regard to any limitations on conversion contained herein) and in any such case appropriate provisions shall be made with respect to the rights and interests of the holders of 1999 Series III Preferred Stock to the end that the provisions hereof (including, without limitation, provisions for adjustment of the Conversion Price and of the number of shares of Common Stock issuable upon conversion of the 1999 Series III Preferred Stock) shall thereafter be applicable, as nearly as may be practicable in relation to any securities or assets thereafter deliverable upon the conversion of 1999 Series III Preferred Stock. The Corporation shall not effect any transaction described in this subsection (b) unless (a) it first gives, to the extent practical, thirty (30) days' prior written notice (but in any event at least fifteen (15) business days prior written notice) of such merger, consolidation, exchange of shares, recapitalization, reorganization or other similar event or sale of assets (during which time the holders of 1999 Series III Preferred Stock shall be entitled to convert the 1999 Series III Preferred Stock) and (b) the resulting successor or acquiring entity (if not the Corporation) and, if an entity different from the successor or acquiring entity, the entity whose capital stock or assets the holders of Common Stock of the Corporation are entitled to receive as a result of such merger, consolidation, exchange of shares, recapitalization, reorganization or other similar event or sale of assets, assumes by written instrument the obligations of this Certificate of Designation including this subsection (b). The above provisions shall similarly apply to successive consolidations, mergers, sales, transfers or share exchanges.

(c) [Reserved.]  
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(d) Adjustment Due to Distribution. Subject to Article IV, if  
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the Corporation shall declare or make any distribution of its assets (or rights to acquire its assets) to holders of Common Stock as a dividend, stock repurchase, by way of return of capital or otherwise (including any dividend or distribution to the Corporation's shareholders in cash or shares (or rights to acquire shares) of capital stock of a subsidiary (i.e., a spin-off)) (a "Distribution"), then the holders of 1999 Series III Preferred Stock shall be entitled, upon any conversion of shares of 1999 Series III Preferred Stock after the date of record for determining shareholders entitled to such Distribution, to receive the amount of such assets which would have been payable to the holder with respect to the shares of Common Stock issuable upon such conversion 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.

(e) Purchase Rights. Subject to Article IV, if at any time  
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when any 1999 Series III Preferred Stock is issued and outstanding, the Corporation issues any convertible securities or rights to purchase stock, warrants, securities or other property (the "Purchase Rights") pro rata to the record holders of any class of Common Stock, then the holders of 1999 Series III Preferred Stock will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which such holder could have acquired if such holder had held the number of shares of Common Stock acquirable upon complete conversion of the 1999 Series III Preferred Stock (without regard to any limitations on conversion contained herein) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights.

(f) Adjustment for Restricted Periods. In the event that (1)  
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the Corporation fails to obtain effectiveness with the SEC of any Registration Statement (as defined in the Registration Rights Agreement) required to be filed pursuant to the Registration Rights Agreement on or prior to the date on which such Registration Statement is required to become effective pursuant to the terms of the Registration Rights Agreement, or (2) any such Registration Statement after its initial effectiveness and during the Registration Period (as defined in the Registration Rights Agreement) lapses in effect, or sales of all of the Registrable Securities otherwise cannot be made thereunder (whether by reason of the Corporation's failure or inability to amend or supplement the prospectus (the "Prospectus") included therein in accordance with the Registration Rights Agreement or otherwise (including, without limitation, during an Allowed Delay (as defined in Section 3(f) of the Registration Rights Agreement))), then, at the election of each holder of 1999 Series III Preferred Stock, the Pricing Period shall be comprised of, (i) in the case of an event described in clause (1), the twenty (20) Trading Days preceding the 120th day following the Issue Date plus all Trading Days through and including the third (3rd) Trading Day following the date of effectiveness of the Registration Statement; and (ii) in the case of an event described in clause (2), the twenty (20) Trading Days preceding the date on which the holder of the 1999 Series III Preferred Stock is first notified that sales may not be made under the Prospectus, plus all Trading Days through

and including the third (3rd) Trading Day following the date on which the Holder is first notified that such sales may again be made under the Prospectus. If a holder of 1999 Series III Preferred Stock determines that sales may not be made pursuant to the Prospectus (whether by reason of the Corporation's failure or inability to amend or supplement the Prospectus or otherwise) it shall so notify the Corporation in writing and, unless the Corporation provides such holder with a written opinion of the Corporation's counsel to the contrary, such determination shall be binding for purposes of this paragraph.

(g) Notice of Adjustments. Upon the occurrence of each

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adjustment or readjustment of the Conversion Price pursuant to this Article VIII.C, the Corporation, at its expense, shall promptly compute such adjustment or readjustment and prepare and furnish to each holder of 1999 Series III Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of 1999 Series III Preferred Stock, furnish to such holder a like certificate setting forth (i) such adjustment or readjustment, (ii) the Conversion Price at the time in effect and (iii) the number of shares of Common Stock and the amount, if any, of other securities or property which at the time would be received upon conversion of a share of 1999 Series III Preferred Stock.

D. For purposes of Article VIII.C(a) above, "Trading Price," which shall be measured as of the record date in respect of the rights offering means (i) the average of the last reported sale prices for the shares of Common Stock on Nasdaq as reported by Bloomberg, as applicable, for the five (5) Trading Days immediately preceding such date, 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 Trading Price shall be the fair market value as reasonably determined in good faith by (a) the Board of Directors of the Corporation or, (b) at the option of a majority-in-interest of the holders of the outstanding 1999 Series III Preferred Stock by an independent investment bank of nationally recognized standing in the valuation of businesses similar to the business of the Corporation.

E. In order to convert 1999 Series III Preferred Stock into full shares of Common Stock, a holder of 1999 Series III Preferred Stock shall: (i) submit a copy of the fully executed notice of conversion in the form attached as Exhibit D to the Purchase Agreement ("Notice of Conversion") to the Corporation

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by facsimile dispatched prior to Midnight, New York City time (the "Conversion Notice Deadline") on the date specified therein as the Conversion Date (or by other means resulting in, or reasonably expected to result in, notice to the Corporation on the Conversion Date) to the office of the Corporation or its designated Transfer Agent for the 1999 Series III Preferred Stock, which notice shall specify the number of shares of 1999 Series III Preferred Stock to be converted, the applicable Conversion Price, the Market Price Days and a calculation of the number of shares of Common Stock issuable upon such conversion (together with a copy of the first page of each certificate to be converted) on the Notice of Conversion; and (ii) surrender the original certificates representing the 1999 Series III Preferred Stock being converted

(the "Preferred Stock Certificates"), duly endorsed, along with a copy of the Notice of Conversion to the office of the Corporation or the Transfer Agent for the 1999 Series III Preferred Stock as soon as practicable thereafter. The Corporation shall not be obligated to issue certificates evidencing the shares of Common Stock issuable upon such conversion, unless either the Preferred Stock Certificates are delivered to the Corporation or its Transfer Agent as provided above, or the holder notifies the Corporation or its Transfer Agent that such certificates have been lost, stolen or destroyed (subject to the requirements of subparagraph (a) below). In the case of a dispute as to the calculation of the Conversion Price, the Corporation shall promptly issue such number of shares of Common Stock that are not disputed in accordance with subparagraph (b) below. The Corporation shall submit the disputed calculations to its outside accountant via facsimile within two (2) business days of receipt of the Notice of Conversion. The accountant shall audit the calculations and notify the Corporation and the holder of the results no later than 48 hours from the time it receives the disputed calculations. The accountant's calculation shall be deemed conclusive absent manifest error.

(a) Lost or Stolen Certificates. Upon receipt by the  
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Corporation of evidence of the loss, theft, destruction or mutilation of any Preferred Stock Certificates representing shares of 1999 Series III Preferred Stock, and (in the case of loss, theft or destruction) of indemnity reasonably satisfactory to the Corporation, and upon surrender and cancellation of the Preferred Stock Certificate(s), if mutilated, the Corporation shall execute and deliver new Preferred Stock Certificate(s) of like tenor and date.

(b) Delivery of Common Stock Upon Conversion. Upon the  
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surrender of certificates as described above together with a Notice of Conversion, the Corporation shall issue and, within two (2) business days after such surrender (or, in the case of lost, stolen or destroyed certificates, after provision of agreement and indemnification pursuant to subparagraph (a) above) (the "Delivery Period"), deliver (or cause its Transfer Agent to so issue and deliver) in accordance with the terms hereof and the Purchase Agreement (including, without limitation, in accordance with the requirements of Section 2(g) of the Purchase Agreement) to or upon the order of the holder (i) that number of shares of Common Stock for the portion of the shares of 1999 Series III Preferred Stock converted as shall be determined in accordance herewith and (ii) a certificate representing the balance of the shares of 1999 Series III Preferred Stock not converted, if any. In addition to any other remedies available to the holder, including actual damages and/or equitable relief, the Corporation shall pay to a holder \$2,000 per day in cash for each day beyond a two (2) business day grace period following the Delivery Period that the Corporation fails to deliver Common Stock (a "Delivery Default") issuable upon surrender of shares of 1999 Series III Preferred Stock with a Notice of Conversion until such time as the Corporation has delivered all such Common Stock (the "Delivery Default Payments"). Such Delivery Default Payments shall be paid to such holder by the fifth day of the month following the month in which it has accrued or, at the option of the holder (by written notice to the Corporation by the first day of the month following the month in which it has accrued), shall be convertible into Common Stock in accordance with the terms of this Article VIII.

In lieu of delivering physical certificates representing the Common Stock issuable upon conversion, provided the Corporation's Transfer Agent is participating in the Depository Trust Company ("DTC") Fast Automated Securities Transfer ("FAST") program, upon request of the holder and its compliance with the provisions contained in Article VIII.A and in this Article VIII.E, the Corporation shall use its best efforts to cause its Transfer Agent to electronically transmit the Common Stock issuable upon conversion to the holder by crediting the account of holder's Prime Broker with DTC through its Deposit Withdrawal Agent Commission ("DWAC") system. The time periods for delivery and penalties described in the immediately preceding paragraph shall apply to the electronic transmittals described herein.

(c) No Fractional Shares. If any conversion of 1999 Series III  
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Preferred Stock would result in a fractional share of Common Stock or the right to acquire a fractional share of Common Stock, such fractional share shall be disregarded and the number of shares of Common Stock issuable upon Conversion of the 1999 Series III Preferred Stock shall be the next higher number of shares.

(d) Conversion Date. The "Conversion Date" shall be the date  
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specified in the Notice of Conversion, provided that the Notice of Conversion is submitted by facsimile (or by other means resulting in, or reasonably expected to result in, notice) to the Corporation or its Transfer Agent before Midnight, New York City time, on the date so specified, otherwise the Conversion Date shall be the first business day after the date so specified on which the Notice of Conversion is actually received by the Corporation or its Transfer Agent. The person or persons entitled to receive the shares of Common Stock issuable upon conversion shall be treated for all purposes as the record holder or holders of such securities as of the Conversion Date and all rights with respect to the shares of 1999 Series III Preferred Stock surrendered shall forthwith terminate except the right to receive the shares of Common Stock or other securities or property issuable on such conversion and except that the holders preferential rights as a holder of 1999 Series III Preferred Stock shall survive to the extent the Corporation fails to deliver such securities.

F. A number of shares of the authorized but unissued Common Stock sufficient to provide for the conversion of the 1999 Series III Preferred Stock outstanding (based on the lesser of the Variable Conversion Price and the Fixed Conversion Price) shall at all times be reserved by the Corporation, free from preemptive rights, for such conversion or exercise. As of the date of issuance of the 1999 Series III Preferred Stock, 3,555,556 authorized and unissued shares of Common Stock have been duly reserved for issuance upon conversion of the 1999 Series III Preferred Stock (the "Reserved Amount"). The Reserved Amount shall be increased from time to time in accordance with the Company's obligations pursuant to Section 4(h) of the Purchase Agreement. In addition, if the Corporation shall issue any securities or make any change in its capital structure which would change the number of shares of Common Stock into which each share of the 1999 Series III Preferred Stock shall be convertible, the Corporation shall at the same time also make proper provision so that thereafter there shall be a sufficient number of shares of Common Stock authorized and reserved, free from preemptive rights, for conversion of the outstanding 1999 Series III Preferred Stock.

If at any time a holder of shares of 1999 Series III Preferred Stock submits a Notice of Conversion, and the Corporation does not have sufficient authorized but unissued shares of Common Stock available to effect such conversion in accordance with the provisions of this Article VIII (a "Conversion Default"), subject to Article XII, the Corporation shall issue to the holder all of the shares of Common Stock which are available to effect such conversion. The number of shares of 1999 Series III Preferred Stock included in the Notice of Conversion which exceeds the amount which is then convertible into available shares of Common Stock (the "Excess Amount") shall, notwithstanding anything to the contrary contained herein, not be convertible into Common Stock in accordance with the terms hereof until (and at the holder's option at any time after) the date additional shares of Common Stock are authorized by the Corporation to permit such conversion, at which time the Conversion Price in respect thereof shall be the lesser of (i) the Conversion Price on the Conversion Default Date (as defined below) and (ii) the Conversion Price on the Conversion Date elected by the holder in respect thereof. The Corporation shall use its best efforts to effect an increase in the authorized number of shares of Common Stock as soon as possible following (i) such time that a holder of 1999 Series III Preferred Stock notifies the Corporation or that the Corporation otherwise becomes aware that there are or likely will be insufficient authorized and unissued shares to allow full conversion thereof and (ii) a Conversion Default. In addition, the Corporation shall either (i) pay to the holder payments ("Conversion Default Payments") for a Conversion Default in the amount of (a)  $(N/365)$ , multiplied by (b) the sum of the Stated Value plus the Applicable Premium per share of 1999 Series III Preferred Stock held by such holder through the Authorization Date (as defined below), multiplied by (c) the Excess Amount on the day the holder submits a Notice of Conversion giving rise to a Conversion Default (the "Conversion Default Date"), multiplied by (d) .24, where N = the number of days from the Conversion Default Date to the date (the "Authorization Date") that the Corporation authorizes a sufficient number of shares of Common Stock to effect conversion of the full number of shares of 1999 Series III Preferred Stock or (ii) provided no similar adjustment has been made pursuant to Section 2(c)(1) of the Registration Rights Agreement, increase the Applicable Premium to an amount equal to fifteen percent (15%) of the Stated Value through the Authorization Date; provided, however, that if the Conversion

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Default continues for more than sixty (60) days, each holder of the 1999 Series III Preferred Stock shall have the option to cause the Corporation to either pay the Conversion Default Payments pursuant to clause (i) of this sentence or increase the Applicable Premium pursuant to clause (ii) of this sentence. The Corporation shall send notice to the holder of the authorization of additional shares of Common Stock, the Authorization Date and the amount of holder's accrued Conversion Default Payments. The accrued Conversion Default Payment for each calendar month shall be paid in cash or shall be convertible into Common Stock at the applicable Conversion Price, at the holder's option, as follows:

(a) In the event the holder elects to take such payment in cash, cash payment shall be made to holder by the fifth day of the month following the month in which it has accrued; and

(b) In the event the holder elects to take such payment in Common Stock, the holder may convert such payment amount into Common Stock at the Conversion Price (as in effect at the time of Conversion) at any time after the fifth day of the month following the month in

which it has accrued in accordance with the terms of this Article VIII (so long as there is then a sufficient number of authorized shares of Common Stock).

The holder's election shall be made in writing to the Corporation at any time prior to 9:00 p.m, New York City Time, on the third (3rd) day of the month following the month in which Conversion Default payments have accrued. If no election is made, the holder shall be deemed to have elected to receive cash. Nothing herein shall limit the holder's right to pursue actual damages (to the extent in excess of the Conversion Default Payments) for the Corporation's failure to maintain a sufficient number of authorized shares of Common Stock, and each holder shall have the right to pursue all remedies available at law or in equity (including a decree of specific performance and/or injunctive relief).

Nothing herein shall limit the holder's right to pursue actual damages (to the extent in excess of the Conversion Default Payments) for the Corporation's failure to maintain a sufficient number of authorized shares of Common Stock, and each holder shall have the right to pursue all remedies available at law or in equity (including a decree of specific performance and/or injunctive relief).

G. Upon the occurrence of each adjustment or readjustment of the Conversion Price pursuant to this Article VIII, the Corporation, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to each holder of 1999 Series III Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of 1999 Series III Preferred Stock, furnish or cause to be furnished to such holder a like certificate setting forth (i) such adjustment or readjustment, (ii) the Conversion Price at the time in effect and (iii) the number of shares of Common Stock and the amount, if any, of other securities or property which at the time would be received upon conversion of a share of 1999 Series III Preferred Stock.

H. Upon submission of a Notice of Conversion by a holder of 1999 Series III Preferred Stock, (i) the shares covered thereby (other than the shares, if any, which cannot be issued because their issuance would exceed such holder's allocated portion of the Reserved Amount or Maximum Share Amount) shall be deemed converted into shares of Common Stock and (ii) the holder's rights as a holder of such converted shares of 1999 Series III Preferred Stock shall cease and terminate, excepting only the right to receive certificates for such shares of Common Stock and to any remedies provided herein or otherwise available at law or in equity to such holder because of a failure by the Corporation to comply with the terms of this Certificate of Designation. Notwithstanding the foregoing, if a holder has not received certificates for all shares of Common Stock prior to the tenth (10th) business day after the expiration of the Delivery Period with respect to a conversion of shares of 1999 Series III Preferred Stock for any reason, then (unless the holder otherwise elects to retain its status as a holder of Common Stock by so notifying the Corporation) the holder shall regain the rights of a holder of such shares of 1999 Series III Preferred Stock with respect to such unconverted shares of 1999 Series III Preferred Stock and the Corporation shall, as soon as practicable, return such unconverted shares of 1999 Series III Preferred Stock to the holder



or, if such shares of 1999 Series III Preferred Stock have not been surrendered, adjust its records to reflect that such shares of 1999 Series III Preferred Stock have not been converted. In all cases, the holder shall retain all of its rights and remedies (including, without limitation, (i) the right to receive Delivery Default Payments pursuant to Article VII.E to the extent required thereby for such Delivery Default and any subsequent Delivery Default and (ii) the right to have the Conversion Price with respect to subsequent conversions determined in accordance with Article VIII.E.) for the Corporation's failure to convert the 1999 Series III Preferred Stock.

#### IX. Automatic Conversion

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Subject to the limitations on conversion set forth in Article VIII.A(c) and so long as (i) all of the shares of Common Stock issuable upon conversion of all outstanding shares of 1999 Series III Preferred Stock are then (x) authorized and reserved for issuance, (y) registered for re-sale under the 1933 Act by the holders of the 1999 Series III Preferred Stock (or may otherwise be resold publicly without restriction) and (z) eligible to be traded on Nasdaq, the NYSE, the AMEX or Nasdaq SmallCap and (ii) there is not then a continuing Redemption Event or 19.99% Redemption Event, each share of 1999 Series III Preferred Stock issued and outstanding on the date which is three (3) years from the Issue Date (the "Automatic Conversion Date"), subject to any adjustment pursuant to this Article, automatically shall be converted into shares of Common Stock on such date at the then effective Conversion Price in accordance with, and subject to, the provisions of Article VIII hereof (the "Automatic Conversion"). The Automatic Conversion Date shall be delayed by one (1) Trading Day each for each Trading Day occurring prior thereto and prior to the full conversion of the 1999 Series III Preferred Stock that (i) any Registration Statement required to be filed and to be effective pursuant to the Registration Rights Agreement is not effective or sales of all of the Registrable Securities otherwise cannot be made pursuant to the Registration Statement during the Registration Period (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, including any Allowed Delays (as defined in Section 3(f) of the Registration Rights Agreement)), (ii) any Redemption Event (as defined in Article VI.A) or 19.99% Redemption Event (as defined in Article VI.B.) exists, without regard to whether any cure periods shall have run or (iii) that the Corporation is in breach of its obligations pursuant to Section 4(h) of the Purchase Agreement. The Automatic Conversion Date shall be the "Conversion Date" for purposes of determining the Conversion Price and the time within which certificates representing the Common Stock must be delivered to the holder.

#### X. Voting Rights

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The holders of the 1999 Series III Preferred Stock have no voting power whatsoever, except as otherwise provided by the MBCA, in this Article X, and in Article XI below.

Notwithstanding the above, the Corporation shall provide each holder of 1999 Series III Preferred Stock with prior notification of any meeting of the shareholders (and copies of proxy materials and other information sent to shareholders). In the event of any taking by the Corporation of a record of its shareholders for the purpose of determining shareholders who are entitled to receive payment of any dividend or other distribution, any right to subscribe for, purchase or otherwise acquire (including by way of merger, consolidation or recapitalization) any share of any class or any other securities or property, or to receive any other right, or for the purpose of determining shareholders who are entitled to vote in connection with any proposed sale, lease or conveyance of all or substantially all of the assets of the Corporation, or any proposed liquidation, dissolution or winding up of the Corporation, the Corporation shall mail a notice to each holder, at least ten (10) days prior to the record date specified therein (or thirty (30) days prior to the consummation of the transaction or event, whichever is earlier), of the date on which any such record is to be taken for the purpose of such dividend, distribution, right or other event, and a brief statement regarding the amount and character of such dividend, distribution, right or other event to the extent known at such time.

To the extent that under the MBCA the vote of the holders of the 1999 Series III Preferred Stock, voting separately as a class or series as applicable, is required to authorize a given action of the Corporation, the affirmative vote or consent of the holders of at least a majority of the shares of the 1999 Series III Preferred Stock represented at a duly held meeting at which a quorum is present or by written consent of a majority of the shares of 1999 Series III Preferred Stock (except as otherwise may be required under the MCBA) shall constitute the approval of such action by the class. To the extent that under the MCBA holders of the 1999 Series III Preferred Stock are entitled to vote on a matter with holders of Common Stock, voting together as one class, each share of 1999 Series III Preferred Stock shall be entitled to a number of votes equal to the number of shares of Common Stock into which it is then convertible using the record date for the taking of such vote of shareholders as the date as of which the Conversion Price is calculated. Holders of the 1999 Series III Preferred Stock shall be entitled to notice of all shareholder meetings or written consents (and copies of proxy materials and other information sent to shareholders) with respect to which they would be entitled to vote, which notice would be provided pursuant to the Corporation's bylaws and the MBCA.

#### XI. Protective Provisions

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So long as shares of 1999 Series III Preferred Stock are outstanding, the Corporation shall not, without first obtaining the approval (by vote or written consent, as provided by the MBCA) of the holders of at least a majority of the then outstanding shares of 1999 Series III Preferred Stock:

(a) alter or change the rights, preferences or privileges of the 1999 Series III Preferred Stock or any capital stock of the Corporation so as to affect adversely the 1999 Series III Preferred Stock;

(b) create any new class or series of capital stock having a preference over the 1999 Series III Preferred Stock as to distribution of assets upon liquidation, dissolution or winding up of the Corporation (as previously defined in Article III hereof, "Senior Securities");

(c) increase the authorized number of shares of 1999 Series III Preferred Stock;

(d) issue any Senior Securities;

(e) increase the par value of the Common Stock; or

(f) do any act or thing not authorized or contemplated by this Certificate of Designation which would result in taxation of the holders of shares of the 1999 Series III Preferred Stock under Section 305 of the Internal Revenue Code of 1986, as amended (or any comparable provision of the Internal Revenue Code as hereafter from time to time amended).

In the event holders of at least a majority of the then outstanding shares of 1999 Series III Preferred Stock agree to allow the Corporation to alter or change the rights, preferences or privileges of the shares of 1999 Series III Preferred Stock, pursuant to subsection (a) above, so as to affect the 1999 Series III Preferred Stock, then the Corporation will deliver notice of such approved change to the holders of the 1999 Series III Preferred Stock that did not agree to such alteration or change (the "Dissenting Holders") and Dissenting Holders shall have the right for a period of thirty (30) days to convert pursuant to the terms of this Certificate of Designation as they exist prior to such alteration or change or continue to hold their shares of 1999 Series III Preferred Stock.

#### XII. Pro Rata Allocations

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The Maximum Share Amount and the Reserved Amount (including any increases thereto) shall be allocated by the Corporation pro rata among the holders of 1999 Series III Preferred Stock based on the number of shares of 1999 Series III Preferred Stock issued to each holder. Each increase to the Maximum Share Amount and the Reserved Amount shall be allocated pro rata among the holders of 1999 Series III Preferred Stock based on the number of shares of 1999 Series III Preferred Stock held by each holder at the time of the increase in the Maximum Share Amount or Reserved Amount. In the event a holder shall sell or otherwise transfer any of such holder's shares of 1999 Series III Preferred Stock, each transferee shall be allocated a pro rata portion of such transferor's Maximum Share Amount and Reserved Amount. Any portion of the Maximum Share Amount or Reserved Amount which remains allocated to any person or entity which does not hold any 1999 Series III Preferred Stock shall be allocated to the remaining holders of shares of 1999 Series III Preferred Stock, pro rata based on the number of shares of 1999 Series III Preferred Stock then held by such holders.

IN WITNESS WHEREOF, this Certificate of Designation is executed on behalf of the Corporation this 26th day of May, 1999.

AASTROM BIOSCIENCES, INC.

By: \_\_\_\_\_  
R. Douglas Armstrong  
President & Chief Executive Officer

NOTICE OF CONVERSION

(To be Executed by the Registered Holder  
in order to Convert the 1999 Series III Preferred Stock)

The undersigned hereby irrevocably elects to convert \_\_\_\_\_ shares of 1999 Series III Preferred Stock, represented by stock certificate No(s). \_\_\_\_\_ (the "Preferred Stock Certificates") into shares of common stock ("Common Stock") of Aastrom Biosciences, Inc., a Michigan corporation (the "Corporation") according to the conditions of the Certificate of Designation of 1999 Series III Preferred Stock, as of the date written below. If securities are to be issued in the name of a person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto and is delivering herewith such certificates. No fee will be charged to the Holder for any conversion, except for transfer taxes, if any. A copy of each Preferred Stock Certificate is attached hereto (or evidence of loss, theft or destruction thereof).

The Corporation shall electronically transmit the Common Stock issuable pursuant to this Notice of Conversion to the account of the undersigned or its nominee with DTC through its Deposit Withdrawal Agent Commission system ("DWAC Transfer").  
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Name of DTC Prime Broker: \_\_\_\_\_  
Account Number: \_\_\_\_\_

[\_] In lieu of receiving shares of Common Stock issuable pursuant to this Notice of Conversion by way of a DWAC Transfer, the undersigned hereby requests that the Corporation issue a certificate or certificates for the number of shares of Common Stock set forth above (which numbers are based on the Holder's calculation attached hereto) in the name(s) specified immediately below or, if additional space is necessary, on an attachment hereto:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

The undersigned represents and warrants that all offers and sales by the undersigned of the securities issuable to the undersigned upon conversion of the 1999 Series III Preferred Stock 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.

Date of Conversion: \_\_\_\_\_

Applicable Conversion Price: \_\_\_\_\_

Market Price Days: \_\_\_\_\_

Number of Shares of  
Common Stock to be Issued: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\*The Corporation is not required to issue shares of Common Stock until the original 1999 Series III Preferred Stock Certificate(s) (or evidence of loss, theft or destruction thereof) to be converted are received by the Corporation or its Transfer Agent. The Corporation shall issue and deliver shares of Common Stock to an overnight courier or by electronic transmission not later than two (2) business days following receipt of the original Preferred Stock Certificate(s) to be converted, and shall make payments pursuant to the Certificate of Designation for the number of business days such issuance and delivery is late.

## SECURITIES PURCHASE AGREEMENT

SECURITIES PURCHASE AGREEMENT (this "Agreement"), dated as of May 27, 1999, 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 Company has authorized a new series of preferred stock, designated as the 1999 Series III Convertible Preferred Stock (the A Series III Preferred Stock), having the rights, preferences and privileges set forth in the Certificate of Designations, Rights and Preferences attached hereto as Exhibit "A" (the "Certificate of Designation");

C. The Preferred Stock is convertible into shares of common stock, no par value, of the Company (the "Common Stock"), upon the terms and subject to the limitations and conditions set forth in the Certificate of Designation and pursuant to the notice of conversion attached hereto as Exhibit "E";

D. The Company has authorized the issuance to the Buyers of two Warrants, in the form attached hereto as Exhibits "B-1" and "B-2", to purchase an aggregate of Three Hundred Thousand (300,000) shares of Common Stock (the "Warrants");

E. The Buyers desire to purchase and the Company desires to issue and sell, upon the terms and conditions set forth in this Agreement, an aggregate of Three Thousand (3,000) shares of Series III Preferred Stock (such shares, together with any Series III Preferred Stock issued in replacement thereof or as a dividend thereon or otherwise with respect thereto in accordance with the terms thereof, being hereinafter collectively referred to as the "Preferred Shares") and (ii) Warrants to purchase Three Hundred Thousand (300,000) shares of Common Stock, for an aggregate purchase price of Three Million Dollars (\$3,000,000).

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

G. 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 "C" (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 PREFERRED SHARES AND WARRANTS.  
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a. Purchase of Preferred Shares and Warrants. The Company shall  
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issue and sell to each Buyer and each Buyer severally agrees to purchase from the Company such number of Preferred Shares and number of Warrants 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),  
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(i) each Buyer shall pay the purchase price for the Preferred Shares and the Warrants 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 representing such number of Preferred Shares and Warrants which such Buyer is purchasing and (ii) the Company shall deliver such certificates duly executed on behalf of the Company, to the Buyer, against delivery of such Purchase Price.

c. Closing Date. Subject to the satisfaction (or waiver) of  
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the conditions thereto set forth in Section 6 and Section 7 below, the date and time of the issuance and sale of the Preferred Shares and Warrants pursuant to this Agreement (the "Closing Date") shall be 12:00 noon Eastern Standard Time on May 27, 1999 or such other mutually agreed upon time. The closing of the transaction contemplated by this Agreement (the "Closing") shall occur on the Closing Date at the offices of Morgan, Lewis & Bockius LLP, 1701 Market Street, Philadelphia, Pennsylvania 19103, or at such other location as may be agreed to be the parties.

2. BUYERS' REPRESENTATIONS AND WARRANTIES. Each Buyer severally  
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(and not jointly) represents and warrants to the Company solely as to such Buyer that:

a. Investment Purpose. As of the date hereof, the Buyer is  
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purchasing the Preferred Shares and the shares of Common Stock issuable upon conversion of or otherwise pursuant to the Preferred Shares (including, without limitation, such additional shares of Common Stock as are issuable as a result of the events described in Articles VI, VIII.D(b) or VIII.E of the Certificate of Designation and Section 2(c) of the Registration Rights Agreement) (such shares of Common Stock being referred to herein as the "Conversion Shares") and the Warrants and the shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants (the



"Warrant Shares" and, collectively with the Preferred Shares, Warrants and Conversion Shares, 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,

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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

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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

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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

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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

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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)

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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, the Securities may be pledged as collateral in connection with a bona fide margin account or other lending arrangement. Except for transfers by a  
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Buyer (i) to its "affiliates" (as defined in Rule 144) or (ii) to the holders of interests in a Buyer upon a liquidation of a Buyer's assets in accordance with its governing documents, the Preferred Shares may be transferred by a Buyer only with the prior written consent of the Company, which consent will not be unreasonably withheld.

g. Legends. The Buyer understands that the Preferred Shares  
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and the Warrants and, until such time as the Conversion 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 Conversion 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, 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.

h. Authorization; Enforcement. This Agreement and the

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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 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

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forth immediately below such Buyer's name on the signature pages hereto.

3. REPRESENTATIONS AND WARRANTIES OF THE COMPANY. The Company

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represents and warrants to each Buyer that:

a. Organization and Qualification. The Company is a

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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

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requisite corporate power and authority to file and perform its obligations under the Certificate of Designation and 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 Preferred Shares and Warrants and the issuance and reservation for issuance of the Conversion Shares and the Warrant Shares issuable upon conversion or exercise thereof) 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 and upon execution and filing of the Certificate of Designation, each of such agreements 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  
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capital stock of the Company consists of (i) 40,000,000 shares of Common Stock of which 16,930,167 shares are issued and outstanding, 1,568,476 shares are reserved for issuance pursuant to the Company's stock option plans, 2,545,293 shares are reserved for issuance pursuant to securities (other than the Preferred Shares and the Warrants) exercisable for, or convertible into or exchangeable for shares of Common Stock and 4,155,556 (2x currently required) shares are reserved for issuance upon conversion of the Preferred Shares and exercise of the Warrants (subject to adjustment pursuant to the Company's covenant set forth in Section 4(h) below); and (ii) 5,000,000 shares of preferred stock, 4,000 of which shares are issued and outstanding, 5,000 of which are designated as 1998 Series I Convertible Preferred Stock of which 4,000 are issued and outstanding and 3,000 of which are designated as the Preferred Stock. 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 July 2, 1998 by and among the Company and the Buyers) 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 Preferred Shares, the Warrants, the Conversion Shares 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 Preferred Shares are duly  
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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 other similar rights of stockholders of the Company and will not impose personal liability upon the holder thereof. The Conversion Shares and Warrant Shares are duly authorized and reserved for issuance, and, upon conversion of the Preferred Shares and 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  
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acknowledges the potentially dilutive effect to the Common Stock upon the issuance of the Conversion Shares or Warrant Shares upon conversion or exercise of the Preferred Shares or the Warrants. The Company further acknowledges that its obligation to issue Conversion Shares and Warrant Shares in accordance with this Agreement, the Certificate of Designation 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,  
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preferences and relative, participating and optional or special rights, and the qualifications, limitations and restrictions of each series of preferred stock of the Company (other than the Preferred Stock) are as stated in the Certificate of Incorporation and the previous certificates of designation, filed on or prior to the date hereof, and the Bylaws. The terms, designations, powers, preferences and relative, participating and optional or special rights, and the qualifications, limitations and restrictions of the Preferred Stock are as stated in the Certificate of Designations.

g. No Conflicts. The execution, delivery and performance of  
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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 filing of the Certificate of Designation and the issuance and reservation for issuance of the Conversion Shares and 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 businesses 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, (iii) for filings with Nasdaq (as defined below) and (iv) for filings with the Secretary of State of the State of Michigan, 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 in accordance with the terms hereof or thereof or to issue and sell the Preferred Shares and Warrants in accordance with the terms hereof and to issue the Conversion Shares upon conversion of or otherwise pursuant to the Preferred Shares and 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. 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,  
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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 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 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, 1998 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  
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incurred in the normal course of business and except as disclosed under the heading "Certain Business Considerations" in Item 2 of the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 1999, since June 30, 1998, 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,  
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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. The Company and each of its  
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Subsidiaries 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 or of a Subsidiary 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 or its Subsidiaries' 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 and each of its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of their Intellectual Property.

1. No Materially Adverse Contracts, Etc. The Company is not  
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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  
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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)  
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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  
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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  
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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  
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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. 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  
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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, except for dealings with The Shemano Group, Inc., whose commissions and fees will be paid for by the Company.

- s. Permits; Compliance. The Company is in possession of all  
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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, 1998, 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.  
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(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

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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

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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

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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

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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. Solvency. The Company (both before and after giving effect

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to the transactions contemplated by this Agreement) is solvent (i.e., its assets

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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(y), 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. The Company did not receive a qualified opinion from its auditors with respect to its most recent fiscal year end and the Company expects to receive a non-qualified opinion from its auditors in respect of its current fiscal year.

4. COVENANTS.

a. Best Efforts. The parties shall use their best efforts to

satisfy timely each of the conditions described in Section 6 and 7 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 applicable closing pursuant to this Agreement 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 Preferred Shares 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 (except in connection with its currently existing direct or indirect Subsidiaries).

e. Additional Equity Capital; Right To Purchase. Subject to

the exceptions described below, the Company will not, without the prior written consent of RGC International Investors, LDC ("RGC"), register (other than pursuant to the Registration Rights Agreement) any equity financing (including debt financing with an equity component) or otherwise allow any public resales of equity interests in the Company's securities, issued after May 27, 1999, pursuant to Rule 144 or otherwise during the period (the "Lock-up Period") beginning on the Closing Date and ending one hundred eighty (180) 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 180th day during which sales cannot be made thereunder). In addition, subject to the exceptions described below, the Company will not conduct any equity financing (including debt financing with an equity component) ("Future Offerings") during the period beginning on the Closing Date and ending one hundred eighty (180) days after the end of the Lock-up Period (the "First Refusal Period"), unless it shall have first delivered to RGC, at least fifteen (15) business days prior to the closing of such Future Offering,

written notice describing the proposed Future Offering, including the terms and conditions thereof and proposed definitive documentation to be entered into in connection therewith, and providing each Buyer an option during the ten (10) day period following delivery of such notice to purchase at least the percentage equal to (a) the number of outstanding shares of Preferred Stock at the time of the notice multiplied by 1,000, divided by (b) the Company's then current market capitalization, of the securities being offered in the Future Offering on the same terms as contemplated by such Future Offering (the limitations referred to in this sentence and the preceding sentence are collectively referred to as the "Capital Raising Limitations"). In the event the terms and conditions of a proposed Future Offering are amended in any material respect after delivery of the notice to RGC concerning the proposed Future Offering, the Company shall deliver a new notice to RGC describing the amended terms and conditions of the proposed Future Offering and RGC thereafter shall have an option during the ten (10) day period following delivery of such new notice to purchase at least the percentage equal to (a) the number of outstanding shares of Preferred Stock at the time of the notice multiplied by 1,000, divided by (b) the Company's then current market capitalization, of the securities being offered on the same terms as contemplated by such proposed Future Offering, as amended. The foregoing sentence shall apply to successive amendments to the terms and conditions of any proposed Future Offering during the First Refusal Period. 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 or (iii) the offering of securities issuable upon conversion of the Series I Preferred Stock pursuant to the registration statement declared effective by the SEC on October 13, 1998 (Registration No. 333-60125). 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 Rose Glen Capital

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Management, L.P. ("Rose Glen") for all 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 Twenty-Five Thousand Dollars (\$25,000) of which Five Thousand Dollars (\$5,000) was advanced previously.

g. Financial Information. The Company agrees to send the

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following reports to each Buyer until such Buyer transfers, assigns, or sells all of the Securities: (i) within one (1) day after release, copies of all press releases issued by the Company or any of its Subsidiaries;

and (ii) 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

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authorized, and reserved for the purpose of issuance, a sufficient number of shares of Common Stock to provide for the full conversion and exercise of the outstanding Preferred Shares and Warrants and issuance of the Conversion Shares and Warrant Shares in connection therewith (based on the lesser of the Variable Conversion Price in effect from time to time and the Fixed Conversion Price (each as defined in the Certificate of Designation) and 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 conversion of Preferred Shares and exercise of 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 conversion of the Preferred Shares and exercise of the Warrants (based on the lesser of the Variable Conversion Price in effect from time to time and the Fixed Conversion Price (each as defined in the Certificate of Designation) and 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 Conversion Shares and Warrant Shares issued and issuable upon conversion of the Preferred Shares and exercise of the Warrants (based on the lesser of the Variable Conversion Price in effect from time to time and the Fixed Conversion Price (each as defined in the Certificate of Designation) and 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

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the Conversion 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 shall maintain, so long as any other shares of Common Stock shall be so listed, such listing of all Conversion Shares and Warrant Shares from time to time issuable upon conversion of the Preferred Shares or exercise of the Warrants. The Company will obtain and maintain the listing and trading of its 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. Subject to the Company's right to

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exercise the right described in Article IV.B(i) of the Certificate of Designations, so long as a Buyer beneficially owns any Preferred Shares or Warrants, the Company shall maintain its corporate existence and shall not sell all or substantially all of the Company's assets, except in the event of a merger or consolidation or sale of all or substantially all of the Company's assets, where the surviving or successor entity (and, if an entity different from the surviving or successor entity, the entity whose securities into which the Preferred Shares shall become convertible and the Warrants exercisable) in such transaction (i) assumes the Company's obligations hereunder and under the agreements and instruments entered into in connection herewith and (ii) if the consideration to be received for such transaction is equity securities, is a publicly traded corporation whose Common Stock is listed for trading on Nasdaq, Nasdaq SmallCap, NYSE or AMEX.

k. No Integration. The Company shall not make any offers or

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

l. Trading Restrictions. Each Buyer covenants and agrees that,

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during any Pricing Period (as defined in the Certificate of Designations) during which a Conversion Price (as defined in the Certificate of Designations) is computed, if a Buyer (or others acting on its behalf) engages in short sale transactions or other hedging activities which involve, among other things, sales of shares of Common Stock, such Buyer will place its sale orders for Common Stock in the course of such activities so as not to complete or effect any such sale on any Trading Day (as defined in the Certificate of Designation) during such period at a price which is lower than the lowest sale effected on such day by persons other than the Buyers (or others acting on their behalf).

m. Conversion Limitations. Each Buyer covenants and agrees

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that, subject to the exceptions described below, such Buyer may convert only up to that percentage of such Buyer's shares of 1998 Series I Convertible Preferred Stock of the Company (the "Series I Preferred Stock") outstanding on the Closing Date as is specified below during the time period set forth opposite such percentage.

Percentage	Time Period
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50%	0-90 days following the Closing Date
75%	91-120 days following the Closing Date
100%	121 days following the Closing Date

The restrictions on conversion set forth above shall not apply to conversions taking place on any Conversion Date (as defined in the Certificate of Designations, Preferences and Rights of 1998 Series I Convertible Preferred Stock of the Company (the "Series I Certificate of Designation")) (i) on which the Common Stock trades on Nasdaq or the principal trading market on which the Common Stock is then listed as reported by Bloomberg (as defined in the Series I Certificate of

Designation) at a price greater than or equal to (a) 117% of the Market Price (as defined in the Series I Certificate of Designation) in effect on such Conversion Date (as defined in the Series I Certificate of Designation) or (b) the Fixed Conversion Price (as defined in the Series I Certificate of Designation) or (ii) occurring on or after the date the Company makes a public announcement that it intends to merge or consolidate with any other corporation or sell or transfer substantially all of the assets of the Company or (iii) occurring on or after the date any person, group or entity (including the Company) publicly announces a tender offer to purchase 50% or more of the Company's Common Stock or otherwise publicly announces an intention to replace a majority of the Company's Board of Directors by waging a proxy battle or otherwise or (iv) occurring on or after the date on which there is a material adverse change in the business, operation, assets, financial condition or prospects of the Company or its subsidiaries, taken as a whole, or (v) occurring on or after the occurrence of a Redemption Event (as defined in the Series I Certificate of Designation) or on or after the delivery by the Company of an Optional Redemption Notice (as defined in the Series I Certificate of Designation).

5      TRANSFER AGENT INSTRUCTIONS.      The Company shall issue irrevocable

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instructions to its transfer agent to issue certificates, registered in the name of each Buyer or its nominee, for the Conversion Shares and Warrant Shares in such amounts as specified from time to time by each Buyer to the Company upon conversion of the Preferred Shares or exercise of the Warrants in accordance with the terms thereof (the "Irrevocable Transfer Agent Instructions"). Prior to registration of the Conversion Shares and Warrant Shares under the 1933 Act or the date on which the Conversion 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 5, and stop transfer instructions to give effect to Section 2(f) hereof (in the case of the Conversion Shares and Warrant Shares, prior to registration of the Conversion Shares and Warrant Shares under the 1933 Act or the date on which the Conversion 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 Conversion 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 Conversion Shares and Warrant Shares 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, the Company shall permit the transfer, and, in the case of the Conversion 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.



6 CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL. The obligation of  
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the Company hereunder to issue and sell the Preferred Shares and Warrants 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 in accordance with Section 1(b) above.

c. The Certificate of Designation shall have been accepted for filing with the Secretary of State of the State of Michigan.

d. 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.

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.

7 CONDITIONS TO EACH BUYER'S OBLIGATION TO PURCHASE. The obligation  
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of each Buyer hereunder to purchase the Preferred Shares and Warrants 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 Preferred Shares and Warrants in accordance with Section 1(b) above.

c. The Certificate of Designation shall have been accepted for filing with the Secretary of State of the State of Michigan, and a copy thereof certified by such Secretary of State shall have been delivered to such Buyer.

d. 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.

e. 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.

f. 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.

g. Trading in the Common Stock on Nasdaq shall not have been suspended by the SEC or Nasdaq.

h. The Buyer shall have received opinions 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-1" and Exhibit "D-2" attached hereto.

i. The Company shall have obtained waivers of any preemptive rights and pari passu limitations in respect of the sale of the Preferred Shares and Warrants to be issued at the Closing from the holders of shares of any other existing series of the Company's preferred stock.

a. Governing Law. This Agreement shall be governed by and  
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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  
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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  
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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  
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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  
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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  
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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

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, Esquire  
Facsimile: (619) 677-1477

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

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  
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Company and the agreements and covenants set forth in Sections 3, 4, 5 and 8 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  
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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  
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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  
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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  
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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  
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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.

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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: \_\_\_\_\_  
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: \_\_\_\_\_  
Gary S. Kaminsky  
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 Preferred Shares:	3,000
Number of Warrants	300,000
Aggregate Purchase Price:	\$3,000,000

## REGISTRATION RIGHTS AGREEMENT

REGISTRATION RIGHTS AGREEMENT (this "Agreement"), dated as of May 27, 1999, 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) shares of its 1999 Series III Convertible Preferred Stock (the "Preferred Stock") that are convertible into shares of the Company's common stock, no par value (the "Common Stock"), upon the terms and subject to the limitations and conditions set forth in the Certificate of Designations, Rights, Preferences, Privileges and Restrictions with respect to the Preferred Stock (the "Certificate of Designation") and (ii) warrants (the "Warrants") to acquire 300,000 shares of Common Stock, upon the terms and subject to the limitations and conditions set forth in the Warrants dated May 27, 1999; 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.

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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 the Conversion Shares issued or issuable upon conversion of or otherwise pursuant to the Preferred Shares (including any shares issued pursuant to Articles VI, VIII.E(b) and VIII.F of the Certificate of Designation and Section 2(c) herein) and 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.

(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.

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a. Mandatory Registration. The Company shall prepare, and, on or

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prior to the date which is twenty (20) business 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 conversion of the Preferred Shares 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 two (2) times the sum of the aggregate number of



Conversion Shares that are then issuable upon conversion of or otherwise pursuant to the Preferred Shares (based on the lesser of the Variable Conversion Price and Fixed Conversion Price (each as defined in the Certificate of Designation)) and the 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 convert the Preferred Shares or exercise the Warrants. The Company acknowledges that the number of shares initially included in the Registration Statement represents a good faith estimate of the maximum number of shares issuable upon conversion of the Preferred Shares and exercise of the Warrants.

b. Underwritten Offering. If any offering pursuant to a  
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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. Payments by the Company. The Company shall use its best efforts  
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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 make payments 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, at its election, by providing the Investors with written notice of such election within two (2) business days following the first day of any such delay in or reduction of their ability to sell the Registrable Securities, either:

(1) pay to each holder of the Preferred Shares or Registerable Securities an amount equal to the stated value of the Preferred Shares then outstanding (and, in the case of holders of Registrable Securities, the stated value of Preferred Shares from which such Registrable Securities were converted) ("Aggregate Share Price") multiplied by two hundredths (.02) times 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  
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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. (For example, if the Registration Statement becomes effective one (1) month after the end of such 120-day period, the Company would pay \$20,000 for each \$1,000,000 of Aggregate Share Price. If thereafter, sales could not be made pursuant to the Registration Statement for an additional period of one (1) month, the Company would pay an additional \$20,000 for each \$1,000,000 of Aggregate Share Price.) Such amounts shall be paid in cash within five (5) 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; or

(2) increase the "Applicable Premium" (as defined in Article II.B of the Certificate of Designation) to an amount equal to fifteen percent (15%) per annum of the Stated Value (as defined in the Certificate of Designation) for: (i) the period beginning on the end of such 120-day period and ending on the date the Registration Statement 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) each period during the Registration Period in which 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) or otherwise), but excluding any days during an Allowed Delay (as defined in Section 3(f)); and (iii) each period during which 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.

d. Piggy-Back Registrations. Subject to the last sentence of this

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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

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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,

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further, however, that, after giving effect to the immediately preceding

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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

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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.

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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) business 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 in the Certificate of Designation) (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 issued or issuable upon conversion of the Preferred Shares (based on the lesser of the Variable Conversion Price and the Fixed Conversion Price (in each case as defined in the Certificate of Designation) then in effect) and exercise of the Warrants, in each case without giving effect to any limitations on the Investors' ability to convert the Preferred Shares or 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 two hundred percent (200%) of all of the Registrable Securities so issued or issuable (without giving effect to any limitations on conversion or exercise contained in the Certificate of Designation or the Warrants, as applicable) 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 Investor's 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 (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.  
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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. 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.  
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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.  
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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 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 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.  
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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

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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.  
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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.  
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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.  
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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.  
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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: 619-677-1477

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 and the Securities Purchase Agreement (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 and the Securities Purchase Agreement 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 Preferred Shares then outstanding have been converted into 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 on any Registration Statement and each increase to the number of Registrable Securities included thereon 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 on a Registration Statement for such transferor. Any shares of Common Stock included on 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 Preferred Shares and Warrants then outstanding and held by an Investor were converted into or exercised for Registrable Securities.

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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: \_\_\_\_\_  
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: \_\_\_\_\_  
Gary S. Kaminsky  
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 MAY 27, 1999, 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  
150,000  
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 Hundred Fifty Thousand (150,000) fully paid and nonassessable shares of the Company's Common Stock, no par value per share (the "Common Stock"), at an exercise price of 130% of the average of the Closing Bid Prices (as defined in the Company's Certificate of Designation, Preferences and Rights of 1999 Series III Convertible Preferred Stock (the "Certificate of Designation")) of the Common Stock during the five (5) Trading Days (as defined in the Certificate of Designation, a "Trading Day") ending on the earlier of (i) November 15, 1999 and (ii) the last Trading Day of the month preceding any month (including November 1999) during which a Qualified Merger Transaction (as defined below) is first publicly announced per share (the "Exercise Price"). 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 May 27, 1999, 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.

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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 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 (including shares of [1999 Series III] Preferred Stock (as defined in the Securities Purchase Agreement)) 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 and its affiliates of more than 4.9% 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.

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 "Issued Date") and before 5:00 p.m., New York City time on the fifth (5th) anniversary of the Issue Date (the "Exercise Period").

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

(a) Shares to be Fully Paid. All Warrant Shares will, upon issuance  
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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  
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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  
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shares of Common Stock issuable upon exercise of the 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  
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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  
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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

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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

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Common Stock. Except as otherwise provided in Paragraphs 4(c) and 4(e) hereof,

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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

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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

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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  
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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  
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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  
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Securities. If, in any case, the total number of shares of Common Stock  
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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  
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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  
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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 or (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).

(c) Subdivision or Combination of Common Stock. If the Company at  
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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  
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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.

(e) Consolidation, Merger or Sale.  
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(i) In case of any consolidation of the Company with, or merger of the Company into any other corporation, or in case of any sale or conveyance of all or substantially all of the assets of the Company other than in connection with a plan of complete liquidation of the Company, then as a condition of such consolidation, merger or sale or conveyance, 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, merger or sale or conveyance 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. The Company will not effect any consolidation, merger or sale or conveyance 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) 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, dated as of May 27, 1999, by and among the Company and the other signatories thereto (the "Registration Rights Agreement"), the "Registration Statement") required to be filed and be effective pursuant to the Registration Rights Agreement is then in effect and has been in effect 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 (as defined below), the New York Stock Exchange or the American Stock Exchange, 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 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) 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), to redeem this Warrant simultaneously with the consummation of the Qualified Merger 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 date of redemption, which date and time shall be the effective date of the Qualified Merger Transaction (the "Optional Redemption Date"). 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. 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 lowest average of the Closing Bid Prices (as defined in the Certificate of Designation) 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 shares of

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Survivor Common Stock paid to the holder of this Warrant pursuant to this sentence (i) are traded on Nasdaq (as defined below), the New York Stock Exchange or the American Stock Exchange and (ii) may be immediately re-sold by the holder of this Warrant to the public without registration or restriction. Notwithstanding anything to the contrary contained herein, if the price paid per share of Common Stock in the Qualified Merger Transaction is greater than or equal to 130% of the Exercise Price, 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 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 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 its sole discretion using the closest available alternative mechanism and variable values to those available utilizing the Bloomberg (as defined below) online page for such calculation function.

(iii) "Qualified Merger Transaction" shall mean a consolidation of the Company with, or merger of the Company into any other corporation, or the sale or conveyance of all or substantially all of the assets of the Company other than in connection with a plan of complete liquidation of the Company 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.

(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 stockholders 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 stockholders entitled to such distribution.

(g) Notice of Adjustment. Upon the occurrence of any event which  
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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  
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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  
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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:  
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(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 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  
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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 shall be neither enhanced nor diminished by such event.

(l) Certain Definitions.  
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(i) "Common Stock Deemed Outstanding" shall mean the number of  
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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  
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last reported sale prices for the shares of Common Stock on the Nasdaq National Market ("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 Corporation or, at the option of a majority-in-interest of the holders of the outstanding Warrants by (b) an independent investment bank of nationally recognized standing in the valuation of businesses similar to the business of the corporation. 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  
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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.

5. Issue Tax. The issuance of certificates for Warrant Shares upon the  
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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  
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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 that certain 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 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

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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

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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

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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

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

Dated as of May 27, 1999

-15-

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.

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 MAY 27, 1999, 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  
150,000  
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 Hundred Fifty Thousand (150,000) fully paid and nonassessable shares of the Company's Common Stock, no par value per share (the "Common Stock"), at an exercise price of \$2.275 per share (the "Exercise Price"). 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 May 27, 1999, 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.  
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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 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 (including shares of [1999 Series III] Preferred Stock (as defined in the Securities Purchase Agreement)) 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 and its affiliates of more than 4.9% 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.

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 "Issued Date") and before 5:00 p.m., New York City time on the fifth (5th) anniversary of the Issue Date (the "Exercise Period").

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

(a) Shares to be Fully Paid. All Warrant Shares will, upon issuance  
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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  
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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  
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shares of Common Stock issuable upon exercise of the 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  
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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

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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

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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

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Securities. If, in any case, the total number of shares of Common Stock  
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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,  
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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  
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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 or (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).

(c) Subdivision or Combination of Common Stock. If the Company at any  
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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

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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.

(e) Consolidation, Merger or Sale.

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(i) In case of any consolidation of the Company with, or merger of the Company into any other corporation, or in case of any sale or conveyance of all or substantially all of the assets of the Company other than in connection with a plan of complete liquidation of the Company, then as a condition of such consolidation, merger or sale or conveyance, 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, merger or sale or conveyance 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. The Company will not effect any consolidation, merger or sale or conveyance 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) 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, dated as of May 27, 1999, by and among the Company and the other signatories thereto (the "Registration Rights Agreement"), the "Registration Statement") required to be filed and be effective pursuant to the Registration Rights Agreement is then in effect and has been in effect 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 (as defined below), the New York Stock Exchange or the American Stock Exchange, 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 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) 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), to redeem this Warrant simultaneously with the consummation of the Qualified Merger 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 date of redemption, which date and time shall be the effective date of the Qualified Merger Transaction (the "Optional Redemption Date"). 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. 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 lowest average of the Closing Bid Prices (as defined in the Certificate of Designation) 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 shares of Survivor

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Common Stock paid to the holder of this Warrant pursuant to this sentence (i) are traded on Nasdaq (as defined below), the New York Stock Exchange or the American Stock Exchange and (ii) may be immediately re-sold by the holder of this Warrant to the public without registration or restriction. Notwithstanding anything to the contrary contained herein, if the price paid per share of Common Stock in the Qualified Merger Transaction is greater than or equal to 130% of the Exercise Price, 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 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 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 its sole discretion using the closest available alternative mechanism and variable values to those available utilizing the Bloomberg (as defined below) online page for such calculation function.

(iii) "Qualified Merger Transaction" shall mean a consolidation of the Company with, or merger of the Company into any other corporation, or the sale or conveyance of all or substantially all of the assets of the Company other than in connection with a plan of complete liquidation of the Company 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.

(f) Distribution of Assets. In case the Company shall declare or  
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make 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 stockholders 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 stockholders entitled to such distribution.

(g) Notice of Adjustment. Upon the occurrence of any event which  
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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  
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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

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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:

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(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 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

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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 shall be neither enhanced nor diminished by such event.

(1) Certain Definitions.  
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(i) "Common Stock Deemed Outstanding" shall mean the number of  
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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  
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the last reported sale prices for the shares of Common Stock on the Nasdaq National Market ("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 Corporation or, at the option of a majority-in-interest of the holders of the outstanding Warrants by (b) an independent investment bank of nationally recognized standing in the valuation of businesses similar to the business of the corporation. 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  
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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.

5. Issue Tax. The issuance of certificates for Warrant Shares upon the  
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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  
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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.  
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(a) Restriction on Transfer. This Warrant and the rights granted to  
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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 that certain Registration Rights Agreement.

(b) Warrant Exchangeable for Different Denominations. This Warrant is  
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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  
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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  
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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 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  
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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  
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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  
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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  
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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

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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.

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(a) Amendments. This Warrant and any provision hereof may only be

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amended by an instrument in writing signed by the Company and the holder hereof.

(b) Descriptive Headings. The descriptive headings of the several

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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

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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.

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

AASTROM BIOSCIENCES, INC.

By: \_\_\_\_\_  
R. Douglas Armstrong, Ph.D.  
President & Chief Executive Officer

Dated as of May 27, 1999

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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
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, 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.