AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION ON JUNE 20, 2000
REGISTRATION NO. 333-_____

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

AASTROM BIOSCIENCES, INC.
(Exact Name of Registrant as Specified in Its Charter)

MICHIGAN	94-3096597
(State or Other Jurisdiction of Incorporation or Organization)	(IRS Employer Identification Number)

24 FRANK LLOYD WRIGHT DRIVE
P.O. BOX 376
ANN ARBOR, MICHIGAN 48106
(734) 930-5555
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

R. DOUGLAS ARMSTRONG, PH.D.
PRESIDENT AND CHIEF EXECUTIVE OFFICER
AASTROM BIOSCIENCES, INC.
24 FRANK LLOYD WRIGHT DRIVE
P.O. BOX 376
ANN ARBOR, MICHIGAN 48106
(734) 930-5555
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

COPIES TO:

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SAN DIEGO, CA 92121
TELEPHONE: (858) 677-1400
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APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:
From time to time as described in the Prospectus.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. [ ]

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. [X]

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

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

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

CALCULATION OF REGISTRATION FEE

TITLE OF SHARES TO BE REGISTERED	AMOUNT TO BE REGISTERED	MAXIMUM AGGREGATE PRICE PER UNIT (2)	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE (2)	PROPOSED AMOUNT OF REGISTRATION FEE
Common stock ($0 par value)	6,159,220 (1)	$2.83	$17,430,593	$4,602

(1) In addition to 2,810,305 shares of common stock, the 6,159,220 shares being registered include an estimated 3,348,915 additional shares of common

stock issuable upon the exercise of outstanding warrants. In addition to the 6,159,220 shares set forth in the table above, this Registration Statement also covers such indeterminate number of additional shares as may be held or acquired upon exercise of the warrant as a result of any future stock splits, stock dividends or similar transactions covered by Rule 416.

(2) Estimated, pursuant to Rule 457(c), solely for the purpose of calculating the registration fee based on the average of the high and low prices for the common stock, as reported on the Nasdaq National Market on June 14, 2000.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

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THE INFORMATION IN THIS PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. THE SELLING HOLDER MAY NOT SELL THESE SECURITIES UNDER THIS PROSPECTUS UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PROSPECTUS IS NOT AN OFFER TO SELL NOR DOES IT SEEK AN OFFER TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER AND SALE WOULD NOT BE PERMITTED.

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DATED JUNE ___, 2000

PROSPECTUS

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6,159,220 SHARES OF COMMON STOCK

AASTROM BIOSCIENCES, INC.

This prospectus relates to the offer and sale of 6,159,220 shares of common stock being offered by RGC International Investors, LDC. These shares include 3,348,915 shares that are issuable upon exercise of warrants.

Our common stock is quoted on the Nasdaq National Market under the symbol "ASTM." The selling stockholder will determine the price it may offer or sell shares of our common stock independent of Aastrom. On June [__], 2000, the last sale price of our common stock was $[_____].

INVESTING IN THE COMMON STOCK INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD CONSIDER CAREFULLY THE RISK FACTORS BEGINNING ON PAGE 4 OF THIS PROSPECTUS BEFORE MAKING A DECISION TO PURCHASE OUR STOCK.

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NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

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THE DATE OF THIS PROSPECTUS IS JUNE __, 2000.

You should rely only on the information provided or incorporated by reference in this prospectus. We have not authorized anyone to provide you with additional or different information. This document may only be used where it is legal to sell these securities. You should not assume that any information in this prospectus is accurate as of any date other than the date of this prospectus.

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SUMMARY

Because this is a summary, it does not contain all the information about us that may be important to you. You should read the more detailed information and the financial statements and related notes which are incorporated by reference in this prospectus.

Aastrom

We develop proprietary process technologies and devices intended for a broad range of cell therapy applications. The AastromReplicell(TM) Cell Production System is our lead product under development, and consists of a clinical cell culture system that operates single-use therapy kits tailored for patient therapy in the emerging cell therapy market. We had begun European commercialization of the AastromReplicell(TM) System for use in stem cell therapy and had started a pivotal study in the U.S. However, in October 1999 we suspended marketing efforts in Europe and our U.S. clinical development activities until we obtained additional funding. With recently received funding, we intend to recommence our U.S. clinical development program, and we are evaluating the possibility of resuming marketing efforts in Europe.

We believe that the AastromReplicell(TM) System method will be a cost-effective, less invasive and less time-consuming alternative, or improvement to, currently available stem cell collection methods and may enhance the clinical utility of umbilical cord blood transplants in patients with certain forms of leukemia and other blood diseases by expanding the number of cells available for transplant. The AastromReplicell(TM) System is designed as a platform product which implements our pioneering stem cell replication technology. We believe that the AastromReplicell(TM) System can be modified to produce a wide variety of other cell types for selected emerging therapies currently in development.

Stem cell therapy is a form of cell therapy used to restore blood and immune system function to cancer patients following chemotherapy or radiation therapy. Current stem cell collection methods, including bone marrow harvest and peripheral blood progenitor cell mobilization, can be costly, invasive and time-consuming for both medical personnel and patients. We believe that the AastromReplicell(TM) System may offer significant advantages over traditional stem cell collection methods. The AastromReplicell(TM) System is intended to be used to produce cells for stem cell therapy from a small starting volume of bone marrow or umbilical cord blood cells. Further, in an evaluation of seven tumor-contaminated bone marrow samples that were expanded with the AastromReplicell(TM) System process, the presence of breast cancer cells in each sample was either substantially reduced or was no longer detectable. We believe that the combination of passive tumor cell depletion during culture with the lower starting volume of cells used for the process may result in a procedure that offers a tumor-free or tumor-reduced cell product for transplant. Although we may not market the AastromReplicell(TM) System in the United States for stem cell therapy unless and until we receive FDA and other necessary regulatory approvals, we have already completed production-level versions of the AastromReplicell System and have obtained permission to affix the CE Mark to such versions.

Our principal executive offices are located at 24 Frank Lloyd Wright Drive, P. O. Box 376, Ann Arbor, MI 48106. Our telephone number is (734) 930-5555.

The Offering

Common stock offered by the selling shareholder	6,159,220 shares

Recent Developments

On June 6, 2000, we completed the sale of 2,810,305 shares of common stock and warrants to purchase up to 3,348,915 shares of common stock at an exercise price of $.01 per share. The warrants expire in approximately one year, and are subject to early expiration in the event of certain change in control transactions or if the price of our common stock reaches specified levels.

RISK FACTORS

You should carefully consider the following risk factors before purchasing our common stock. The risks and uncertainties described below are not the only ones we face. There may be additional risks and uncertainties that are not known to us or that we do not consider to be material at this time. If the events described in these risks occur, our business, financial condition and results of operations would likely suffer. This prospectus contains forward-looking statements which involve risks and uncertainties. Our actual results may differ significantly from the results discussed in the forward-looking statements. This section discusses some of the factors that might cause those differences.

If We Cannot Complete Our Product Development Activities Successfully, Our Ability to Operate or Finance Operations Will Be Severely Limited.

Commercialization in the United States of our lead product candidate, the AastromReplicell(TM) Cell Production System, will require additional research and development as well as substantial clinical trials. While we have commenced initial marketing on a very limited basis of the Aastrom Replicell(TM) System in Europe, we believe that the United States will be the principal market for our products. We may not be able to successfully complete development of the AastromReplicell(TM) System or our other product candidates, or successfully market our technologies or product candidates. We and any of our potential collaborators may encounter problems and delays relating to research and development, regulatory approval and intellectual property rights of our technologies and product candidates. Our research and development programs may not be successful, and our cell culture technologies and product candidates may not facilitate the ex vivo production of cells with the expected biological activities in humans. Our technologies and product candidates may not prove to be safe and efficacious in clinical trials, and we may not obtain the intended regulatory approvals for our technologies or product candidates and the cells produced in such products. If any of these events occur, we may not have adequate resources to continue operations for the period required to resolve the issue delaying commercialization and we may not be able to raise capital to finance our continued operation during the period required for resolution of that issue.

We Cannot Be Certain That We Will Be Able to Raise the Required Capital to Conduct Our Operations and Develop Our Products.

We will require substantial capital resources in order to conduct our operations and develop our products. In October 1999, Aastrom was forced to reduce operations based on its declining level of capital resources and its limited financing alternatives available at that time. Although we have started to restore operating activities, the previous reduction in our operating activities has negatively affected our ability to develop our products and has delayed our product development programs. Based on current funding and anticipated operating activities, we expect that our available cash and expected interest income will be sufficient to finance our current activities through mid-calendar year 2001. This is a forward-looking statement and could be negatively affected by funding limitations, the implementation of additional research and development programs and other factors discussed under this heading. We are currently pursuing additional sources of financing. If we cannot obtain additional funding prior to that time, we will be forced to make substantial reductions in the scope and size of our operations, and may be forced to curtail activities that we currently plan to resume. In order to grow and expand our business, and to introduce our product candidates into the marketplace, we will need to raise additional funds. We will also need additional funds or a collaborative partner, or both, to finance the research and development activities of our new product candidates for the production of additional cell types.

Our future capital requirements will depend upon many factors, including:

- continued scientific progress in its research and development programs;
- costs and timing of conducting clinical trials and seeking regulatory approvals and patent prosecutions;
- competing technological and market developments;

- the ability of Aastrom to establish additional collaborative relationships; and
- effective commercialization activities and facility expansions if and as required.

Because of our long-term funding requirements, we may attempt to access the public or private equity markets if and whenever conditions are favorable, even if we do not have an immediate need for additional capital at that time. Further, we may enter into financing transactions at rates which are at a substantial discount to market. This additional funding may not be available to us on reasonable terms, or at all. If adequate funds are not available, we may be required to further delay or terminate research and development programs, curtail capital expenditures, and reduce business development and other operating activities.

We Must Successfully Complete Our Clinical Trials to be Able to Market Our Products.

To be able to market products in the United States, we must demonstrate, through extensive preclinical studies and clinical trials, the safety and efficacy of our processes and product candidates, together with the cells produced by such processes in such products, for application in the treatment of humans. We are currently conducting a pivotal clinical trial to demonstrate the safety and biological activity of patient-derived cells produced in the AastromReplicell(TM) System. Depending on the availability of resources, we intend to commence at least one additional pivotal clinical trial to demonstrate the safety and biological activity of umbilical cord blood cells produced in the AastromReplicell(TM) System. If our clinical trials are not successful, our products may not be marketable.

Our ability to complete our clinical trials in a timely manner depends on many factors, including the rate of patient enrollment. Patient enrollment can vary with the size of the patient population, the proximity of suitable patients to clinical sites, perceptions of the utility of stem cell therapy for the treatment of certain diseases and the eligibility criteria for the study. We have experienced delays in patient accrual in our previous and current clinical trials. If we experience future delays in patient accrual, we could experience increased costs and delays associated with clinical trials which would impair our product development programs and our ability to market our products. Furthermore, the U.S. Food and Drug Administration ("FDA") monitors the progress of clinical trials and it may suspend or terminate clinical trials at any time due to patient safety or other considerations.

Failure to Obtain and Maintain Required Regulatory Approvals Would Severely Limit Our Ability to Sell Our Products.

We must obtain the approval of the FDA before commercial sales of our product candidates may commence in the United States, which we believe will be the principal market for our products. We may also be required to obtain additional approvals from foreign regulatory authorities to continue or increase our sales activities in those jurisdictions. If we cannot demonstrate the safety, reliability and efficacy of our product candidates, or of the cells produced in such products, we may not be able to obtain required regulatory approvals. Many of the patients enrolled in the clinical trials will have previously undergone extensive treatment which will have substantially weakened the patients and may have irreparably damaged the ability of their blood and immune system to recover. Some patients undergoing the transplant recovery process have died, from causes that were, according to the physicians involved, unrelated to the AastromReplicell(TM) System procedure, and it is possible that other patients may die or suffer severe complications during the course of either the current or future clinical trials. In addition, patients receiving cells produced with our technologies and product candidates may not demonstrate long-term engraftment in a manner comparable to cells obtained from current stem cell therapy procedures. If we cannot demonstrate the safety or efficacy of our technologies and product candidates, including long-term sustained engraftment, or if one or more patients die or suffer severe complications, the FDA or other regulatory authorities could delay or withhold regulatory approval of our product candidates.

Finally, even if we obtain regulatory approval of a product, that approval may be subject to limitations on the indicated uses for which it may be marketed. Even after granting regulatory approval, the FDA, other regulatory agencies, and governments in other countries continue to review and inspect marketed products, manufacturers and manufacturing facilities. Later discovery of previously unknown problems with a product, manufacturer or facility may result in restrictions on the product or manufacturer, including a withdrawal of the product from the market.

Further, governmental regulatory agencies may establish additional regulations which could prevent or delay regulatory approval of our products.

Even If We Obtain Regulatory Approvals to Sell Our Products, Lack of Commercial Acceptance Would Impair Our Business.

Our product development efforts are primarily directed toward obtaining regulatory approval to market the AastromReplicell(TM) System as an alternative to, or as an improvement for, the bone marrow harvest and peripheral blood progenitor cell stem cell collection methods. These stem cell collection methods have been widely practiced for a number of years, and our technologies or product candidates may not be accepted by the marketplace as readily as these or other competing processes and methodologies. Additionally, our technologies or product candidates may not be employed in all potential applications being investigated, and any limited applications would limit the market acceptance of our technologies and product candidates and our potential revenues. As a result, even if we obtain all required regulatory approvals, we cannot be certain that our products and processes will be adopted at a level that would allow us to operate profitably.

Failure of Third Parties to Manufacture Component Parts or Provide Limited Source Supplies Would Impair Our New Product Development and Our Sales Activities.

We rely solely on third parties to manufacture our product candidates and their component parts. We also rely solely on third party suppliers to provide necessary key mechanical components, as well as growth factors and other materials used in the cell expansion process. We would not be able to obtain alternate sources of supply for many of these items on a short-term basis. If any of our key manufacturers or suppliers fail to perform their respective obligations or if our supply of growth factors, components or other materials is limited or interrupted, we would not be able to conduct clinical trials or market our product candidates on a timely and cost-competitive basis, if at all.

Furthermore, some of the compounds used by us in our current stem cell expansion processes involve the use of animal-derived products. Suppliers or regulatory authorities may limit or restrict the availability of such compounds for clinical and commercial use. Any restrictions on these compounds would impose a potential competitive disadvantage for our products. If we were not able to develop or obtain alternative compounds, our product development and commercialization efforts would be harmed.

Finally, we may not be able to continue our present arrangements with our suppliers, supplement existing relationships, establish new relationships or be able to identify and obtain the ancillary materials that are necessary to develop our product candidates in the future. Our dependence upon third parties for the supply and manufacture of these items could adversely affect our ability to develop and deliver commercially feasible products on a timely and competitive basis.

Our Past Losses and Expected Future Losses Cast Doubt on Our Ability to Operate Profitably.

We were incorporated in 1989 and have experienced substantial operating losses since inception. As of March 31, 2000, we have incurred net operating losses totaling approximately $77.6 million. These losses have resulted principally from costs incurred in the research and development of our cell culture technologies and the AastromReplicell(TM) System, general and administrative expenses, and the prosecution of patent applications. We expect to incur significant operating losses until product sales increase, primarily owing to our research and development programs, including preclinical studies and clinical trials, and the establishment of marketing and distribution capabilities necessary to support commercialization efforts for our products. We cannot predict with any certainty the amount of future losses. Our ability to achieve profitability will depend, among other things, on successfully completing the development of our product candidates, obtaining regulatory approvals, establishing manufacturing, sales and marketing arrangements with third parties, and raising sufficient funds to finance our activities. We may not be able to achieve or sustain profitability.

Given Our Limited Internal Sales and Marketing Capabilities, We Need to Develop Collaborative Relationships to Sell, Market and Distribute Our Products.

While we have commenced initial marketing on a limited basis of the AastromReplicell(TM) System in Europe, we have only limited internal sales, marketing and distribution capabilities. We intend to market our products through collaborative relationships with companies for sales, marketing and distribution capabilities. If we cannot develop and maintain those relationships, we would have only a limited ability to market, sell and distribute our products. Even if we are able to enter into such relationships, they may not succeed or be sustained on a long-term basis, and termination would require us to develop alternate arrangements at a time when we need sales, marketing or distribution capabilities to meet existing demand. For example, in November 1998 Aastrom and COBE BCT terminated a strategic alliance for the worldwide distribution of the AastromReplicell(TM) System for stem cell therapy and related uses. We are now seeking to enter into other arrangements relating to the development and marketing of our product candidates.

Any Changes in the Governmental Regulatory Classifications of Our Products Could Prevent, Limit or Delay Our Ability to Market or Develop Our Products.

The FDA establishes regulatory requirements based on the classification of a product. Although the FDA has indicated it intends to regulate the AastromReplicell(TM) System for stem cell therapy as a Class III medical device, the FDA may ultimately choose to regulate the AastromReplicell System under another category. Because our product development programs are designed to satisfy the standards applicable to Class III medical devices, a change in the regulatory classification would affect our ability to obtain FDA approval of our products. Also, the FDA is in the process of developing its requirements with respect to somatic cell therapy and gene cell therapy products. Until the FDA issues definitive regulations covering our product candidates, the regulatory guidelines or requirements for approval of such product candidates and/or the cells produced by them will continue to be uncertain.

If We Do Not Keep Pace With Our Competitors and With Technological and Market Changes, Our Products May Become Obsolete and Our Business May Suffer.

The market for our product is very competitive and is subject to rapid technological changes. Many of our competitors have significantly greater resources, more product candidates and have developed product candidates and processes that directly compete with our products. Our competitors may have developed, or could in the future develop, new technologies that compete with our products or even render our products obsolete. In addition, some recently published studies have suggested that stem cell therapy, which is the current principal market for our products, may have limited clinical benefit in the treatment of breast cancer, which is a significant portion of the current overall stem cell transplant market. Our products are designed to improve upon traditional stem cell collection methods, but even if we are able to demonstrate improved or equivalent results, practitioners may not switch to our new processes. Given the experience and expertise associated with traditional methods, if we cannot develop our cell production procedure to lead to a less expensive and quicker recovery time than seen with the traditional methods, then we will suffer a competitive disadvantage. Finally, to the extent that others develop new technologies that address the diseases and health conditions we have targeted, our business will suffer.

If Our Patents and Proprietary Rights Do Not Provide Substantial Protection, Then Our Business and Competitive Position Will Suffer.

Our success depends in large part on our ability to develop or license and protect proprietary products and technologies. However, we cannot be assured that patents will be granted on any of our pending or future patent applications. We also cannot be assured that the scope of any of our issued patents will be sufficiently broad to offer meaningful protection. In addition, our issued patents or patents licensed to us could be successfully challenged, invalidated or circumvented so that our patent rights would not create an effective competitive barrier. Furthermore, we rely on licenses granted by the University of Michigan for certain of our patent rights. If we breach such agreements or otherwise fail to comply with such agreements, or if such agreements expire or are otherwise terminated, we may lose our rights under the patents held by the University of Michigan. We also rely on trade

secrets and unpatentable know-how which we seek to protect, in part, by confidentiality agreements with our employees, consultants, suppliers and licensees. These agreements may be breached, and we might not have adequate remedies for any breach. If this were to occur, our business and competitive position would suffer.

Intellectual Property Litigation Could Harm Our Business.

Our success will also depend in part on our ability to develop commercially viable products without infringing the proprietary rights of others. Although we have not been subject to any filed infringement claims, other patents could exist or could be filed which would prohibit or limit our ability to market our products or maintain our competitive position. In the event of an intellectual property dispute, we may be forced to litigate. Intellectual property litigation would divert management's attention from developing our products and would force us to incur substantial costs regardless of whether we are successful. An adverse outcome could subject us to significant liabilities to third parties, and force us to curtail or cease the development and sale of our products and processes.

The Market for Our Products Will Be Heavily Dependent on Third Party Reimbursement Policies.

Our ability to successfully commercialize our product candidates will depend on the extent to which government healthcare programs, such as Medicare and Medicaid, as well as private health insurers, health maintenance organizations and other third party payors will pay for our products and related treatments. Reimbursement by third-party payors depends on a number of factors, including the payor's determination that use of the product is safe and effective, not experimental or investigational, medically necessary, appropriate for the specific patient and cost-effective. Reimbursement in the United States or foreign countries may not be available or maintained for any of our product candidates. If we do not obtain approvals for adequate third-party reimbursements, we may not be able to establish or maintain price levels sufficient to realize an appropriate return on our investment in product development. Any limits on reimbursement available from third-party payors may reduce the demand for, or negatively affect the price of, our products. For example, recently published studies have suggested that stem cell transplantation in breast cancer, which constitutes a significant portion of the overall stem cell therapy market, may have limited clinical benefit. The market for our products would be negatively affected by lack of reimbursement for these procedures by insurance payors.

Potential Product Liability Claims Could Effect Our Earnings and Financial Condition.

We face an inherent business risk of exposure to product liability claims in the event that the use of the AastromReplicell(TM) System during research and development efforts, including clinical trials, or after commercialization results in adverse effects. As a result, we may incur significant product liability exposure, which could exceed existing insurance coverage. We may not be able to maintain adequate levels of insurance at reasonable cost and/or reasonable terms. Excessive insurance costs or uninsured claims would increase our operating loss and affect our financial condition.

If We Cannot Attract and Retain Key Personnel, Then Our Business Will Suffer.

Our success depends in large part upon our ability to attract and retain highly qualified scientific and management personnel. We face competition for such personnel from other companies, research and academic institutions and other entities. For example, since our initial public offering in February 1997 four of the six executive officers at that time have since left for positions with other organizations. We have hired two new executive officers to assume their responsibilities, one of which subsequently left. Further, in an effort to conserve financial resources, we have been forced to implement reductions in our work force on two separate occasions. As a result of these and other factors, we may not be successful in hiring or retaining key personnel.

The Warrants Have the Potential for Substantial Dilution.

In June 2000, we issued warrants to purchase up to 3,348,915 shares of our common stock at $0.01 per share. If all 3,348,915 shares of common stock are issued under the warrants, then holders of common stock could experience significant dilution of their investment.

The exercise price of the warrants that we issued in February 2000 is subject to certain reduction in the event the price of our common stock goes down at specified times in the future or if we issue additional securities at less than the warrant exercise price. If the exercise price of these warrants is reduced, there would also be an increase in the number of shares that could be issued upon exercise of the warrants. The warrants are currently exercisable for 1,132,075 shares of common stock. This number of shares could increase to 2,614,386 shares of common stock and the exercise price could be reduced to as low as $1.60 per share. Holders of common stock could therefore experience dilution of their investment upon exercise of these warrants.

Our Stock Price Has Been Volatile and Future Sales of Substantial Numbers of Our Shares Could Have an Adverse Effect on the Market Price of Our Shares.

The market price of shares of our common stock has been volatile. The price of our common stock may continue to fluctuate in response to a number of events and factors, such as:

- clinical trial results;
- the amount of our cash resources and our ability to obtain additional funding;
- announcements of research activities, business developments, technological innovations or new products by us or our competitors;
- changes in government regulation;
- disputes concerning patents or proprietary rights;
- changes in our revenues or expense levels;
- public concern regarding the safety, efficacy or other aspects of the products or methodologies we are developing; and
- changes in potential recommendations by securities analysts.

Any of these events may cause the price of our shares to fall, which may adversely affect our business and financing opportunities. In addition, the stock market in general and the market prices for biotechnology companies in particular have experience significant volatility that often has been unrelated to the operating performance or financial conditions of such companies. These broad market and industry fluctuations may adversely affect the trading price of our shares, regardless of our operating performance or prospects. For example, within the last year, our stock price has experienced a day where it traded at approximately twice the previous day's closing price and another day when it dropped by over 20% from the previous day's closing price.

In addition, sales, or the possibility of sales, of substantial numbers of shares of common stock in the public market could adversely affect prevailing market prices of shares of common stock. Our employees hold a significant number of options to purchase shares, many of which are presently exercisable. Employees may exercise their options and sell shares shortly after such options become exercisable, particularly if they need to raise funds to pay for the exercise of such options or to satisfy tax liabilities that they may incur in connection with exercising their options. Additionally, beginning January 1, 2001, COBE BCT will be able to sell all of its approximately 2.4 million shares of our common stock without restriction.

Our Corporate Documents and Michigan Law Contain Provisions That May Make It More Difficult For Us to Be Acquired.

Our board of directors has the authority, without shareholder approval, to issue additional shares of preferred stock and to fix the rights, preferences, privileges and restrictions of these shares without any further vote or action by our shareholders. This authority, together with certain provisions of our charter documents, may have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to

acquire, control of our company. This effect could occur even if our shareholders consider the change in control to be in their best interest.

We May Be Required to Redeem a Portion of Our Shares, Which Would Significantly Reduce Our Limited Cash Resources.

The original purchasers of the shares and warrants issued in February 2000 and June 2000 may require us to redeem some or all of those shares in the event that we fail to perform certain administrative activities that are within our control. These administrative activities include: issuing the shares of common stock upon the exercise of the warrants, transferring or instructing the transfer agent to transfer shares of common stock issued upon exercise of the warrants when required and removing any restrictive legends from such shares of common stock when required. Such a redemption could significantly reduce our limited capital resources.

Our Stock May Be Delisted From Nasdaq, Which Could Affect its Market Price and Liquidity.

We are required to meet certain financial tests (including, but not limited to, a minimum bid price of our common stock of $1.00 and $4 million in tangible net worth) to maintain the listing of our common stock on the Nasdaq National Market. Within the last nine months, our common stock price has fallen below the minimum level for some periods and during other periods our tangible net worth has been below the amount required. In the future, our stock price or tangible net worth may fall below the Nasdaq requirements, or we may not comply with other listing requirements, with the result being that our common stock might be delisted. If that happened the market price and liquidity of our common stock would be impaired.

Absence of Dividends Could Reduce Our Attractiveness to Investors.

Some investors favor companies that pay dividends, particularly in market downturns. We have never paid cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. Therefore, your return on this investment will depend on your ability to sell our stock at a profit.

Forward-Looking Statements

This prospectus contains certain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act. These forward-looking statements include statements regarding:

- uncertainties related to potential strategic collaborations with others;
- future capital needs and uncertainty of additional funding;
- uncertainties related to product development and marketability;
- uncertainties related to clinical trials;
- manufacturing and supply uncertainties and dependence on third parties;
- anticipation of future losses;
- limited sales and marketing capabilities;
- uncertainty of regulatory approval and extensive government regulation;
- competition and technological change;
- uncertainty regarding patents and proprietary rights;
- no assurance of third party reimbursement;
- hazardous materials; and
- potential product liability and availability of insurance.

These statements are subject to risks and uncertainties, including those set forth in this Risk Factors section, and actual results could differ materially from those expressed or implied in these statements. All forward-looking statements included in this prospectus are made as of the date hereof. We assume no obligation to update any such forward-looking statement or reason why actual results might differ.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's public reference rooms located at Room 1024, 450 Fifth Street, N.W., Washington, D.C. 20549, at The Citicorp Center, 500 West Madison Street, Suite 1400, Chicago, Illinois 60661, and at Seven World Trade Center, Suite 1300, New York, New York 10048. Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms. Our filings with the SEC are also available to the public on the SEC's Internet web site at http://www.sec.gov.

The SEC allows us to "incorporate by reference" the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file with the SEC later will automatically update and supersede the information in this prospectus or incorporated by reference. The following documents filed by us and any future filings made by us with the SEC under Sections 13(a), 13(c) 14 or 15(d) of the Securities Exchange Act of 1934, until the selling shareholder sells all of the common stock offered hereby, are incorporated by reference in this prospectus:

a. the Company's Annual Report on Form 10-K for the year ended June 30, 1999 (Commission File No.: 000-22025), but specifically excluding The Report of the Independent Accountants thereto which is superceded by the report included in the Company's current report on Form 8-K filed on December 10, 1999 (Commission File No. 000-22025);

b. the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 1999 (Commission File No. 000-22025);

c. the Company's Quarterly Report on Form 10-Q for the quarter ended December 31, 1999 (Commission File No. 000-22025);

d. the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2000 (Commission File No. 000-22025);

e. the Company's Current Report of Form 8-K filed with the Commission on October 27, 1999 (Commission File No.: 000-22025)

f. the Company's Current Report of Form 8-K filed with the Commission on December 10, 1999 (Commission File No.: 000-22025);

g. the Company's Current Report on Form 8-K filed with the Commission on January 19, 2000 (Commission File No.: 000-22025);

h. the Company's Current Report on Form 8-K filed with the Commission on March 3, 2000 (Commission File No.: 000-22025); and

i. the Company's Registration Statement on Form 8-A filed with the Commission on April 11, 1997 (Commission File No.: 000-22025).

YOU MAY REQUEST A COPY OF THESE FILINGS, AT NO COST, BY WRITING OR TELEPHONING US AT AASTROM BIOSCIENCES, INC., 24 FRANK LLOYD WRIGHT DRIVE, P.O. BOX 376, ANN ARBOR, MICHIGAN 48106, TELEPHONE NUMBER (734) 930-5555, ATTENTION: CHIEF FINANCIAL OFFICER.

SELLING SHAREHOLDER

This prospectus relates to the offering by RGC International Investors, LDC for resale of up to 6,159,220 shares of common stock. In addition to the 2,810,305 shares of common stock currently owned, the selling shareholder may acquire 3,348,915 shares upon exercise, from time to time, of the warrants that it holds. The table below sets forth the following information with respect to the selling shareholder as of June 9, 2000:

- the name and position or other relationship with Aastrom within the past three years, if any, of the selling shareholder,
- the number of Aastrom's outstanding shares of common stock beneficially owned by the selling shareholder (including shares obtainable under options exercisable within sixty days of such date) prior to the offering hereby,
- the number of such shares being offered hereby,
- the number and percentage of Aastrom's outstanding shares of common stock to be beneficially owned by the selling shareholder after completion of the sale of common stock being offered hereby.

We cannot be sure that the selling shareholder will exercise any of the warrants or sell any or all of the shares offered hereby.

Selling Shareholder	Number of Shares Beneficially Owned Prior to the Offering	Number of Such Shares Being Offered	Number of Shares Beneficially Owned After the Offering	Percentage of Aastrom Stock Owned After the Offering
RGC International Investors, LDC	7,735,100 (1)	6,159,220	1,575,880 (1)	4.94%

(1) Includes (i) 443,805 shares of common stock and (ii) 1,132,075 shares of common stock issuable under a warrant. These shares have been registered on our Registration Statement on Form S-3 filed with the SEC on March 21, 2000 (File No.:333-32914).

The number of shares set forth in the table represents an estimate of the number of shares of common stock to be offered by the selling shareholder. The number of shares set forth in the table includes 3,348,915 shares the selling shareholder would receive as the maximum number of shares issuable under the warrant. The number of shares of common stock issuable upon exercise of the warrant is subject to reduction (i) if the average closing bid price of our common stock as measured across the ten trading day period ending June 8, 2001 exceeds $2.135, (ii) if we do not issue additional securities for less than $2.135 per share, (iii) if the selling shareholder sells some of the 2,810,305 shares purchased in June 2000 at prices above $2.135 per share, or (iv) upon certain change of control events. The actual number of shares of common stock issuable upon exercise of the warrant is indeterminate and is subject to adjustment. Therefore, the actual number of shares could be materially less than this maximum amount depending on, among other things, the unpredictable factors listed above. The actual number of shares of common stock offered hereby, and included in the Registration Statement of which this prospectus is a part, also includes an additional number of shares of common stock that may be issued or issuable upon exercise of the warrant by reason of any stock split, stock dividend or similar transaction involving the common stock, in order to prevent dilution, in accordance with Rule 416 under the Securities Act.

Pursuant to all the warrants held by the selling shareholder, such warrants are exercisable by any holder only to the extent that the number of shares of common stock owned by such holder and its affiliates after such

conversion or exercise would not exceed 9.9% of the then outstanding common stock as determined in accordance with Section 13(d) of the Securities Exchange Act. Accordingly, the number of shares of common stock set forth in the table for the selling shareholder exceeds the number of shares of common stock that the selling shareholder could own beneficially at any given time through its immediate exercise of the warrants. In that regard, beneficial ownership of the selling shareholder set forth in the table is not determined in accordance with Rule 13d-3 under the Exchange Act.

The selling shareholder, RGC International Investors, LDC, is a party to an investment management agreement with Rose Glen Capital Management, L.P., a limited partnership of which the general partner is RGC General Partner Corp. Messrs. Wayne Bloch, Gary Kaminsky and Steve Katznelson own all of the outstanding capital stock of RGC General Partner Corp., are the sole officers and directors of RGC General Partner Corp. and are parties to a shareholders' agreement pursuant to which they collectively control RGC General Partner Corp. Through RGC General Partner Corp., these individuals control Rose Glen Capital Management, L.P. These individuals disclaim beneficial ownership of Aastrom's Common Stock owned by the selling shareholder.

PLAN OF DISTRIBUTION

The shares of common stock may be offered for sale from time to time by or on behalf of the holder of those shares. The actual number of shares that may be offered will vary based on the market price of our common stock, and the 6,159,220 shares covered by this prospectus is based on the maximum number of shares that may be issued under the warrant.

The shares of common stock being offered by the selling shareholder or its permitted donees, pledgees, transferees, or other successors in interest, will be sold in one or more transactions (which may involve block transactions) on the Nasdaq National Market or on such other market on which the common stock may from time to time be trading:

- in privately-negotiated transactions;
- through the writing of options on the shares;
- short sales; or
- any combination of these transactions.

The shares may also be sold pursuant to Rule 144.

The sale price may be:

- the market price prevailing at the time of sale;
- a price related to the prevailing market price; or
- such other price as the selling shareholder determines from time to time.

The selling shareholder may not accept any purchase offer or make any sale of shares if it considers the purchase price to be unsatisfactory at any particular time.

The selling shareholder or its permitted donees, pledgees, transferees, or other successors in interest, may also sell the shares directly to market makers acting as principals and/or broker-dealers acting as agents for themselves or their customers. Brokers acting as agents for the selling shareholder will receive usual and customary commissions for brokerage transactions, and market makers and block purchasers purchasing the shares will do so for their own account and at their own risk. The selling shareholder may attempt to sell shares of common stock in block transactions to market makers or other purchasers at a price per share which may be below the then current market price. There can be no assurance that all or any of the shares offered hereby will be issued to, or sold by, the selling shareholder.

Alternatively, the selling shareholder may sell all or any part of the shares through an underwriter. The selling shareholder has not entered into any agreement with a prospective underwriter and may not do so. If the selling shareholder enters into such an agreement or agreements, we will supplement or revise this prospectus.

The selling shareholder and any other persons participating in a distribution of the shares will be subject to applicable provisions of the Securities Exchange Act and the rules and regulations thereunder, including Regulation M, which may restrict certain activities of, and limit the timing of purchases and sales of the shares by the selling shareholder and other persons participating in a distribution of the shares. Furthermore, under Regulation M, persons engaged in a distribution of the shares are prohibited from simultaneously engaging in market making and certain other activities with respect to the shares for a specified period of time prior to the commencement of such distributions subject to specified exceptions or exemptions. All of the foregoing may affect the marketability of the shares offered hereby.

We have agreed to indemnify the selling shareholder, or certain transferees or assignees, against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the selling shareholder, or certain transferees or assignees, may be required to make in respect thereof. The selling shareholder has agreed to indemnify us against certain liabilities, including liabilities under the Securities Act, or to contribute to payments we may be required to make in respect thereof.

USE OF PROCEEDS

We will not receive any proceeds from sales of the shares. We may receive up to approximately $33,489 upon exercise of the warrants. This is based on a potential full exercise of the warrants to purchase 3,348,915 shares of common stock at $0.01 per share. We intend to apply any net proceeds received from exercise of the warrants to general working capital purposes.

LEGAL MATTERS

The validity of the common stock offered hereby will be passed upon for Aastrom by Pepper Hamilton LLP, Detroit, Michigan. Gray Cary Ware & Freidenrich LLP, San Diego, California, has acted as special counsel to Aastrom in connection with this offering.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Current Report on Form 8-K filed with the Commission on December 10, 1999, have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the Financial Statements) of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION.

Other expenses in connection with the registration of the common stock hereunder will be substantially as follows (all expenses other than the SEC Registration Fee are estimates):

Item	Company Expense
SEC Registration Fee.....	$ 4,602
Printing and engraving expenses..	$ 2,000
Legal fees and expenses.....	$10,000
Accounting fees and expenses.....	$ 5,000
Miscellaneous.....	$ 8,398
Total.....	$30,000

ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Sections 1561 through 1565 of the Michigan Business Corporation Act (the "MBCA") authorize a corporation to grant or a court to award indemnity to directors, officers, employees and agents in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act of 1933.

The Bylaws of the Registrant, provide that the Registrant shall, to the fullest extent authorized or permitted by the MBCA, or other applicable law, indemnify a director or officer who was or is a party or is threatened to be made a party to any proceeding by or in the right of the Registrant to procure a judgment in its favor by reason of the fact that such person is or was a director, officer, employee or agent of the Registrant, against expenses, including actual and reasonable attorneys' fees, and amounts paid in settlement incurred in connection with the action or suit, if the indemnitee acted in good faith and in a manner the person reasonably believed to be in, or not opposed to, the best interests of the Registrant or its shareholders. This section also authorizes the Registrant to advance expenses incurred by any agent of the Registrant in defending any proceeding prior to the final disposition of such proceeding upon receipt of an undertaking by or on behalf of the agent to repay such amount unless it shall be determined ultimately that the agent is entitled to be indemnified.

The Bylaws also authorize the Registrant to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Registrant against any liability asserted against or incurred by such person in such capacity or arising out of such person's status as such, regardless of whether the Registrant would have the power to indemnify such person against such liability under the provisions of the MBCA.

The Registrant has entered into an indemnification agreement with certain of its directors, officers and other key personnel, which contains provisions that may in some respects be broader than the specific indemnification provisions contained under applicable law. The indemnification agreement may require the Registrant, among other things, to indemnify such directors, officers and key personnel against certain liabilities that may arise by reason of their status or service as directors, officers or employees of the Registrant, to advance the expenses incurred by such parties as a result of any threatened claims or proceedings brought against them as to which they could be indemnified and, to the maximum extent that insurance coverage of such directors, officers and key employees under the Registrant's directors' and officers' liability insurance policies is maintained.

Section 1209 of the MBCA permits a Michigan corporation to include in its Articles of Incorporation a provision eliminating or limiting a director's liability to a corporation or its shareholders for monetary damages for breaches of

fiduciary duty. The enabling statute provides, however, that liability for breaches of the duty of loyalty, acts or omissions not in good faith or involving intentional misconduct or knowing violation of the law, or the receipt of improper personal benefits cannot be eliminated or limited in this manner. The Registrant's Restated Articles of Incorporation include a provision which eliminates, to the fullest extent permitted by the MBCA, director liability for monetary damages for breaches of fiduciary duty.

ITEM 16. EXHIBITS.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
4.1	Restated Articles of Incorporation
4.2	Bylaws, as amended
4.3	Securities Purchase Agreement
4.4	Registration Rights Agreement
4.5	Stock Purchase Warrant
5.1	Consent and Opinion of Pepper Hamilton LLP
23.1	Consent of PricewaterhouseCoopers LLP, independent accountants
23.2	Consent of Gray Cary Ware & Freidenrich LLP
23.3	Consent of Pepper Hamilton LLP (included in Exhibit 5.1)
24.1	Power of Attorney (see Signature page)
99.1	Press Release

ITEM 17. UNDERTAKING.

A. The undersigned Registrant hereby undertakes:

1. To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

a. To include any prospectus required by section 10(a)(3) of the Securities Act of 1933 (the "Securities Act");

b. To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

c. To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement; provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

2. That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

3. To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

B. The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

C. The undersigned Registrant hereby undertakes to deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X are not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.

D. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

E. The undersigned Registrant hereby undertakes that:

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

2. For the purposes of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements of filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Ann Arbor, State of Michigan, on June 19, 2000.

AASTROM BIOSCIENCES, INC.

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

R. Douglas Armstrong, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints R. Douglas Armstrong and Todd E. Simpson, or either of them, as his or her attorney-in-fact, each with full power of substitution for him or her in any and all capacities, to sign any and all amendments to this registration statement, including, but not limited to, post-effective amendments and any and all new registration statements filed pursuant to Rule 462 under the Securities Act of 1933 in connection with or related to the offer contemplated by this registration statement, as amended, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorney to said registration statement and any and all amendment thereto.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed below by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ R. Douglas Armstrong R. Douglas Armstrong, Ph.D.	President, Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	June 19, 2000
/s/ Todd E. Simpson Todd E. Simpson	Vice President, Finance and Administration, Chief Financial Officer, Secretary and Treasurer (Principal Financial and Accounting Officer)	June 19, 2000
/s/ Mary L. Campbell Mary L. Campbell	Director	June 19, 2000
/s/ Stephen G. Emerson Stephen G. Emerson, M.D., Ph.D.	Director	June 19, 2000
/s/ Arthur F. Staubitz Arthur F. Staubitz	Director	June 19, 2000
/s/ Joseph A. Taylor Joseph A. Taylor	Director	June 19, 2000

INDEX TO EXHIBITS

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24.1	Power of Attorney (see signature page)
99.1	Press Release

EXHIBIT 4.1

[SEAL OF THE STATE OF MICHIGAN]

This is to Certify that the Annexed copy has been compared by me with the record on file in this Department and that the same is a true copy thereof.

In testimony whereof, I have hereunto set my hand and affixed the Seal of the Department, in the City of Lansing, this 6th day of February, 1997.

/s/ CARL L. LYSON

Carl L. Lyson
Director
Corporation, Securities and Land
Development Bureau

MICHIGAN DEPARTMENT OF COMMERCE - CORPORATION AND SECURITIES BUREAU

DATE RECEIVED
FEB 06 1997

NAME
ATTN: CHERYL J. BIXBY
PHONE 517-663-2525 REF #70801

ADDRESS
MICHIGAN RUNNER SERVICE
PO BOX 266

CITY	STATE	ZIP CODE
EATON RAPIDS	MI	48827 0266

DOCUMENT WILL BE RETURNED TO THE NAME AND ADDRESS YOU ENTER ABOVE

(FOR BUREAU USE ONLY)

FILED
FEB 06 1997

Administrator
MI DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES CORPORATION, SECURITIES & LAND DEVELOPMENT BUREAU

EFFECTIVE DATE: FEB. 7, 1997 @ 10:00 A.M.

RESTATED ARTICLES OF INCORPORATION
FOR USE BY DOMESTIC PROFIT CORPORATIONS

(Please read information and instructions on the last page)

Pursuant to the provisions of Act 284, Public Acts of 1972, the undersigned corporation executes the following Articles:

1. The present name of the corporation is: Aastrom Biosciences, Inc.

2. The identification number assigned by the Bureau is: 529-456

3. All former names of the corporation are: Ann Arbor Stromal, Inc.

4. The date of filing the original Articles of Incorporation was: March 24, 1989.

The following Restated Articles of Incorporation supersede the Articles of Incorporation as amended and shall be the Articles of Incorporation for the corporation:

ARTICLE I

The name of the corporation is:
Aastrom Biosciences, Inc.

ARTICLE II

The purpose or purposes for which the corporation is formed are:

To engage in any activity within the purpose for which corporations may be organized under the Michigan Business Corporation Act.

SEAL APPEARS ONLY ON ORIGINAL

ARTICLE III

The total authorized shares:

Common shares	40,000,000	Preferred shares	5,000,000

A statement of all or any of the relative rights, preferences and limitations of the shares of each class is as follow:

See Rider attached hereto and made a part hereof.

ARTICLE IV

1. The address of the current registered office is:

36th Floor, 100 Renaissance Center	Detroit, Michigan	48243
(Street Address)	(City)	(Zip Code)

2. The mailing address of the current registered office, if different than above:

, Michigan

(Street Address or P.O. Box)	(City)	(Zip Code)

3. The name of the current resident agent is: Michael B. Staebler

ARTICLE V

These Restated Articles of Incorporation shall be effective at 10:00 a.m. Eastern Standard Time on Friday, February 7, 1997.

ARTICLE VI (Optional. Delete if not applicable)

SEAL APPEARS ONLY ON ORIGINAL

Article VII (Additional provisions, if any, may be inserted here; attach additional pages if needed.)

See Rider attached hereto and made a part hereof.

- ---

5. COMPLETE SECTION (a) IF THE RESTATED ARTICLES WERE ADOPTED BY THE UNANIMOUS CONSENT OF THE INCORPORATOR(S) BEFORE THE FIRST MEETING OF THE BOARD OF DIRECTORS; OTHERWISE, COMPLETE SECTION(b). DO NOT COMPLETE BOTH.

a. [_] These Restated Articles of Incorporation were duly adopted on the _____ day of _____, 19____, in accordance with the provisions of Section 642 of the Act by the unanimous consent of the incorporator(s) before the first meeting of the Board of Directors.

Signed this_____ day of _____, 19_____.

(Signatures of Incorporators; Type or Print Name Under Each Signature)

b. [X] These Restated Articles of Incorporation were duly adopted on the 30th day of October, 1996 in accordance with the provisions of Section 642 of the Act and: (check one of the following)

[_] were duly adopted by the Board of Directors without a vote of the shareholders. These Restated Articles of Incorporation only restate and integrate and do not further amend the provisions of the Articles of Incorporation as heretofore amended and there is no material discrepancy between those provisions and the provisions of these Restated Articles.

[_] were duly adopted by the shareholders. The necessary number of shares as required by statute were voted in favor of these Restated Articles.

[X] were duly adopted by the written consent of the shareholders having not less than the minimum number of votes required by statute in accordance with Section 407(1) of the Act. Written notice to shareholders who have not consented in writing has been given. (Note: Written consent by less than all of the shareholders is permitted only if such provision appears in the Articles of Incorporation.)

[_] were duly adopted by the written consent of all the shareholders entitled to vote in accordance with section 407(2) of the Act.

Signed this 5th day of February, 1997

By /s/ R. DOUGLAS ARMSTRONG, Ph.D.

R. Douglas Armstrong, Ph.D., President

(Type or Print Name) (Type or Print Title)

SEAL APPEARS ONLY ON ORIGINAL

RIDER TO ARTICLE III

PART A: COMMON STOCK

Section 1. Voting Rights.

a. One Vote Per Share. The holders of shares of Common Stock shall be entitled to one vote for each share so held with respect to all matters voted on by the holders of shares of Common Stock of the Corporation.

b. Two-Thirds Consent. Consent of the holders of at least two-thirds (2/3) of the outstanding shares of Common Stock shall be required for (i) any action which results in a consolidation or merger which would be treated as a liquidation, dissolution or winding up of the Corporation under Section 2 of this Part A of this Article III, or which results in the liquidation, sale or assignment of all or substantially all of the assets of the Corporation; (ii) any amendment to these Articles of Incorporation; or (iii) any amendment by the shareholders of the Corporation of the Bylaws of the Corporation (the Board of Directors of the Corporation, as provided in Section 3 of Article VII, shall have the authority to amend the Bylaws of the Corporation without the consent of the shareholders of the Corporation).

Section 2. Liquidation Rights. Subject to preferences applicable to any outstanding shares of Preferred Stock, all distributions made or funds paid to the holders of Common Stock upon the occurrence of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Corporation shall be made on the basis of the number of shares of Common Stock held by each of them. A consolidation or merger of the Corporation with or into another corporation or entity shall be regarded as a liquidation, dissolution or winding up of the Corporation within the meaning of this Section 2 unless such consolidation or merger is not intended to effect a change in the ownership or control of the Corporation or of its assets and is not intended to alter materially the business or assets of the Corporation, including, by way of example and without limiting the generality of the foregoing: (i) a consolidation or merger which merely changes the identity, form or place of organization of the Corporation, or which is between or among the Corporation and any of its direct or indirect subsidiaries, or (ii) following such merger or consolidation, shareholders of the Corporation immediately prior to such event own not less than 51% of the voting power of such corporation immediately after such merger or consolidation on a pro rata basis.

Section 3. Dividends. Dividends may be paid on the Common Stock as and when declared by the Board of Directors, subject to preferences applicable to any outstanding shares of Preferred Stock.

PART B: PREFERRED STOCK

The Preferred Stock may be issued from time to time in one or more series. The Board of Directors of the Corporation is hereby authorized, within the limitations and restrictions stated in these Restated Articles of Incorporation, to fix or alter the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), the redemption price or prices, and the liquidation preferences of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof, or any of them, and to increase or decrease the number of shares of any series subsequent to the issue of shares of that series but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be so decreased, the shares constituting such decrease shall resume the status which they had prior to the adoption of the resolution originally fixing the number of shares of such series.

RIDER TO ARTICLE VII

ARTICLE VII

1. Director Liability. A director of the Corporation shall not be personally liable to the Corporation or its shareholders for monetary damages for breach of fiduciary duty as a director. However, this provision does not eliminate or limit the liability of a director for any of the following:

(a) any breach of the director's duty of loyalty to the Corporation or its shareholders;

(b) any acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;

(c) a violation of Section 551(1) of the Michigan Business Corporation Act, as amended (the "MBCA");

(d) a transaction from which the director derived an improper personal benefit; or

(e) an act or omission occurring before the date these Articles of Incorporation became effective in accordance with the pertinent provisions of the MBCA.

Any repeal, amendment or other modification of this Article VII shall not adversely affect any right or protection of a director of the Corporation existing at the time of such repeal, amendment or other modification.

If the MBCA is amended, after this Article becomes effective, to authorize corporate action further eliminating or limiting personal liability of directors, then the liability of directors shall be eliminated or limited to the fullest extent permitted by the MBCA as so amended.

2. Control Share Acquisitions. Chapter 7B of the MBCA, known as the "Stacey, Bennett, and Randall shareholder equity act," does not apply to control share acquisitions of shares of the Corporation.

3. Amendment of Bylaws. In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is expressly authorized to make, alter or repeal the Bylaws of the Corporation.

[SEAL OF THE STATE OF MICHIGAN]

This is to Certify that the Annexed copy has been compared by me with the record on file in this Department and that the same is a true copy thereof.

In testimony whereof, I have hereunto set my hand and affixed the Seal of the Department, in the City of Lansing, this 7th day of June, 2000.

/s/ JOSEPH L. WEBSTER

Joseph L. Webster
Director
Corporation, Securities and Land
Development Bureau

MICHIGAN DEPARTMENT OF CONSUMER & INDUSTRY SERVICES CORPORATION AND LAND
DEVELOPMENT BUREAU

DATE RECEIVED
JUN 07 2000

This document is effective on the date filed, unless a subsequent effective date within 90 days after received date is stated in the document.

NAME
PH. 517-663-2525 REF #04302
ATTN: CHERYL J. BIXBY
MICHIGAN RUNNER SERVICE
PO BOX 266
EATON RAPIDS MI 48827 0266

DOCUMENT WILL BE RETURNED TO THE NAME AND ADDRESS YOU ENTER ABOVE. IF LEFT BLANK DOCUMENT WILL BE MAILED TO THE REGISTERED OFFICE.

(FOR BUREAU USE ONLY)

FILED
JUN 07 2000

Administrator
CORP SECURITIES & LAND DEV. BUREAU

EFFECTIVE DATE:

CERTIFICATE OF AMENDMENT TO THE ARTICLES OF INCORPORATION
FOR USE BY DOMESTIC PROFIT AND NONPROFIT CORPORATIONS

(Please read information and instructions on the last page)

Pursuant to the provisions of Act 284, Public Acts of 1972 (profit corporations), or Act 162, Public Acts of 1962 (nonprofit corporations), the undersigned corporation executes the following Certificate:

1. The present name of the corporation is: Aastrom Biosciences, Inc.

2. The identification number assigned by the Bureau is: 529-456

3. Article III of the Articles of Incorporation is hereby amended to read as follows:

The total authorized shares:

Common Shares: 60,000,000 Preferred Shares: 5,000,000

A statement of all or any of the relative rights, preferences and limitations of the shares of each class is as follows:

See Rider attached hereto and made a part hereof.

GOLD SEAL APPEARS ONLY ON ORIGINAL

COMPLETE ONLY ONE OF THE FOLLOWING:

4. (FOR AMENDMENTS ADOPTED BY UNANIMOUS CONSENT OF INCORPORATORS BEFORE THE FIRST MEETING OF THE BOARD OF DIRECTORS OR TRUSTEES.)

THE FOREGOING AMENDMENTS TO THE ARTICLES OF INCORPORATION WAS DULY ADOPTED ON THE _____ DAY OF _____, _____. IN ACCORDANCE WITH THE PROVISIONS OF THE ACT BY THE UNANIMOUS CONSENT OF THE INCORPORATOR(S) BEFORE THE FIRST MEETING OF THE BOARD OF DIRECTORS OR TRUSTEES.

SIGNED THIS _____ DAY OF _____, _____

_____	_____
(SIGNATURE)	(SIGNATURE)
_____	_____
(TYPE OR PRINT NAME)	(TYPE OR PRINT NAME)
_____	_____
(SIGNATURE)	(SIGNATURE)
_____	_____
(TYPE OR PRINT NAME)	(TYPE OR PRINT NAME)

5. (FOR PROFIT AND NONPROFIT CORPORATIONS WHOSE ARTICLES STATE THE CORPORATION IS ORGANIZED ON A STOCK OR ON A MEMBERSHIP BASIS.)

THE FOREGOING AMENDMENTS TO THE ARTICLES OF INCORPORATION WAS DULY ADOPTED ON THE 9th DAY OF May, 2000 BY THE SHAREHOLDERS IF A PROFIT CORPORATION, OR BY THE SHAREHOLDERS OR MEMBERS IF A NONPROFIT CORPORATION (CHECK ONE OF THE FOLLOWING)

[X] AT A MEETING THE NECESSARY VOTES WERE CAST IN FAVOR OF THE AMENDMENT.

[ ] BY WRITTEN CONSENT OF THE SHAREHOLDERS OR MEMBERS HAVING NOT LESS THAN THE MINIMUM NUMBER OF VOTES REQUIRED BY STATUTE IN ACCORDANCE WITH SECTION 407(1) AND (2) OF THE ACT IF A NONPROFIT CORPORATION, OR SECTION 407(1) OF THE ACT IF A PROFIT CORPORATION. WRITTEN NOTICE TO SHAREHOLDERS OR MEMBERS WHO HAVE NOT CONSENTED IN WRITING HAS BEEN GIVEN. (NOTE: WRITTEN CONSENT BY LESS THAN ALL OF THE SHAREHOLDERS OR MEMBERS IS PERMITTED ONLY IF SUCH PROVISION APPEARS IN THE ARTICLES OF INCORPORATION.)

[ ] BY WRITTEN CONSENT OF ALL THE SHAREHOLDERS OR MEMBERS ENTITLED TO VOTE IN ACCORDANCE WITH SECTION 407(3) OF THE ACT IF A NONPROFIT CORPORATION, OR SECTION 407(2) OF THE ACT IF A PROFIT CORPORATION.

[ ] BY THE BOARD OF A PROFIT CORPORATION PURSUANT TO SECTION 611(2).

PROFIT CORPORATIONS	NONPROFIT CORPORATIONS
SIGNED THIS 7 DAY OF June, 2000	SIGNED THIS _____ DAY OF _____, _____
BY /S/ TODD E. SIMPSON	BY_____
(SIGNATURE OF AUTHORIZED OFFICER OR AGENT)	(SIGNATURE OF PRESIDENT, VICE-PRESIDENT, CHAIRPERSON OR VICE-CHAIRPERSON)
Secretary Todd E. Simpson	_____
(TYPE OR PRINT NAME)	(TYPE OR PRINT NAME) (TYPE OR PRINT TITLE)

GOLD SEAL APPEARS ONLY ON ORIGINAL

PART A: COMMON STOCK

Section 1. Voting Rights.

a. One Vote Per Share. The holders of shares of Common Stock shall be entitled to one vote for each share so held with respect to all matters voted on by the holders of shares of Common Stock of the Corporation.

b. Two-Thirds Consent. Consent of the holders of at least two-thirds (2/3) of the outstanding shares of Common Stock shall be required for (i) any action which results in a consolidation or merger which would be treated as a liquidation, dissolution or winding up of the Corporation under Section 2 of this Part A of this Article III, or which results in the liquidation, sale or assignment of all or substantially all of the assets of the Corporation; (ii) any amendment to these Articles of Incorporation; or (iii) any amendment by the shareholders of the Corporation of the Bylaws of the Corporation (the Board of Directors of the Corporation, as provided in Section 3 of Article VII, shall have the authority to amend the Bylaws of the Corporation without the consent of the shareholders of the Corporation).

Section 2. Liquidation Rights. Subject to preferences applicable to any outstanding shares of Preferred Stock, all distributions made or funds paid to the holders of Common Stock upon the occurrence of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Corporation shall be made on the basis of the number of shares of Common Stock held by each of them. A consolidation or merger of the Corporation with or into another corporation or entity shall be regarded as a liquidation, dissolution or winding up of the Corporation within the meaning of this Section 2 unless such consolidation or merger is not intended to effect a change in the ownership or control of the Corporation or of its assets and is not intended to alter materially the business or assets of the Corporation, including, by way of example and without limiting the generally of the foregoing: (i) a consolidation or merger which merely changes the identity, form or place of organization of the Corporation, or which is between or among the Corporation and any of its direct or indirect subsidiaries, or (ii) following such merger or consolidation, shareholders of the Corporation immediately prior to such event own not less than 51% of the voting power of such corporation immediately after such merger or consolidation on a pro rata basis.

Section 3. Dividends. Dividends may be paid on the Common Stock as and when declared by the Board of Directors, subject to preferences applicable to any outstanding shares of Preferred Stock.

PART B: PREFERRED STOCK

The Preferred Stock may be issued from time to time in one or more series. The Board of Directors of the Corporation is hereby authorized, within the limitations and restrictions stated in these Restated Articles of Incorporation, to fix or alter the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), the

redemption price or prices, and the liquidation preferences of any wholly unissued series of Preferred Stock, and the number of shares constituting any such series and the designation thereof, or any of them, and to increase or decrease the number of shares of any series subsequent to the issue of shares of that series but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be so decreased, the shares constituting such decrease shall resume the status which they had prior to the adoption of the resolution originally fixing the number of shares of such series.

Exhibit 4.2

BYLAWS

OF

AASTROM BIOSCIENCES, INC.

BYLAWS
OF
AASTROM BIOSCIENCES, INC.

ARTICLE I GENERAL

Section I.1 The name, location of principal office, and purposes of the Corporation shall be as set forth in the Articles of Incorporation. The powers of the Corporation and of its directors and shareholders, and all matters concerning the conduct and regulation of the business of the Corporation, shall be subject to such provisions in regard thereto, if any, as are set forth in said Articles of Incorporation.

Section I.2 All references in these Bylaws to the Articles of Incorporation shall be construed to mean the Articles of Incorporation of the Corporation as amended from time to time.

Section I.3 The registered office of the Corporation may be the same as the principal office of the Corporation, but in any event must be located in the State of Michigan, and must be the business office of the registered agent, as required by the Michigan Business Corporation Act (the "MBCA"). The Corporation may have business offices at such other places, either within or without the State of Michigan, as the Board of Directors may designate or as the business of the Corporation may require from time to time.

ARTICLE II SHAREHOLDERS

Section II.1 Annual Meeting. The annual meeting of the shareholders of the Corporation shall be held at the principal office of the Corporation, or at such other place as may be set forth in the notice thereof, in August or September of each year, at a date and time as designated by the Board of Directors, for the purpose of election of Directors to succeed those whose terms expire and for the transaction of such other business as may properly come before the meeting. The Board of Directors, for good and sufficient reasons, may schedule the annual meeting at any other time, and notice shall be given or waived as provided in Section 2.4 hereof.

Section II.2 Special Meetings. Special Meetings of the shareholders (or of any specific class thereof), for any purpose or purposes, unless otherwise prescribed by statute or by the Articles of Incorporation, may be called by the President and shall be called by the President or Secretary at the request in writing of a majority of the Board of Directors, or at the request in writing of a shareholder or shareholders owning at least ten percent (10%) of the number of shares of stock (or, with respect to meetings of a specific class, the number of shares of such specific class thereof) of the Corporation issued and outstanding and entitled to vote. Such request shall state the purpose or purposes of the proposed meeting. Upon the closing of the first sale of the Corporation's common stock pursuant to a firmly underwritten registered public offering (the "IPO"), special meetings of the shareholders may be called only by the President and shall be called by the President at the request in writing of a majority of the Directors then in office, and shall be held at such place, on

such date, and at such time as the President or shall fix. Business transacted at special meetings shall be confined to the purpose or purposes stated in the notice.

Section II.3 List of Shareholders. The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least ten (10) days before every meeting of shareholders, a complete list of the shareholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each shareholder and the number of shares registered in the name of each shareholder. Such list shall be open to the examination of any shareholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least ten (10) days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any shareholder who is present.

Section II.4 Notice of Meetings. Written notice of the time, place and purposes of the meeting of shareholders shall be given not less than 10 nor more than 60 days before the date fixed for such meeting to each shareholder of record entitled to vote at the meeting. Notice shall be deemed duly served when the same has been personally delivered or deposited in the United States Mail, with postage fully prepaid, addressed to the shareholder at such shareholder's address as it appears on the records of the Corporation. Written notice may also be given by facsimile or telegram, and such notice shall be deemed to be given when the recipient receives the notice personally, or when confirmation of transmission of the notice to the shareholder's address as it appears on the books and records of the Corporation has been delivered to the Corporation or to the equipment transmitting such notice. Such notice shall be given by or under the direction of the Secretary of the Corporation, and in the absence or refusal of the Secretary to give such notice, notice shall be given by or under the direction of any other officer of the Corporation. No notice need be given of an adjourned meeting of the shareholders provided the time and place to which such meeting is adjourned is announced at the meeting at which the adjournment is taken and at the adjourned meeting only such business is transacted as might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each shareholder of record entitled to vote at the meeting. A waiver of such notice in writing, signed by a person entitled to said notice, whether before or after the time of the meeting, shall be deemed equivalent to said notice. Attendance of a person at a meeting of shareholders, in person or by proxy, shall constitute a waiver of such notice, except when the attendance is for the express and sole purpose of objecting to the transaction of any business, clearly stated at the commencement of the meeting, by reason of a claim that a meeting was not lawfully called or convened.

Section II.5 Transaction of Business. At an annual or special meeting of the shareholders, only such business shall be conducted as shall have been properly brought before the meeting. To be properly brought before a meeting, business must be (a) specified in the notice of meeting (or any supplement thereto) given by or at the direction of the Secretary or other officer of the Corporation, (b) properly brought before the meeting by or at the direction of the Board of

Directors, (c) properly brought before an annual meeting by a shareholder, or (d) properly brought before a special meeting by a shareholder, but if, and only if, the notice of a special meeting provides for business to be brought before the meeting by shareholders. For business to be properly brought before a meeting by a shareholder, the shareholder must have given timely notice thereof in writing to the Secretary of the Corporation. To be timely, a shareholder proposal to be presented at an annual meeting shall be received at the Corporation's principal executive offices not less than 120 calendar days in advance of the date that the Corporation's (or the Corporation's predecessor's) proxy statement was released to shareholders in connection with the previous year's annual meeting of shareholders, except that if no annual meeting was held in the previous year or the date of the annual meeting has been changed by more than 30 calendar days from the date contemplated at the time of the previous year's proxy statement, or in the event of a special meeting, notice by the shareholder to be timely must be received not later than the close of business on the tenth day following the day on which such notice of the date of the meeting was mailed or such public disclosure was made. A shareholder's notice to the Secretary shall set forth as to each matter the shareholder proposes to bring before the annual or special meeting (a) a brief description of the business desired to be brought before the annual or special meeting and the reasons for conducting such business at the special meeting, (b) the name and address, as they appear on the Corporation's books, of the shareholder proposing such business, (c) the class and number of shares of the Corporation which are beneficially owned by the shareholder, and (d) any material interest of the shareholder in such business.

Section II.6 Quorum. The holders of a majority of the stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the shareholders (or any specific class thereof) for the transaction of business except as otherwise provided by statute or by the Articles of Incorporation. If, however, such quorum shall not be present or represented by any meeting of the shareholders, the chairman of the meeting or the holders of a majority of shares of stock entitled to vote thereat who are present, in person or represented by proxy, shall have the power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present or represented.

Section II.7 Voting and Record Date. In order that the Corporation may determine the shareholders entitled to notice of or to vote at any meeting of shareholders or any adjournment thereof, or to express consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution of allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be (i) more than sixty (60) nor less than ten (10) days before the date of such meeting, nor (ii) more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board of Directors for action by shareholder consent in writing without a meeting, nor (iii) more than sixty (60) days prior to any other action. If a record date is not fixed (a) the record date for determination of shareholders entitled to vote at a meeting of shareholders shall be the close of business on the day next preceding the day on which notice of such meeting is given, and (b) the record date for determining shareholders for any purpose other

than that specified in subdivision (a) shall be the close of business on the day on which the resolution of the Board relating thereto is adopted. When a determination of shareholders of record entitled to vote at a meeting of shareholders has been made as provided in this Section, the determination applies to any adjournment of the meeting, unless the Board fixes a new record date under this Section for the adjourned meeting.

Section II.8 Proxies. A proxy, given by a shareholder to another person, authorizing such other person to vote the shares of such shareholder, shall be in writing and signed by the shareholder or his authorized agent or representative. A proxy shall not be valid after the expiration of three (3) years from its date unless otherwise provided therein. All proxies shall be filed with the Secretary at or before the meeting at which they are intended to be used. A proxy shall be deemed sufficient if it appears on its face to confer the requisite authority and is signed by the owner of the stock to be voted. No witnesses to the execution of any proxy shall be required.

Section II.9 Inspectors. The Board of Directors, in advance of a shareholders meeting, may appoint one or more inspectors to act at the meeting or any adjournment thereof. If inspectors are not so appointed, the person presiding at a shareholders meeting may, and on request of a shareholder entitled to vote thereat shall, appoint one or more inspectors. In case a person appointed fails to appear or act, the vacancy may be filled by appointment made by the Board of Directors in advance of the meeting or at the meeting by the person presiding thereat. The inspectors shall determine the number of shares outstanding and the voting power of each, the shares represented at the meeting, the existence of a quorum, the validity and effect of proxies, and shall receive votes, ballots or consents, hear and determine challenges and questions arising in connection with the right to vote, count and tabulate votes, ballots or consents, determine the result, and do such acts as are proper to conduct the election or vote with fairness to all shareholders. On request of the person presiding at the meeting or a shareholder entitled to vote thereat, the inspectors shall make and execute a written report to the person presiding at the meeting of any of the facts found by them and matters determined by them. The report shall be prima facie evidence of the facts stated and of the vote as certified.

Section II.10 Action by Written Consent. The shareholders of the Corporation shall have the ability to take action without a meeting only as provided in the Articles of Incorporation.

Section II.11 Voting of Shares by Certain Holders.

(a) Voting by Trustee or Fiduciary. Shares standing in the name of any person as trustee or other fiduciary may be voted and all rights incident thereto may be exercised only by the trustee or other fiduciary, in person or by proxy, and without proof of authority.

(b) Voting of Pledged Stock. Unless the Corporation has specific written instructions to the contrary, from the pledgee and pledgor, pledged stock may be voted by the pledgor only.

(c) Voting by Guardian of Incompetent. Shares standing
adjudged in the name of a person incompetent may be voted and all rights incident thereto may be exercised only by his guardian, in person or by proxy.

(d) Voting by Executor or Administrator. Shares standing in
the name of a deceased person may be voted and all rights incident thereto may be exercised only by his executor or administrator, in person or by proxy.

(e) Voting by Guardian of Minor. Shares standing in the name
of a minor may be voted and all rights incident thereto may be exercised by his guardian, in person or by proxy, or in the absence of such representation by his guardian, by the minor, in person or by proxy, whether or not the Corporation has notice, actual or constructive, of the nonage or the appointment of a guardian, and whether or not a guardian has been in fact appointed.

(f) Voting of Shares in Name of Corporation. Shares standing in
the name of a corporation, domestic or foreign, may be voted or represented and all rights incident thereto may be exercised on behalf of that corporation by the persons described in any of the following subdivisions:

(1) Any officer of the Corporation authorized so to do by the Bylaws of that Corporation.

(2) Any person authorized so to do by resolution of the Board of Directors or a duly authorized committee of the Board of Directors of that Corporation.

(3) Any person authorized so to do by proxy or power of attorney duly executed by the President or Vice President and Secretary or Assistant Secretary of that Corporation.

However, such shares may be voted or represented by the persons described in any subdivision only in the absence of vote or representation by the persons described in a preceding subdivision of this subparagraph.

(g) Voting Shares in Names of Two or More Persons. Shares
standing in the names of two or more persons shall be voted or represented in accordance with the vote or consent of the majority of the persons in whose names the shares stand. If only one such person is present in person or by proxy, he may vote all the shares, and all the shares standing in the names of such persons are represented for the purpose of determining a quorum. This applies to the voting of shares by two or more administrators, executors, trustees, or other fiduciaries, unless the instrument or order of court appointing them otherwise directs.

ARTICLE III BOARD OF DIRECTORS

Section III.1 General Powers. The property, affairs and business of the Corporation shall be managed by the Board of Directors.

Section III.2 Number, Qualification and Term of Office. Unless otherwise provided in the Articles of Incorporation, the Board of Directors shall be divided into three classes, as nearly equal in numbers as the then total number of directors constituting the entire Board of Directors permits, with the term of office of one class expiring each year. The term of office of directors in the first class shall expire at the first annual meeting of shareholders after their election, the term of office of directors in the second class shall expire at the second annual meeting of shareholders after their election, and the term of office of directors in the third class shall expire at the third annual meeting of shareholders after their election. The directors elected at the 1994 Annual Shareholders Meeting will be classified into terms of one, two or three years, by resolution of the Board of Directors. At each annual meeting of shareholders after such classification of the Board of Directors, a number of directors equal to the number of the class whose term expires at the meeting shall be elected to hold office until the third succeeding annual meeting. Directors shall hold office until the next election of the class for which such directors shall have been chosen and until their successors are elected and qualified, except in the case of the death, resignation or removal of any Director. Directors need not be shareholders of the Corporation. The size of the Board of Directors shall be within the range of five to nine directors, with the exact size to be fixed from time to time by resolution of the Board of Directors.

Section III.3 Vacancies. The shareholders may, at any meeting called for such purpose, by a vote of a majority of the capital stock issued and outstanding and entitled to vote thereon, remove any Director from office, with or without cause. Any Director may resign by written notice to the President, such resignation to be effective upon its receipt by the President or at such subsequent time as may be specified in the notice of resignation. Subject to the rights of the holders of any series of Preferred Stock then outstanding, newly created directorships resulting from any increase in the authorized number of Directors or any vacancies in the Board of Directors resulting from death, resignation, retirement, disqualification or other cause may be filled only by a majority vote of the directors then in office, though less than a quorum, and Directors so chosen shall hold office for a term expiring at the next annual meeting of shareholders at which the term of office of the class to which they have been elected expires, except in the case of death, resignation or removal of any Director. No decrease in the number of Directors constituting the Board of Directors shall shorten the term of any incumbent Director. Acceptance of resignation shall not be necessary for it to be effective.

Section III.4 Meetings of the Board of Directors. The Board of Directors shall hold an annual meeting immediately following the annual shareholders meeting, for the purpose of electing officers and for the transaction of such other business as may properly come before the meeting. No notice of such annual meeting shall be necessary to the newly elected directors in order legally to constitute the meeting, provided a quorum shall be present, unless said meeting is held, by a consent of a majority of the Directors of such new Board, at a time and place other then at the place of holding and immediately following the annual meeting of shareholders. Special meetings of the Board of Directors may be held at any place either within or without the State of Michigan at any

time pursuant to resolution adopted by the Board of Directors or upon call of the President or any two (2) officers.

Section III.5 Notice of Meetings. Notice of meetings of Directors shall be given or waived in the same manner as notice of meetings of shareholders, as provided in Section 2.4, except that notice of Directors meetings shall be given not later than two (2) nor more than ten (10) days prior to such meetings.

Section III.6 Quorum and Required Vote of Board. A majority of the total number of Directors shall constitute a quorum for the transaction of business, and the act of a majority of the Directors present at any meeting at which a quorum is present shall be the act of the Board of Directors. Amendment of these Bylaws by the Board requires the vote of not less than a majority of the members of the Board then in office.

Section III.7 Telephonic Meetings. A member of the Board or of a committee designated by the Board may participate in a meeting by means of conference telephone or similar communications equipment by which all persons participating in the discussion can hear each other. Participation in a meeting pursuant to this provision constitutes presence in person at the meeting.

Section III.8 Board Action Without Meeting. If all of the Directors then constituting the Board of Directors of the Corporation or of any committee of the Board of Directors shall severally and/or collectively consent in writing to any action to be taken, such action shall have the same effect as though it had been authorized at a duly called and properly held meeting of the Board of Directors or such committee. Such written consent shall be filed with the minutes of the proceedings of the Board.

Section III.9 Committees. The Board of Directors may, by resolution or resolutions, passed by a majority of the whole Board of Directors, designate one or more committees, each committee to consist of one (1) or more of the Directors of the Corporation, which, to the extent provided in said resolution or resolutions or in other provisions of these Bylaws, shall have and may exercise the powers of the Board of Directors in the management of the business and affairs of the Corporation, and may have the power to authorize the seal of the Corporation to be affixed to all papers which may require it.

Section III.10 Compensation. By resolution of the Board of Directors, the Directors may be paid their expenses, if any, of attendance at each meeting of the Board, and may be paid a fixed sum for attendance. No such payment shall preclude any Director from serving the Corporation in any other capacity and receiving compensation therefor. Members of the committees shall be allowed similar compensation for attending committee meetings.

Section III.11 Presumption of Assent. A Director of the Corporation who is present at a meeting of the Board at which action on any corporate matter is taken shall be presumed to have assented to the action taken unless his dissent shall be entered in the minutes of the meeting or

unless he shall file his written dissent to such action with the person acting as Secretary of the meeting before the adjournment thereof, or by registered mail to such Secretary immediately after the adjournment thereof. This shall not apply to a Director who voted in favor of such action.

ARTICLE IV OFFICERS AND AGENTS

Section IV.1 General. The Corporation shall have a President, a Secretary, and a Treasurer, and, if desired, a Chairman of the Board and one or more Vice Presidents, Assistant Secretaries and Assistant Treasurers. All officers of the Corporation shall be elected by the Directors and shall hold office until their successors are elected and qualified. The Corporation may also have such other officers, agents and factors as may be deemed necessary for the transaction of the business of the Corporation, who shall be chosen in such manner and hold their offices for such terms and have such authority and duties as may be determined by the Board of Directors. The Board of Directors may secure the fidelity of any and/or all of such officers by bond or otherwise and may also provide for the qualification of any or all of such officers before any person authorized by law to administer an oath. The Board of Directors, by resolution, may require any or all of the officers of the Corporation to give bonds, in favor of the Corporation, with sufficient surety or sureties, and in such amounts as the Board of Directors may fix, conditioned on the faithful performance of the duties of their respective offices. The President shall be chosen from among the Directors. Any two offices except those of President and Vice President may be held by the same person but no officer shall execute, acknowledge or verify any instrument in more than one capacity. Subject to these Bylaws, each officer shall have in addition to the duties and powers herein set forth, such duties and powers as are commonly incident to his office, and such duties and powers as the Board of Directors shall from time to time designate. In all cases where the duties of any officer, agent or employee are not specifically prescribed by the Bylaws or by the Board of Directors, such officer, agent or employee shall obey the orders and instructions of the President. Compensation of the officers shall be as authorized by the Board of Directors.

Section IV.2 Duties of the President. The President shall, subject to the direction and under the supervision of the Board of Directors, be the chief executive officer of the Corporation and shall have general and active control of its affairs and business and general supervision over its officers, agents and employees. The President shall also appoint and discharge all subordinate agents and employees and fix their salaries, subject to review by the Board of Directors, and shall designate their duties. He shall preside at all meetings of the shareholders and, unless a Chairman of the Board has been elected, at all meetings of the Board of Directors, at which he is present. The President shall have custody of the Treasurer's bond, if any.

Section IV.3 Duties of the Chairman of the Board. The Board of Directors may elect or appoint a Chairman of the Board. The Chairman of the Board shall, if present, preside at all meetings of the Board of Directors and shall exercise and perform such other powers and duties as may be assigned to him from time to time by the Board of Directors or prescribed by these Bylaws.

Section IV.4 Duties of the Vice President. The Board of Directors may elect or appoint one or more Vice Presidents. The Vice Presidents, if such be elected, shall, subject to the direction

and under the supervision of the President, be the assistant chief executive officer of the Corporation and shall assist the President in the general and active control of its affairs in business. The Vice Presidents shall perform all the duties of the President in case of the absence or disqualification of the President. Any of such Vice Presidents shall preside at all meetings of the shareholders in the absence or unavailability of the President.

Section IV.5 Duties of the Secretary. The Secretary shall: (a) keep the minutes of the proceedings of the shareholders and of the Board of Directors in one or more books provided for that purpose; (b) see that all notices are duly given in accordance with the provisions of these Bylaws or as required by law; (c) be custodian of the corporate records and of the seal of the Corporation and ensure that the seal of the Corporation is affixed to all documents the execution of which on behalf of the Corporation under its seal is duly authorized; (d) keep a register of the post office address of each shareholder which shall be furnished to the Secretary by such shareholder; and (e) perform all duties incident to the office of secretary and such other duties as from time to time may be assigned to him by the President or by the Board of Directors. The Secretary also shall have charge of the stock ledger (which may, however, be kept by any transfer agent or agents of the Corporation under the direction of the Secretary), the original or duplicate of which shall, at all times, during the usual hours for business, be open to the examination of every shareholder at the principal office or place of business of the Corporation in Michigan. In the absence of the Secretary from any meeting, a temporary Secretary shall be chosen, who shall be sworn to the faithful discharge of his duty and shall record the proceedings of such meeting in the aforesaid books.

Section IV.6 Duties of the Treasurer. The Treasurer shall, subject to the direction and under the supervision of the Board of Directors, the President and the Vice President, have the care and custody of the funds and valuable papers of the Corporation, except his own bond, and he shall have power to endorse for deposit or collection all notes, checks, drafts and other obligations for the payment of money to the Corporation or its order. He shall keep, or cause to be kept, at the principal office of the Corporation accurate books of account, which shall be the property of the Corporation. He shall disburse the funds of the Corporation as may be ordered by the Board of Directors, taking proper vouchers for such disbursements, and shall render to the President and Directors, when they so direct, an account of all his transactions as Treasurer and of the financial condition of the Corporation.

Section IV.7 Assistant Secretaries and Assistant Treasurers. The Assistant Secretary or Assistant Secretaries, in the absence or disability of the Secretary, shall perform the duties and exercise the powers of the Secretary. The Assistant Treasurer or Assistant Treasurers, in the absence or disability of the Treasurer, shall perform the duties and exercise the powers of the Treasurer. Any Assistant Treasurer, if required by the Board, shall keep in force a bond as provided in Section 4.1. The Assistant Secretaries and Assistant Treasurers, in general, shall exercise and perform such other powers and duties as shall be assigned to them by the Secretary or by the Treasurer, respectively, or by the Board of Directors or the President.

Section IV.8 Vacancies. The Board of Directors may, at any meeting called for the purpose, by vote of a majority of their number, remove from office any officer of the Corporation,

with or without cause. Any officer may resign by written notice to the President, which resignation may be effective upon its receipt by the President or at such subsequent time as may be specified in the notice of resignation, PROVIDED, HOWEVER, that the resignation of the President shall be submitted to the Board of Directors. The Board of Directors may, at any meeting, accept the resignation of any officer or remove or accept the resignation of any agent or member of a committee, and may fill such vacancy for the unexpired term and until the successor thereof shall be duly elected and qualified. Acceptance of resignation shall not be necessary for it to be effective.

ARTICLE V CAPITAL STOCK

Section V.1 Issuance. The shares of capital stock of the Corporation shall be issued by the Board of Directors in such amounts, at such times, for such consideration, and on such terms and conditions as the Board shall deem advisable, subject to the provisions of the Articles of Incorporation of the Corporation and the further provisions of these Bylaws.

Section V.2 Stock Certificates. The shares of the capital stock of the Corporation shall be represented by certificates signed and sealed in accordance with the provisions of the laws of the State of Michigan. Certificates shall have a form and content complying with the laws of the State of Michigan and approved by the Board of Directors of the Corporation. Certificates of stock shall bear the signature of the President, and shall be signed by the Secretary, Assistant Secretary, or any other officer appointed by the Board of Directors for the purpose, to be known as an Authorized Officer. The signatures of the officers may be facsimiles if the certificate is countersigned by a transfer agent or registered by a registrar other than the Corporation itself or its employee. In case an officer who has signed or whose facsimile signature has been placed upon a certificate ceases to be such officer before the certificate is issued, it may be issued by the Corporation with the same effect as if he were such officer at the date of issue. Each certificate shall recite on its face the stock represented thereby is transferable only upon the books of the Corporation properly endorsed. A certificate representing shares issued by a corporation which is authorized to issue shares of more than one class shall set forth on its face or back or state that the Corporation will furnish to a shareholder upon request and without charge a full statement of the designation, relative rights, preferences and limitations of the shares of each class authorized to be issued, and if the Corporation is authorized to issue any class of shares in series, the designation, relative rights, preferences and limitations of each series so far as the same have been prescribed and the authority of the Board to designate and prescribe the relative rights, preferences and limitations of other series.

Section V.3 Transfers. Upon surrender to the Corporation or the transfer agent of the Corporation of a certificate for shares duly endorsed or accompanied by proper evidence of succession, assignment or authority to transfer, it shall be the duty of the Corporation to issue a new certificate to the person entitled thereto, cancel the old certificate and record the transaction upon its books.

Section V.4 Ownership. The Corporation shall be entitled to treat the person in whose name any share of stock is registered as the owner thereof for purposes of dividends and other distributions in the course of business, or in the case of recapitalization, consolidation, merger, reorganization, sale of assets, liquidation or otherwise and for the purpose of votes, approvals and consents by shareholders, and for the purpose of notice to shareholders, and for all other purposes whatever, and shall not be bound to recognize any equitable or other claim to or interest in such shares on the part of any other person, whether or not the Corporation shall have notice thereof, save as expressly required by the laws of the State of Michigan.

Section V.5 Replacement of Certificates. Upon the presentation to the Corporation of a proper affidavit attesting the loss, destruction or mutilation of any certificate for shares of stock of the Corporation, the Board of Directors may direct the issuance of a new certificate in lieu of and to replace the certificate so alleged to be lost, destroyed and mutilated. The Board of Directors may require as a condition precedent to the issuance of a new certificate any or all of the following, to wit: (a) Additional evidence of the loss, destruction or mutilation claimed; (b) Advertisement of the loss in such manner as the Board of Directors may direct or approve; (c) A bond or agreement of indemnity, in such form and amount and with such surety (or without surety) as the Board of Directors may direct or approve; or (d) The order or approval of a court.

Section V.6 Transfer Agent and Registrar. The Board of Directors may appoint a transfer agent and a registrar for the registration of transfers of its securities.

Section V.7 Regulations. The Board of Directors shall have power and authority to make all such rules and regulations as the Board shall deem expedient regulating the issue, transfer and registration of certificates for shares of this Corporation.

Section V.8 Dividends. The Board of Directors, in its discretion from time to time, may declare dividends upon the capital stock from the surplus of the Corporation as permitted by the MBCA, subject to the Articles of Incorporation.

Section V.9 Reserves. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or for such other purpose as the Directors shall think conducive to the interest of the Corporation, and the Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE VI INDEMNIFICATION OF OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS

Section VI.1 Indemnification of Directors and Officers: Claims by Third Parties. The Corporation shall, to the fullest extent authorized or permitted by the MBCA or other applicable law, as the same presently exists or may hereafter be amended, indemnify a director or officer (the

"Indemnitee") who was or is a party or is threatened to be made a party to a threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative and whether formal or informal, other than an action by or in the right of the Corporation, by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, partner, trustee, employee, or agent of another foreign or domestic corporation, partnership, joint venture, trust, or other enterprise, whether for profit or not, against expenses, including attorneys' fees, judgments, penalties, fines, and amounts paid in settlement actually and reasonably incurred by him or her in connection with the action, suit, or proceeding, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation or its shareholders, and with respect to a criminal action or proceeding, if the Indemnitee had no reasonable cause to believe his or her conduct was unlawful. The termination of an action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, does not, of itself, create a presumption that the Indemnitee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Corporation or its shareholders, and, with respect to a criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

Section VI.2 Indemnification of Directors and Officers: Claims Brought By or In the Right of the Corporation. The Corporation shall, to the fullest extent authorized or permitted by the MBCA or other applicable law, as the same presently exists or may hereafter be amended, indemnify a director or officer (the "Indemnitee") who was or is a party to or is threatened to be made a party to a threatened, pending, or completed action or suit by or in the right of the Corporation to procure a judgment in its favor by reason of the fact that he or she is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, partner, trustee, employee, or agent of another foreign or domestic corporation, partnership, joint venture, trust, or other enterprise, whether for profit or not, against expenses, including actual and reasonable attorneys' fees, and amounts paid in settlement incurred by the person in connection with the action or suit, if the Indemnitee acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the Corporation or its shareholders. However, indemnification under this Section shall not be made for a claim, issue, or matter in which the Indemnitee has been found liable to the Corporation unless and only to the extent that the court in which the action or suit was brought has determined upon application that, despite the adjudication of liability but in view of all circumstances of the case, the Indemnitee is fairly and reasonably entitled to indemnification for the expenses which the court considers proper.

Section VI.3 Actions by the Indemnitee. Notwithstanding the provisions of Sections 6.1 and 6.2, the Corporation shall not indemnify an Indemnitee in connection with any action, suit, proceeding or claim (or part thereof) brought or made by such Indemnitee; unless such action, suit, proceeding or claim (or part thereof) (i) was authorized by the Board of Directors of the Corporation, or (ii) was brought or made to enforce this Article and such Indemnitee has been successful in such action, suit, proceeding or claim (or part thereof).

Section VI.4 Approval of Indemnification. An indemnification under Sections 6.1 or 6.2 hereof, unless ordered by a court, shall be made by the Corporation only as authorized in the specific case upon it determination that indemnification of the Indemnitee is proper in the circumstances because such Indemnitee has met the applicable standard of conduct set forth in Sections 6.1 and 6.2. This determination shall be made in any of the following ways:

(a) By a majority vote of a quorum of the Board consisting of Directors who were not parties to the action, suit, or proceeding.

(b) If the quorum described in subdivision (a) is not obtainable, then by a majority vote of it committee of Directors who are not parties to the action. The committee shall consist of not less than two (2) disinterested Directors.

(c) By independent legal counsel in a written opinion.

(d) By the shareholders.

Section VI.5 Advancement of Expenses. Expenses incurred in defending a civil or criminal action, suit, or proceeding described in Section 6.1 or 6.2 above shall be paid by the Corporation in advance of the final disposition of the action, suit, or proceeding upon receipt of an undertaking by or on behalf of the Indemnitee to repay the expenses if it is ultimately determined that the Indemnitee is not entitled to be indemnified by the Corporation. The undertaking shall be by unlimited general obligation of the person on whose behalf advances are made but need not be secured.

Section VI.6 Partial Indemnification. If an Indemnitee is entitled to indemnification under Section 6.1 or 6.2 for a portion of expenses including attorneys' fees, judgments, penalties, fines, and amounts paid in settlement, but not for the total amount thereof, the Corporation shall indemnify the Indemnitee for the portion of the expenses, judgments, penalties, fines, or amounts paid in settlement for which the Indemnitee is entitled to be indemnified.

Section VI.7 Indemnification of Employees and Agents. Any person who is not covered by the foregoing provisions of this Article and who is or was an employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise, may be indemnified to the fullest extent authorized or permitted by the MBCA or other applicable law, as the same exists or may hereafter be amended, but in the case of any such amendment, only to the extent such amendment permits the Corporation to provide broader indemnification rights than before such amendment, but in any event only to the extent authorized at any time or from time to time by the Board of Directors.

Section VI.8 Other Rights of Indemnification. The indemnification or advancement of expenses provided under Sections 6.1 to 6.7 is not exclusive of other rights to which a person seeking indemnification or advancement of expenses may be entitled under the Articles of

Incorporation, Bylaws, or a contractual agreement. However, the total amount of expenses advanced or indemnified from all sources combined shall not exceed the amount of actual expenses incurred by the person seeking indemnification or advancement of expenses. The indemnification provided for in Sections 6.1 to 6.7 continues as to a person who ceases to be a director, officer, employee, or agent and shall inure to the benefit of the heirs, executors, and administrators of the person.

Section VI.9 Definitions. "Other enterprises" shall include employee benefit plans; "fines" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and "serving at the request of the corporation" shall include any service as a director, officer, employee, or agent of the corporation which imposes duties on, or involves services by, the director, officer, employee, or agent with respect to an employee benefit plan, its participants or beneficiaries; and a person who acted in good faith and in a manner he or she reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be considered to have acted in a manner "not opposed to the best interests of the corporation or its shareholders" as referred to in Sections 6.1 and 6.2.

Section VI.10 Application to a Resulting or Surviving Corporation or Constituent Corporation. The definition for "corporation" found in Section 569 of the MBCA, as the same exists or may hereafter be amended, is and shall be, specifically excluded from application to this Article. The indemnification and other obligations of the Corporation set forth in this Article shall be binding upon any resulting or surviving corporation after any merger or consolidation of the Corporation. Notwithstanding anything to the contrary contained herein or in Section 569 of the MBCA, no person shall be entitled to the indemnification and other rights set forth in this Article for acting as a director or officer of another corporation prior to such other corporation entering into a merger or consolidation with the Corporation.

Section VI.11 Contract With the Corporation. The right to indemnification conferred in this Article VI shall be deemed to be a contract between the Corporation and each director or officer who serves in any such capacity at any time while this Article VI is in effect, and any repeal or modification of any such law or of this Article VI shall not affect any rights or obligations then existing with respect to any state of facts then or theretofore existing or any action, suit or proceeding theretofore or thereafter brought or threatened based in whole or in part upon any such state of facts. In the event this Article is repealed or modified, the Corporation shall give written notice thereof to the directors and officers and any such repeal or modification shall not be effective for a period of sixty (60) days after such notice is delivered.

Section VI.12 Liability Insurance. The Corporation shall have the power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Corporation or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise against any liability asserted against and incurred by such person in any such capacity or arising out of such person's status as such, regardless of whether the Corporation would have the power to indemnify such person against such liability under the provisions of the MBCA.

Section VI.13 Severability. Each and every paragraph, sentence, term and provision of this Article VI shall be considered severable in that, in the event a court finds any paragraph, sentence, term or provision to be invalid or unenforceable, the validity and enforceability, operation, or effect of the remaining paragraphs, sentences, terms, or provisions shall not be affected, and this Article VI shall be construed in all respects as if the invalid or unenforceable matter had been omitted.

Section VI.14 Enforcement. If a claim under this Article is not paid in full by the Corporation within thirty days after a written claim has been received by the Corporation, the claimant may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim, and, if successful in whole or in part, the claimant shall be entitled to be paid also the expense of prosecuting such claim. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in defending any proceeding in advance of its final disposition where the required undertaking, if any is required, has been tendered to the Corporation) that the claimant has not met the standards of conduct which make it permissible under the MBCA for the Corporation to indemnify the claimant for the amount claimed, but the burden of proving such defense shall be on the Corporation. Neither the failure of the Corporation (including its Board of Directors, a committee thereof, independent legal counsel, or its shareholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because such claimant has met the applicable standard of conduct set forth in the MBCA nor an actual determination by the Corporation (including its Board of Directors, a committee thereof, independent legal counsel, or its shareholders) that the claimant has not met applicable standard of conduct, shall be a defense to the action or create a presumption that the claimant has not met the applicable standard of conduct.

ARTICLE VII EXECUTION OF PAPERS

The officers of the Corporation may sell any or all of its holdings of stock, bonds, or securities of other corporations, or government securities; sign all deeds, mortgages, assignments of mortgages, discharges of mortgages, bills of sale, leases and other conveyances and transactions of any interest in property, real, personal or mixed, to the extent that the Board of Directors of the Corporation may from time to time specify in resolutions approved by the Board. The Board may in any instance designate the officers and agents who shall have authority to execute any contract, conveyance or other instrument on behalf of the Corporation, and may also ratify and affirm such execution. Any such instrument or document shall be binding on the Corporation if executed by the President or a Vice President. In addition, any such instrument or document shall be binding on the Corporation if signed by any other officer designated by the Board on behalf of the Corporation.

ARTICLE VIII BANKING

Section VIII.1 Bank Accounts. The Board of Directors shall by resolution designate the bank or banks in which the funds of the Corporation shall be deposited, and such funds shall be

deposited in the name of the Corporation and shall be subject to checks drawn as authorized by resolution of the Board of Directors.

Section VIII.2 Borrowing. To the extent authorized by law, the Corporation may, wherever its general interests and corporate purpose require the same, borrow money and issue its promissory notes, debentures or bonds for the repayment thereof with interest, and may in like case mortgage, pledge or encumber its property as security for its debts or other lawful engagements.

ARTICLE IX VOTING STOCK IN OTHER CORPORATIONS

Unless otherwise ordered by the Board of Directors, the President shall have full power and authority on behalf of the Corporation to attend and to act and to vote at any meetings of shareholders of any corporation in which this Corporation may hold stock, and at any such meeting shall possess and may exercise any and all of the rights and powers incident to the ownership of such stock, PROVIDED, HOWEVER, that such rights shall be exercised in the best interests of this Corporation. The Board of Directors may, by resolution, from time to time confer like powers upon any other person or persons, but the same shall not be effective unless actually received by such other corporation prior to the meeting of shareholders in which such other person is to act. The President, or in his absence or disability, a Vice President of the Corporation, may authorize from time to time the signature and issuance of proxies to vote such stock of other corporations owned by this Corporation, and all such proxies shall be signed in the name of this Corporation by the President or Vice President and the Secretary or Assistant Secretary, or by any two officers authorized by the Board of Directors.

ARTICLE X SUBSIDIARIES

The Board of Directors may establish, reorganize and/or dissolve wholly- or partly-owned subsidiaries of the Corporation. The Articles of Incorporation and Bylaws of any such subsidiary shall not, without approval of the shareholders of this Corporation, substantially differ from the Articles of Incorporation and Bylaws, respectively, of this Corporation.

ARTICLE XI FISCAL YEAR

Except as from time to time otherwise provided by the Board of Directors, the fiscal year of the Corporation shall end on the last day of June.

ARTICLE XII CORPORATE BOOKS AND RECORDS

The Corporation shall keep books and records of account and minutes of the proceedings of its shareholders, Board of Directors and executive committees, if any. The books, records and minutes may be kept outside this state. The Corporation shall keep at its registered office, or at the office of its transfer agent within or without this state, records containing the names and addresses of all shareholders, the number, class and series of shares held by each and the dates when they respectively became holders of record thereof. Any of such books, records or minutes

may be in written form or in any other form capable of being converted into written form within a reasonable time. The Corporation shall convert into written form without charge any such record not in such form, upon written request of a person entitled to inspect them.

ARTICLE XIII AMENDMENTS

Except as otherwise expressly provided in the Articles of Incorporation or in these Bylaws, these Bylaws may be altered, amended or repealed by any duly adopted resolution of the Board of Directors or at any annual or special meeting of the shareholders. The Board of Directors, however, shall not adopt or alter any Bylaws fixing the number, qualifications, classifications or term of office of Directors. If the amendment is to be adopted at a special meeting of the shareholders, the notice thereof shall specify the subject matter of the proposed alteration, amendment or repeal and the Articles of these Bylaws to be affected thereby. Bylaws adopted by the Directors may be altered or repealed by the Directors or shareholders. Provided, further, that neither the time nor the place for the election of Directors shall be changed within sixty (60) days next preceding the day on which any election of Directors is to be held, and provided further that a notice of any such change shall be given to each shareholder at least twenty (20) days before the next election is held, in person or by letter mailed to his last known post office address.

ATTEST:

TODD E. SIMPSON, SECRETARY

Includes amendments approved through January 29, 1998

Exhibit 4.3

SECURITIES PURCHASE AGREEMENT

SECURITIES PURCHASE AGREEMENT (this "Agreement"), dated as of June 8, 2000, by and among Aastrom Biosciences, Inc., a Michigan corporation, with headquarters located at 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106 ("Company"), and each of the purchasers set forth on the signature pages hereto (the "Buyers").

WHEREAS:

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

B. The Buyers desire to purchase and the Company desires to issue and sell, upon the terms and conditions set forth in this Agreement, 2,810,305 shares (the "Purchased Shares") of the Company's common stock, no par value (the "Common Stock") for a per share purchase price equal to $2.135, or an aggregate purchase price of $6,000,000. As additional consideration for the purchase of the Purchased Shares, the Company desires to issue to the Buyers up to 3,348,915 warrants in the form attached hereto as Exhibit A (each, a "Warrant" and,
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collectively, the "Warrants"), each Warrant exercisable for one (1) share of Common Stock (subject to adjustment as provided in the Warrants). The shares of Common Stock that are included in the Purchased Shares, together with any shares of Common Stock issued in replacement thereof or as a dividend thereon or otherwise with respect thereto, and any shares of Common Stock issuable pursuant to Section 2(c) of the Registration Rights Agreement (as defined below), are hereinafter referred to as the "Common Shares." The shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants are hereinafter collectively referred to as the "Warrant Shares." The Common Shares, the Warrants and the Warrant Shares are sometimes hereinafter collectively referred to as the "Securities;"

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

D. Contemporaneous with the execution and delivery of this Agreement, the parties hereto are executing and delivering a Registration Rights Agreement, in the form attached hereto as Exhibit B (the "Registration Rights Agreement"),
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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;

E. In connection with and as a condition to the consummation of the transactions contemplated by this Agreement, the Company and the Buyers desire to amend the terms of those certain Warrants, dated as of February 29, 2000, issued by the Company to the Buyers to purchase up to 1,132,075 shares of Common Stock (the "Prior Warrants") by executing and delivering at the Closing (as defined below) an Amendment to Stock Purchase Warrant in the form attached hereto as Exhibit C (the "Prior Warrant Amendment"); and

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

1. Purchase and Sale of Purchased Shares and Warrants; Amendment of Prior Warrants.

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

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

(c) Amendment of Prior Warrants. On the Closing Date, the Company and each Buyer shall amend the Prior Warrant held by such Buyer by executing and delivering a Prior Warrant Amendment with respect thereto. In connection with such amendment, each Buyer shall cause the Prior Warrant held by such Buyer to be endorsed at the Closing with an additional legend in substantially the following form:

"THIS WARRANT HAS BEEN AMENDED PURSUANT TO THE TERMS OF THAT CERTAIN AMENDMENT TO STOCK PURCHASE WARRANT, DATED AS OF JUNE 8, 2000 BY AND BETWEEN THE COMPANY AND THE HOLDER THEREOF."

(d) Closing Date. Subject to the satisfaction (or waiver) of the conditions thereto set forth in Section 7 and Section 8 below, the date and time of the issuance and sale of the

Purchased Shares and Warrants pursuant to this Agreement (the "Closing Date") shall be 12:00 noon Eastern Standard Time on June 8, 2000 or such other mutually agreed upon date and time. The closing of the transaction contemplated by this Agreement (the "Closing") shall occur on the Closing Date at the offices of Klehr, Harrison, Harvey, Branzburg & Ellers LLP, 260 South Broad Street, Philadelphia, Pennsylvania 19102, or at such other location as may be agreed to by the parties.

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

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

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

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

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

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

(f) Transfer or Re-sale. The Buyer understands that (i) except as provided in the Registration Rights Agreement, the sale or re-sale of the Securities has not been and is not being registered under the 1933 Act or any applicable state securities laws, and the Securities may not be

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

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

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

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

Securities, including those represented by a certificate(s) from which the legend has been removed, in compliance with applicable requirements for delivery of a prospectus, and the plan of distribution described therein, contained in an effective registration statement, if any, or if relying on clause (c) of the preceding sentence, with the requirements of Rule 144.

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

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

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

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

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

(b) Authorization; Enforcement. (i) The Company has all requisite corporate power and authority to enter into and perform this Agreement, the Registration Rights Agreement, the Prior Warrant Amendment 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, the Prior Warrant Amendment and the Warrants by the Company and the consummation by it of the transactions contemplated hereby and thereby (including without limitation, the issuance of the Common Shares and Warrants and the issuance and reservation for issuance of the Warrant Shares issuable upon exercise of or otherwise pursuant to the Warrants) have been duly authorized by the Company's Board of Directors and no further consent or authorization of the Company, its Board of Directors, or its stockholders 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, the Prior Warrant Amendment and the Warrants, 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 capital stock of the Company consists of (i) 60,000,000 shares of Common Stock and (ii) 5,000,000 shares of preferred stock. As of June 6, 2000, 30,796,104 shares of Common Stock were issued and outstanding, 2,973,238 shares were reserved for issuance pursuant to the Company's stock option and stock purchase plans, 2,333,595 shares were reserved for issuance pursuant to securities (other than the Warrants) exercisable for, or convertible into or exchangeable for shares of Common Stock and 3,348,915 (maximum number of shares issuable under the Warrants) shares were reserved for issuance upon exercise of the Warrants (subject to adjustment pursuant to the Company's covenant set forth in Section 4(h) below). As of June 6, 2000, no shares of the Company's preferred stock were issued or outstanding. All of such outstanding shares of capital stock are, or upon issuance will be, duly authorized, validly issued, fully paid and nonassessable. Except as disclosed on Schedule 3(c), no shares of capital stock of the Company are subject to preemptive rights or any other similar rights of the stockholders of the Company or any liens or encumbrances imposed through the actions or failure to act of the Company. Except as disclosed in Schedule 3(c), as of the 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 as of February 28, 2000, by and among the Company and RGC International Investors, LDC) and (iii) there are no anti-dilution or price adjustment provisions contained in any security issued by the Company (or in any agreement providing rights to security holders) that will be triggered by the issuance of the Common Shares, the Warrants, or the Warrant Shares. The Company has furnished to the Buyer true and correct copies of the Company's Certificate of Incorporation as in effect on the date hereof ("Certificate of Incorporation"), the Company's By-laws, as in effect on the date hereof (the "By-laws"), and the terms of all securities convertible into or exercisable for Common Stock of the Company and the material rights of the holders thereof in respect thereto. The Company shall provide the Buyer with a written update of this representation signed by the Company's Chief Executive or Chief Financial Officer on behalf of the Company as

of the Closing Date. At the Closing, the Company's chief executive officer shall certify to the Buyers, in writing, that the representations and warranties set forth in this Section 3(c) are true and correct as of the Closing Date, except as set forth in such written certification.

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

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

(f) [Intentionally Omitted]

(g) No Conflicts. The execution, delivery and performance of this Agreement, the Registration Rights Agreement, the Prior Warrant Amendment and the Warrants by the Company and the consummation by the Company of the transactions contemplated hereby and thereby (including, without limitation, the issuance of the Common Shares and the Warrants and the issuance and reservation for issuance of the Warrant Shares) will not (i) conflict with or result in a violation of any provision of the Certificate of Incorporation or By-laws or (ii) violate or conflict with, or result in a breach of any provision of, or constitute a default (or an event which with notice or lapse of time or both could become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture, patent, patent license or instrument to which the Company is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including federal and state securities laws and regulations and regulations of any self-regulatory organizations to which the Company or its securities are subject) applicable to the Company or by which any property or asset of the Company is bound or affected (except for such conflicts, defaults, terminations, amendments, accelerations, cancellations and violations as would not, individually or in the aggregate, have a Material Adverse Effect). The Company is not in violation of its Certificate of Incorporation, By-laws or other organizational documents and the Company is not in default (and no event has occurred which with notice or lapse of time or both could put the Company in default) under, and the Company has not taken any action or failed to take any action that would give to others any rights of termination, amendment, acceleration or

cancellation of, any agreement, indenture or instrument to which the Company is a party or by which any property or assets of the Company is bound or affected, except for possible defaults as would not, individually or in the aggregate, have a Material Adverse Effect. The business of the Company is not being conducted, and shall not be conducted so long as a Buyer owns any of the Securities, in violation of any law, ordinance or regulation of any governmental entity, which violations individually or in the aggregate would have a Material Adverse Effect. Except (i) as specifically contemplated by this Agreement and the Registration Rights Agreement, (ii) as required under the 1933 Act and any applicable state securities laws, and (iii) for filings with Nasdaq (as defined below), the Company is not required to obtain any consent, authorization or order of, or make any filing or registration with, any court, governmental agency, regulatory agency, or self regulatory organization or stock market or third party in order for it to execute, deliver or perform any of its obligations under this Agreement, the Registration Rights Agreement, the Prior Warrant Amendment or the Warrants in accordance with the terms hereof or thereof or to issue and sell the Common Shares and the Warrants in accordance with the terms hereof and to issue the Warrant Shares upon exercise of or otherwise pursuant to the Warrants. Except as disclosed in Schedule 3(g), all consents, authorizations, orders, filings and registrations which the Company is required to obtain pursuant to the preceding sentence have been obtained or effected on or prior to the date hereof. Except as disclosed in Schedule 3(g), the Company is not in violation of the listing requirements of the Nasdaq National Market ("Nasdaq") applicable to continued listings and does not reasonably anticipate that the Common Stock will be delisted by Nasdaq in the foreseeable future. Except for anticipated losses as described in the SEC Documents (as defined below), the Company is unaware of any facts or circumstances which might give rise to any of the foregoing.

(h) SEC Documents; Financial Statements. Since February 6, 1997, the Company has timely filed all reports, schedules, forms, statements and other documents required to be filed by it with the SEC pursuant to the reporting requirements of the Securities Exchange Act of 1934, as amended (the "1934 Act") (all of the foregoing filed prior to the date hereof and all exhibits included therein and financial statements and schedules thereto and documents (other than exhibits to such documents) incorporated by reference therein, being hereinafter referred to herein as the "SEC Documents"). The Company has delivered or made available to each Buyer true and complete copies of the SEC Documents, except for such exhibits and incorporated documents. As of their respective dates, the SEC Documents complied in all material respects with the requirements of the 1934 Act and the rules and regulations of the SEC promulgated thereunder applicable to the SEC Documents, and none of the SEC Documents, at the time they were filed with the SEC, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. None of the statements made in any such SEC Documents is, or has been, required to be amended or updated under applicable law (except for such statements as have been amended or updated in subsequent filings prior to the date hereof). As of their respective dates, the financial statements of the Company included in the SEC Documents complied as to form in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto. Such financial statements have been prepared in accordance with United States generally accepted accounting principles, consistently

applied, during the periods involved (except (i) as may be otherwise indicated in such financial statements or the notes thereto, or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes or may be condensed or summary statements) and fairly present in all material respects the consolidated financial position of the Company and its consolidated Subsidiaries as of the dates thereof and the consolidated results of their operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal year-end audit adjustments). Except as set forth in Schedule 3(h) hereof and the financial statements of the Company included in the SEC Documents, the Company has no liabilities, contingent or otherwise, other than (i) liabilities incurred in the ordinary course of business subsequent to June 30, 1999 and (ii) obligations under contracts and commitments incurred in the ordinary course of business and not required under generally accepted accounting principles to be reflected in such financial statements, which, individually or in the aggregate, are not material to the financial condition or operating results of the Company.

(i) Absence of Certain Changes. Except for operating losses or changes incurred in the normal course of business and as disclosed in the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2000 or in any press release or SEC Document filed after the date of filing of such quarterly report, since June 30, 1999, there has been no material adverse change and no material adverse development in the assets, liabilities, business, properties, operations, financial condition, results of operations or prospects of the Company.

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

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

the foregoing. The Company has taken reasonable security measures to protect the secrecy, confidentiality and value of its Intellectual Property.

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

(m) Tax Status. Except as set forth on Schedule 3(m), the Company has made or filed all federal, state and foreign income and all other tax returns, reports and declarations required by any jurisdiction to which it is subject (unless and only to the extent that the Company has set aside on its books provisions reasonably adequate for the payment of all unpaid and unreported taxes) and has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations, except those being contested in good faith and has set aside on its books provisions reasonably adequate for the payment of all taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company know of no basis for any such claim. The Company has not executed a waiver with respect to the statute of limitations relating to the assessment or collection of any foreign, federal, state or local tax. Except as set forth on Schedule 3(m), none of the Company's tax returns is presently being audited by any taxing authority.

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

(o) Disclosure. All information relating to or concerning the Company set forth in this Agreement and provided to the Buyers pursuant to Section 2(d) hereof and otherwise in connection with the transactions contemplated hereby is true and correct in all material respects and the Company has not omitted to state any material fact necessary in order to make the statements made herein or therein, in light of the circumstances under which they were made, not misleading. Other than the transactions contemplated by this Agreement, no event or circumstance has occurred or exists with respect to the Company or its business, properties, prospects, operations or financial

conditions, which, under applicable law, rule or regulation, requires public disclosure or announcement by the Company but which has not been so publicly announced or disclosed (assuming for this purpose that the Company's reports filed under the 1934 Act are being incorporated into an effective registration statement filed by the Company under the 1933 Act).

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

(q) No Integrated Offering. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf, has directly or indirectly made any offers or sales of any security or solicited any offers to buy any security under circumstances that would require registration under the 1933 Act of the issuance of the Securities to the Buyers. 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 including, without limitation, the shares of Common Stock and warrants issued to the Buyer pursuant to that certain Securities Purchase Agreement, dated as of February 28, 2000) for purposes of any stockholder approval provisions applicable to the Company or its securities.

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

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

(t) Environmental Matters.

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

(ii) Other than those that are or were stored, used or disposed of in compliance with applicable law, no Hazardous Materials are contained on or about any real property currently owned, leased or used by the Company, and no Hazardous Materials were released on or about any real property previously owned, leased or used by the Company during the period the property was owned, leased or used by the Company, except in the normal course of the Company's business.

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

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

(v) Insurance. The Company is insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as management of the Company believes to be prudent and customary in the businesses in which the Company is engaged. The Company has no reason to believe that it will not be able to renew its existing insurance coverage

as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

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

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

(y) No Investment Company. The Company is not, and upon the issuance and sale of the Securities as contemplated by this Agreement and the Warrants will not be, an "investment company" required to be registered under the Investment Company Act of 1940 (an "Investment Company"). The Company is not controlled by an Investment Company.

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

4 COVENANTS.

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

(b) Form D; Blue Sky Laws. The Company agrees to file a Form D with respect to the Securities as required under Regulation D and to provide a copy thereof to each Buyer promptly after such filing. The Company shall, on or before the Closing Date, take such action as the Company shall reasonably determine is necessary to qualify the Securities for sale to the Buyers

at the Closing under applicable securities or "blue sky" laws of the states of the United States (or to obtain an exemption from such qualification), and shall provide evidence of any such action so taken to each Buyer on or prior to the Closing Date.

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

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

(e) Additional Equity Capital. Subject to the exceptions described below, the Company will not, without the prior written consent of Rose Glen Capital Management, L.P. ("RGC"), conduct any equity financing (including debt financing with an equity component) during the period beginning on the Closing Date and ending on the date which is three (3) months after the date the Registration Statement (as defined in the Registration Rights Agreement) is declared effective (the foregoing limitation being referred to herein as the "Capital Raising Limitation"). The Capital Raising Limitation shall not apply to any transaction involving (i) issuances of securities in a firm commitment underwritten public offering (excluding a continuous offering pursuant to Rule 415 under the 1933 Act), (ii) issuances of securities as consideration for a merger, consolidation or purchase of assets, or in connection with any strategic partnership or joint venture (the primary purpose of which is not to raise equity capital), or in connection with the disposition or acquisition of a business, product or license by the Company, (iii) issuances of Common Stock and warrants to purchase Common Stock in connection with a bona fide credit facility in an aggregate principal amount equal to at least $15,000,000.00, provided that the exercise price of such warrants is not less than the lower of (A) the Closing Price of the Common Stock on the trading day prior to conversion (but in no event less than $2.59 (subject to adjustment for stock splits, combinations and similar events)) and (B) $6.00, or (v) issuances of securities in connection with an investment in the Company for which more than 50% of the proceeds are provided by an investor engaged as its principal business in the biotechnology, medical device or pharmaceutical industry. The Capital Raising Limitation also shall not apply to the issuance of securities upon exercise or conversion of the Company's options, warrants or other convertible securities outstanding as of the date hereof or to the grant of additional options or warrants, or the issuance of additional securities, under any Company stock option or stock purchase plan previously in effect or approved by a majority of the Company's disinterested directors.

(f) Expenses. The Company shall reimburse RGC for all reasonable expenses incurred by it in connection with the negotiation, preparation, execution, delivery and performance of this Agreement and the other agreements to be executed in connection herewith, including, without limitation, attorneys' and consultants' fees and expenses. The Company's obligation to reimburse RGC's expenses under this Section 4(f) and the Registration Rights Agreement shall be limited to an aggregate of $15,000.00, $5,000.00 of which was advanced previously.

(g) Financial Information. The Company agrees to make the following reports available to each Buyer until such Buyer transfers, assigns, or sells all of the Securities within ten (10) days after the filing with the SEC: a copy of its Annual Report on Form 10-K, its Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K. In addition, the Company agrees to send the following 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 authorized, and reserved for the purpose of issuance, a sufficient number of shares of Common Stock to provide for the maximum number of shares issuable upon exercise of or otherwise pursuant to the Warrants and issuance of the Warrant Shares in connection therewith. The Company shall not reduce the number of shares of Common Stock reserved for issuance upon exercise of or otherwise pursuant to the Warrants without the consent of each Buyer. The Company shall use its best efforts at all times to maintain the number of shares of Common Stock so reserved for issuance at no less than the maximum number of shares issuable upon full exercise of the Warrants. If at any time the maximum number of shares of Common Stock authorized and reserved for issuance is below the number of Warrant Shares issued and issuable upon exercise of or otherwise pursuant to the Warrants, 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 stockholders 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 stockholder approval of an increase in such authorized number of shares.

(i) Listing. The Company shall promptly secure the listing of the Common Shares and Warrant Shares upon each national securities exchange or automated quotation system, if any, upon which shares of Common Stock are then listed (subject to official notice of issuance), to the extent required by such exchange or system, and, as long as any Buyer owns any of the Securities, shall maintain, so long as any other shares of Common Stock shall be so listed, such listing of all Common Shares and Warrant Shares from time to time issuable upon exercise of or otherwise pursuant to the Warrants. The Company will obtain, as long as any Buyer owns any of the Securities, and maintain the listing and trading of the Common Stock on Nasdaq, the Nasdaq SmallCap Market, the New York Stock Exchange, or the American Stock Exchange and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules

of the National Association of Securities Dealers ("NASD") and such exchanges, as applicable. The Company shall promptly provide to each Buyer copies of any notices it receives from Nasdaq and any other exchanges or quotation systems on which the Common Stock is then listed regarding the continued eligibility of the Common Stock for listing on such exchanges and quotation systems.

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

(k) No Integration. The Company shall not make any offers or sales of any security (other than the Securities) under circumstances that would require registration of the Securities being offered or sold hereunder under the 1933 Act or cause the offering of the Securities to be integrated with any other offering of securities by the Company for the purpose of any stockholder approval provision applicable to the Company or its securities.

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

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

(n) Trading Market Limitation. Unless the Company either (i) is permitted by the applicable rules and regulations of the principal securities market on which the Common Stock is listed or traded or (ii) has obtained approval of the issuance of the Common Shares and Warrant Shares upon exercise of or otherwise pursuant to the Warrants 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 Company or any of its securities (the "Stockholder Approval"), in no event shall the total number of Common Shares and Warrant Shares issued upon exercise of or otherwise pursuant to the Warrants (including any shares of capital stock or rights to acquire shares of capital stock issued by the Company which are aggregated or integrated with the Common Shares and Warrant Shares issued or issuable upon exercise of or otherwise pursuant to the Warrants for purposes of any such rule or regulation) exceed the maximum number of shares of Common Stock that the Company 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 or any successor rule) (the "Maximum Share Amount") which, as of the Closing Date, shall be 6,159,220 (19.99% of the total shares of Common Stock outstanding on the Closing 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 Closing Date. In the event that the sum of (x) the aggregate number of shares of Common Shares actually issued plus the aggregate number of Warrant Shares actually issued upon exercise of or otherwise pursuant to the outstanding Warrants (including any shares of capital stock or rights to acquire shares of capital stock issued by the Company which are aggregated or integrated with the Common Shares and Warrant Shares issued or issuable upon exercise or otherwise pursuant to the Warrants) plus (y) the aggregate number of Warrant Shares that remain
issuable upon exercise of or otherwise pursuant to the Warrants, represents more than 100% of the Maximum Share Amount (the "Triggering Event"), the Company 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, but in no event later than ninety (90) days following the Triggering Event.

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

Upon the occurrence and during the continuation of any Event of Default, at the option of the holders of at least 50% of the then outstanding Common Shares and Warrant Shares (issued or issuable pursuant to the Warrants) by written notice (the "Default Notice") to the Company of such Event of Default, the Company shall purchase each holder's outstanding Common Shares and Warrant Shares (issued or issuable pursuant to the Warrants) for an amount equal to the greater of (1) 120% of the product of (x) the number of Common Shares and Warrants (or Warrant Shares issued or issuable pursuant to the Warrants) then held by such holder, multiplied by (y) $2.135 and (2) the "parity value" of the Common Shares and Warrant Shares (issued or issuable pursuant to the Warrants) to be repurchased, where parity value means the product of (a) the number

of Common Shares and Warrant Shares (issued or issuable pursuant to the Warrants) to be repurchased multiplied by (b) the highest Closing Price for the Common Stock during the period beginning on the date of first occurrence of the Event of Default and ending one day prior to the date of payment of the Default Amount (the greater of such amounts being referred to as the "Default Amount"). The Default Amount shall be payable by the Company within five trading days after receipt by the Company of the Default Notice. For purposes of this Agreement, the term "Closing Price" means, for any security as of any date, the Closing Bid Price on Nasdaq as reported by Bloomberg Financial Markets or an equivalent reliable reporting service mutually acceptable to and hereafter designated by the Buyers and the Company ("Bloomberg") or, if Nasdaq is not the principal trading market for such security, the Closing Bid Price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or, if no Closing Bid Price of such security is available in any of the foregoing manners, the average of the bid prices of any market makers for such security that are listed in the "pink sheets" by the National Quotation Bureau, Inc. If the Closing 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 Company and the Buyers.

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

of the Common Shares and Warrant Shares, promptly instruct its transfer agent to issue one or more certificates, free from any restrictive legend, in such name and in such denominations as specified by such Buyer.

7. CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL. The obligation of the Company hereunder to issue and sell the Purchased Shares and the 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, the Prior Warrant Amendment and the Registration Rights Agreement, and delivered the same to the Company.

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

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

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

8. CONDITIONS TO EACH BUYER'S OBLIGATION TO PURCHASE. The obligation of each Buyer hereunder to purchase the Purchased Shares and the 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, the Prior Warrant Amendment and the Registration Rights Agreement, and delivered the same to the Buyers.

(b) The Company shall have delivered to such Buyer duly executed certificates (in such denominations as the Buyer shall request no later than 10:00 a.m. Eastern Time on the last trading day immediately preceding the Closing Date) representing the Common Shares and duly executed Warrants in accordance with Section 1(b) above.

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

(d) The representations and warranties of the Company shall be true and correct in all material respects as of the date when made and as of the Closing Date as though made at such time (except for representations and warranties that speak as of a specific date, which representations and warranties shall be true and correct as of such date, and in each case subject to the schedules referred to in such representations and warranties provided by the Company as of the Closing Date) and the Company shall have performed, satisfied and complied in all material respects with the covenants, agreements and conditions required by this Agreement to be performed, satisfied or complied with by the Company at or prior to the Closing Date. Each Buyer shall have received a certificate or certificates, executed on behalf of the Company by the chief executive officer of the Company, dated as of the Closing Date, to the foregoing effect and as to such other matters as may be reasonably requested by such Buyer including, but not limited to, those matters described in Section 3(c) above, and certificates with respect to the Company's Certificate of Incorporation, By-laws and Board of Directors' resolutions relating to the transactions contemplated hereby.

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

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

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

9. GOVERNING LAW; MISCELLANEOUS.

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

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

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

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

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

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

recognized overnight delivery service) or by facsimile, in each case addressed to a party. The addresses for such communications shall be:

If to the Company:

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

With copy to:

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

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

With copy to:

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

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

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

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

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

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

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

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

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

(n) Acknowledgment. Notwithstanding anything to the contrary contained herein or in the Warrant, dated as of February 29, 2000 issued by the Company to RGC International Investors, LDC (the "Outstanding Warrant"), the issuance of Securities pursuant to this Agreement shall not result in an adjustment of the Exercise Price (as defined in the Outstanding Warrant).

[Remainder of page intentionally left blank]

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

AASTROM BIOSCIENCES, INC.

By: _____
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: _____
Wayne D. Bloch,
Managing Director

RESIDENCE: Cayman Islands

ADDRESS:

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

AGGREGATE SUBSCRIPTION AMOUNT:

Number of Purchased Shares:	2,810,305
Maximum Number of Warrants Issuable:	3,348,915
Aggregate Purchase Price:	$ 6,000,000.00

Exhibit 4.4

REGISTRATION RIGHTS AGREEMENT

REGISTRATION RIGHTS AGREEMENT (this "Agreement"), dated as of June 8, 2000, by and among Aastrom Biosciences, Inc., a Michigan corporation, with its headquarters located at 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106 (the "Company"), and each of the undersigned (together with their respective affiliates and any assignee or transferee of all of their respective rights hereunder, the "Initial Investors").

WHEREAS:

A. In connection with the Securities Purchase Agreement by and among the parties hereto of even date herewith (the "Securities Purchase Agreement"), the Company has agreed, upon the terms and subject to the conditions contained therein, to issue and sell to the Initial Investors (i) 2,810,305 shares of the Company's common stock, no par value (the "Common Stock"), and (ii) up to 3,348,915 warrants (the "Warrants"), each Warrant to acquire one (1) share of Common Stock, upon the terms and subject to the limitations and conditions set forth in the Warrants dated as of June 8, 2000; and

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

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

1. DEFINITIONS.

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

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

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

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

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

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

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

2. REGISTRATION.

(a) Mandatory Registration. The Company shall prepare, and, on or prior to the date which is twenty (20) days after the date of the Closing under the Securities Purchase Agreement (the "Closing Date"), file with the SEC a Registration Statement on Form S-3 (or, if Form S-3 is not then available, on such form of Registration Statement as is then available to effect a registration of the Registrable Securities, subject to the consent of the Initial Investors, which consent will not be unreasonably withheld) covering the resale of the Registrable Securities, which Registration Statement, to the extent allowable under the 1933 Act and the rules and regulations promulgated thereunder (including Rule 416), shall state that such Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon exercise of or otherwise pursuant to the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions. The number of shares of Common Stock initially included in such Registration Statement shall be no less than the sum of (x) the aggregate number of Common Shares issued pursuant to the Securities Purchase Agreement and (y) the maximum number of Warrant Shares that could be issued upon exercise of or otherwise pursuant to the Warrants, without regard to any limitation on the Investor's ability to exercise the Warrants. The Company acknowledges that the number of shares initially included in the Registration Statement represents the Common Shares plus a good faith estimate of the maximum number of shares issuable upon exercise of the Warrants.

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

(c) Issuance of Additional Common Stock by the Company. The Company shall use its best efforts to obtain effectiveness of the Registration Statement as soon as practicable. If (i) the Registration Statement covering the Registrable Securities required to be filed by the Company pursuant to Section 2(a) hereof is not declared effective by the SEC within one hundred twenty (120) days after the Closing Date or if, after the Registration Statement has been declared effective by the SEC, sales of all of the Registrable Securities cannot be made pursuant to the Registration Statement, or (ii) the Common Stock is not listed or included for quotation on the Nasdaq National Market ("Nasdaq"), the Nasdaq SmallCap Market ("Nasdaq SmallCap"), the New York Stock Exchange (the "NYSE") or the American Stock Exchange (the "AMEX") after being so listed or included for quotation, then the Company will issue additional shares of Common Stock or pay, at the election of the Company, to the Investors in such amounts and at such times as shall be determined pursuant to this Section 2(c) as partial relief for the damages to the Investors by reason of any such delay in or reduction of their ability to sell the Registrable Securities (which remedy shall not be exclusive of any other remedies available at law or in equity). Without limiting the generality of the preceding sentence, the Company shall issue or pay, at the election of the Company, to each holder of Registrable Securities an amount of Common Stock equal in value, or cash, as applicable, equal to (x) the aggregate purchase price paid by such holder pursuant to the Securities Purchase Agreement for the Common Shares and Warrant Shares held by such holder at the time of an event specified in clause (i) or (ii) above (the "Aggregate Purchase Price"), multiplied by the Applicable Percentage (as defined below), multiplied by (y) the sum of: (i) the number of months (prorated for partial months) after the end of such 120-day period and prior to the date the Registration Statement required to be filed pursuant to Section 2(a) is declared effective by the SEC; provided, however, that there shall be excluded from such period any delays which are solely attributable to changes required by the Investors in the Registration Statement with respect to information relating to the Investors, including, without limitation, changes to the plan of distribution, or to the failure of the Investors to conduct their review of the Registration Statement pursuant to Section 3(h) below in a reasonably prompt manner; (ii) the number of months (prorated for partial months) during the Registration Period (as defined below) that sales of all of the Registrable Securities cannot be made pursuant to the Registration Statement after the Registration Statement has been declared effective (including, without limitation, when sales cannot be made by reason of the Company's failure to properly supplement or amend the prospectus included therein in accordance with the terms of this Agreement (including Section 3(b) hereof or otherwise), but excluding any days during an Allowed Delay (as defined in Section 3(f)); and (iii) the number of months (prorated for partial months) that the Common Stock is not listed or included for quotation on the Nasdaq, Nasdaq SmallCap, NYSE or AMEX or that trading thereon is halted after the Registration Statement has been declared effective. The term "Applicable Percentage" means 0.015. (For example, if the Registration Statement becomes effective one (1) month after the end of such 120-day period, the Company would issue or pay, at the election of the Company, $15,000 worth of Common Stock or $15,000 cash, as applicable, for each $1,000,000 of Aggregate Purchase Price applicable to the shares of Common Stock and Warrants then held. If thereafter, and after excluding an Allowed Delay, sales could not be made pursuant to the Registration Statement for an additional period of one (1) month, the Company would issue or pay, at the election of the Company, an additional $15,000 worth of Common Stock or $15,000 cash, as applicable, for each $1,000,000 of Aggregate Purchase Price

applicable to the shares of Common Stock and Warrants then held.) Shares of Common Stock issued pursuant to this Section will be valued at 85% of the average of the Closing Bid Prices (as defined in the Warrant) of such shares for the five (5) consecutive Trading Days (as defined in the Warrant) ending on the Trading Day immediately preceding the date of issuance (which shares of Common Stock shall be Registrable Securities (but do not necessarily need to be registered at the time of issuance)). The Company shall deliver such shares of Common Stock or such cash, as applicable, not later than two (2) days after the end of each period that gives rise to such obligation, provided that, if any such period extends for more than thirty (30) days, interim payments shall be made for each such thirty (30) day period. Notwithstanding the foregoing, in the event the total number of Common Shares and Warrant Shares issued upon exercise of otherwise pursuant to the Warrants (including any shares of capital stock or rights to acquire shares of capital stock issued by the Company which are aggregated or integrated with the Common Shares and Warrant Shares issued or issuable upon exercise of or otherwise pursuant to the Warrants), exceeds the Maximum Share Amount (as defined in the Securities Purchase Agreement) and the Company has not obtained the Stockholder Approval (as defined in the Securities Purchase Agreement), so long as no Event of Default then exists under the Securities Purchase Agreement and the Company has complied with its obligations pursuant to Section 4(n) of the Securities Purchase Agreement, the Company shall make the payments described herein in cash and, solely with respect to such payments, the Applicable Percentage shall equal to 0.0125.

(d) Piggy-Back Registrations. Subject to the last sentence of this Section 2(d), if at any time prior to the expiration of the Registration Period (as hereinafter defined) the Company shall determine to file with the SEC a Registration Statement relating to an offering for its own account or the account of others under the 1933 Act of any of its equity securities (other than on Form S-4 or Form S-8 or their then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with stock option or other employee benefit plans), the Company shall send to each Investor who is entitled to registration rights under this Section 2(d) written notice of such determination and, if within fifteen (15) days after the effective date of such notice, such Investor shall so request in writing, the Company shall include in such Registration Statement all or any part of the Registrable Securities such Investor requests to be registered, except that if, in connection with any underwritten public offering for the account of the Company the managing underwriter(s) thereof shall impose a limitation on the number of shares of Common Stock which may be included in the Registration Statement because, in such underwriter(s)' judgment, marketing or other factors dictate such limitation is necessary to facilitate public distribution, then the Company shall be obligated to include in such Registration Statement only such limited portion of the Registrable Securities with respect to which such Investor has requested inclusion hereunder as the underwriter shall permit. Any exclusion of Registrable Securities shall be made pro rata among the Investors seeking to include Registrable Securities in proportion to the number of Registrable Securities sought to be included by such Investors; provided, however, that the Company shall not exclude any Registrable Securities unless the Company has first excluded all outstanding securities, the holders of which are not entitled to inclusion of such securities in such Registration Statement or are not entitled to pro rata inclusion with the Registrable Securities; and provided, further, however, that, after giving effect

to the immediately preceding proviso, any exclusion of Registrable Securities shall be made pro rata with holders of other securities having the right to include such securities in the Registration Statement other than holders of securities entitled to inclusion of their securities in such Registration Statement by reason of demand registration rights. No right to registration of Registrable Securities under this Section 2(d) shall be construed to limit any registration required under Section 2(a) hereof. If an offering in connection with which an Investor is entitled to registration under this Section 2(d) is an underwritten offering, then each Investor whose Registrable Securities are included in such Registration Statement shall, unless otherwise agreed by the Company, offer and sell such Registrable Securities in an underwritten offering using the same underwriter or underwriters and, subject to the provisions of this Agreement, on the same terms and conditions as other shares of Common Stock included in such underwritten offering. Notwithstanding anything to the contrary set forth herein, the registration rights of the Investors pursuant to this Section 2(d) shall only be available in the event the Company fails to timely file, obtain effectiveness or maintain effectiveness of any Registration Statement to be filed pursuant to Section 2(a) in accordance with the terms of this Agreement.

(e) Eligibility for Form S-3. The Company represents and warrants
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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. In connection with the registration of
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the Registrable Securities, the Company shall have the following obligations:

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

(b) The Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to the Registration Statements and the prospectus used in connection with the Registration Statements as may be necessary to keep the

Registration Statements effective at all times during the Registration Period, and, during such period, comply with the provisions of the 1933 Act with respect to the disposition of all Registrable Securities of the Company covered by the Registration Statements until such time as all of such Registrable Securities have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in the Registration Statements. In the event that on any Trading Day (as defined below) (such Trading Day being a "Registration Trigger Date") the number of shares available under a Registration Statement filed pursuant to this Agreement is insufficient to cover all of the Registrable Securities (based on the number of Common Shares then held by Investors and the number of Warrant Shares issued or issuable upon exercise of or otherwise pursuant to the Warrants, without giving effect to any limitations on the Investors' ability to exercise the Warrants), the Company shall amend the Registration Statement, or file a new Registration Statement (on the short form available therefor, if applicable), or both, so as to cover the maximum number of Registrable Securities so issued or issuable (without giving effect to any limitations on exercise contained in the Warrants and assuming the maximum number of Warrant Shares will be issued upon exercise of or otherwise pursuant to the Warrants) as of the Registration Trigger Date, in each case, as soon as practicable, but in any event within twenty (20) business days after the necessity therefor arises (based on the market price of the Common Stock and other relevant factors on which the Company reasonably elects to rely). The Company shall use its best efforts to cause such amendment and/or new Registration Statement to become effective as soon as practicable following the filing thereof but in any event within one hundred twenty (120) days. The provisions of Section 2(c) above shall be applicable with respect to the Company's obligations under this Section 3(b).

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

(d) The Company shall use reasonable efforts, to the extent required, to (i) register and qualify the Registrable Securities covered by the Registration Statements under such other securities or "blue sky" laws of such jurisdictions in the United States as the Investors who hold a majority in interest of the Registrable Securities being offered reasonably request, (ii) prepare and file in those jurisdictions such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during the Registration Period, (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period, and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; provided, however, that the Company shall not be required in connection
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therewith or as a condition thereto to (a) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(d), (b) subject itself to general taxation in any such jurisdiction, (c) file a general consent to service of process in any such jurisdiction, (d) provide any undertakings that cause the Company undue expense or burden, or (e) make any change in its charter or bylaws, which in each case the Board of Directors of the Company determines to be contrary to the best interests of the Company and its stockholders.

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

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

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

(h) The Company shall permit a single firm of counsel designated by the Initial Investors to review such Registration Statement and all amendments and supplements thereto (as well as all requests for acceleration of effectiveness thereof) a reasonable period of time prior to their filing with the SEC, and not file any document in a form to which such counsel reasonably objects and will not request acceleration of such Registration Statement without prior notice to such counsel. The sections of such Registration Statement covering information with respect to the Investors, the Investor's beneficial ownership of securities of the Company or the Investors intended method of disposition of Registrable Securities shall conform to the information provided to the Company by each of the Investors.

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

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

(k) The Company shall make available for inspection by (i) any Investor, (ii) any underwriter participating in any disposition pursuant to a Registration Statement, (iii) one firm of attorneys and one firm of accountants or other agents retained by the Initial Investors, (iv) one firm of attorneys and one firm of accountants or other agents retained by all other Investors, and (v) one firm of attorneys retained by all such underwriters (collectively, the "Inspectors") all pertinent financial and other records, and pertinent corporate documents and properties of the Company (collectively, the "Records"), as shall be reasonably deemed necessary by each Inspector to enable each Inspector to exercise its due diligence responsibility, and cause the Company's officers, directors and employees to supply all information which any Inspector may reasonably request for purposes of such due diligence; provided, however, that
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each Inspector shall hold in confidence and shall not make any disclosure (except to an Investor) of any Record or other information which the Company determines in good faith to be confidential, and of which determination the Inspectors are

so notified, unless (a) the disclosure of such Records is necessary to avoid or correct a misstatement or omission in any Registration Statement, (b) the release of such Records is ordered pursuant to a subpoena or other order from a court or government body of competent jurisdiction, or (c) the information in such Records has been made generally available to the public other than by disclosure in violation of this or any other agreement. The Company shall not be required to disclose any confidential information in such Records to any Inspector until and unless such Inspector shall have entered into confidentiality agreements (in form and substance satisfactory to the Company) with the Company with respect thereto, substantially in the form of this Section 3(k). Each Investor agrees that it shall, upon learning that disclosure of such Records is sought in or by a court or governmental body of competent jurisdiction or through other means, give prompt notice to the Company and allow the Company, at its expense, to undertake appropriate action to prevent disclosure of, or to obtain a protective order for, the Records deemed confidential. Nothing herein (or in any other confidentiality agreement between the Company and any Investor) shall be deemed to limit the Investors' ability to sell Registrable Securities in a manner which is otherwise consistent with applicable laws and regulations.

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

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

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

(o) The Company shall cooperate with the Investors who hold Registrable Securities being offered and the managing underwriter or underwriters, if any, to facilitate the timely preparation and delivery of certificates (not bearing any restrictive legends) representing Registrable Securities to be offered pursuant to such Registration Statement and enable such certificates to be in such denominations or amounts, as the case may be, as the managing underwriter or underwriters, if any, or the Investors may reasonably request and registered in such names as the managing underwriter or underwriters, if any, or the Investors may reasonably request, and, within three (3) business days after a Registration Statement which includes Registrable Securities is ordered effective by the SEC, the Company shall deliver, and shall cause legal counsel selected by the Company to deliver, to the transfer agent for the Registrable Securities (with copies to the Investors whose Registrable Securities are included in such Registration Statement) an instruction in the form attached hereto as Exhibit 1 and an opinion of such counsel in the form
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attached hereto as Exhibit 2.

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

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

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

4. OBLIGATIONS OF THE INVESTORS. In connection with the registration of
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the Registrable Securities, the Investors shall have the following obligations:

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

the Registration Statement, the Company shall notify each Investor of the information the Company requires from each such Investor.

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

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

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

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

(f) The underwriters in connection with any firm commitment public offering of the Company's common stock resulting in gross proceeds of at least $20,000,000 led by at least one underwriter of nationally recognized reputation, shall have the right to require that the Investors enter into an agreement restricting the Investors from selling Common Stock pursuant to the Registration Statement held by such Investors in any public sale for a period not to exceed ninety (90) days following the closing of such underwriting, if they deem this to be reasonably necessary to effect such underwritten public offering; provided that all executive officers and directors shall have also

agreed to identical (or more restrictive) restrictions. The Investors shall be subject to no more than one such restriction during the Registration Period.

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

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

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

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

(b) In connection with any Registration Statement in which an Investor is participating, each such Investor agrees severally and not jointly to indemnify, hold harmless and defend, to the same extent and in the same manner set forth in Section 6(a), the Company, each of its directors, each of its officers who signs the Registration Statement, each person, if any, who controls the Company within the meaning of the 1933 Act or the 1934 Act, any underwriter and any other stockholder selling securities pursuant to the Registration Statement or any of its directors or officers or any person who controls such stockholder or underwriter within the meaning of the 1933 Act or the 1934 Act (collectively and together with an Indemnified Person, an "Indemnified Party"), against any Claim to which any of them may become subject, under the 1933 Act, the 1934 Act or otherwise, insofar as such Claim arises out of or is based upon any Violation by such Investor, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished to the Company by such Investor expressly for use in connection with such Registration Statement; and subject to Section 6(c) such Investor will reimburse any legal or other expenses (promptly as such expenses are incurred and are due and payable) reasonably incurred by them in connection with investigating or defending any such Claim; provided, ------- however, that the 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 this Agreement (including this Section 6(b) and Section 7) for only that amount as does not exceed the net proceeds to such Investor as a result of the sale of Registrable Securities pursuant to such Registration Statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Investors pursuant to Section 9. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section 6(b) with respect to any preliminary prospectus shall not inure to the benefit of any Indemnified Party if the untrue statement or omission of material fact contained in the preliminary prospectus was corrected on a timely basis in the prospectus, as then amended or supplemented.

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

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

8 REPORTS UNDER THE 1934 ACT. With a view to making available to the Investors the benefits of Rule 144 promulgated under the 1933 Act or any other similar rule or regulation of the SEC that may at any time permit the investors to sell securities of the Company to the public without registration ("Rule 144"), the Company agrees to:

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

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

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

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

10 AMENDMENT OF REGISTRATION RIGHTS. Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with written consent of the Company, each of the Initial Investors (to the extent such Initial Investor still owns Registrable Securities) and Investors who hold a majority interest of the Registrable Securities. Any amendment or waiver effected in accordance with this Section 10 shall be binding upon each Investor and the Company.

11 MISCELLANEOUS.

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

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

If to the Company:

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

With copy to:

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

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

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

(d) This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan applicable to agreements made and to be performed in the State of Michigan (without regard to principles of conflict of laws). Both parties irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in Delaware with respect to any suit or proceeding based on or arising under this Agreement, the agreements entered into in

connection herewith or the transactions contemplated hereby or thereby and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. Both parties irrevocably waive the defense of an inconvenient forum to the maintenance of such suit or proceeding. Both parties further agree that service of process upon a party mailed by first class mail shall be deemed in every respect effective service of process upon the party in any such suit or proceeding. Nothing herein shall affect either party's right to serve process in any other manner permitted by law. Both parties agree that a final non-appealable judgment in any such suit or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on such judgment or in any other lawful manner.

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

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

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

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

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

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

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

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

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

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

IN WITNESS WHEREOF, the Company and the undersigned Initial Investors have caused this Registration Rights 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: _____
Wayne D. Bloch, Managing Director

Exhibit 4.5

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 JUNE 8, 2000. NEITHER THIS WARRANT NOR ANY OF SUCH SHARES MAY BE SOLD, TRANSFERRED OR ASSIGNED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR SUCH SECURITIES UNDER SAID ACT, 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 3,348,915 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, 3,348,915 (the "Maximum Number") fully paid and nonassessable shares of the Company's Common Stock, no par value per share (the "Common Stock"), at an initial exercise price of $.01 per share (the "Exercise Price"); provided, however, the number of shares of Common Stock issuable upon exercise of this Warrant shall be adjusted to equal (A)(1) the product of (a) the Shares Subject to Adjustment (as defined below) and (b) $2.135 (the "Purchase Price") (subject to adjustment for stock splits, combinations and similar events), divided by (2) the average of the Closing Bid Price (as defined below) of the Common Stock for the ten (10) consecutive Trading Day period ending June 8, 2001 (the "12 Month Price"), minus (B) the Shares Subject to Adjustment, but in no event greater than the Maximum Number.

For purposes of this Warrant, the following terms have the meanings indicated:

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

(ii) "Common Shares" shall have the meaning ascribed to such term in the Securities Purchase Agreement, dated as of the date hereof, by and among the Company and each of the purchasers set forth on the signature page thereto (the "Securities Purchase Agreement").

(iii) "Market Price," as of any date, (a) means the average of the last reported sale prices for the shares of Common Stock on Nasdaq for the five (5) Trading Days immediately preceding such date as reported by Bloomberg, or (b) 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 (c) 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 (I) the Board of Directors of the Company or (II) at the option and expense of a majority-in-interest of the holders of the outstanding Warrants, by an independent investment bank of nationally recognized standing in the valuation of businesses similar to the business of the Company. The manner of determining the Market Price of the Common Stock set forth in the foregoing definition shall apply with respect to any other security in respect of which a determination as to market value must be made hereunder.

(iv) "Qualified Merger Transaction" shall mean a consolidation of the Company with, or merger of the Company into any other corporation where the Company is not the surviving entity for a valid business purpose (other than reincorporation or avoidance of the exercise of this Warrant).

(v) "Registration Rights Agreement" shall have the meaning ascribed to such term in the Securities Purchase Agreement.

(vi) "Shares Subject to Adjustment" means the sum of (A) the number of Common Shares held by the holder of this Warrant on June 8, 2001, and (B) the number of shares of Common Stock sold by the Company at a price per share that is below the Purchase Price.

(vii) "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.

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

(ix) "Warrants" means this Warrant and the other warrants issued pursuant to the Securities Purchase Agreement.

(x) "Warrant Shares" refers to the shares of Common Stock purchasable hereunder.

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

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

Subject to the provisions hereof, this Warrant may be exercised by the holder hereof, in whole or in part, by the surrender of this Warrant, together with a completed exercise agreement in the form attached hereto (the "Exercise Agreement"), to the Company during normal business hours on any Trading 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 (a) 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 (b) 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) Trading Days after this Warrant shall have been so exercised. The certificates so delivered shall be in such denominations as may be requested by the holder hereof and shall be registered in the name of such holder or such other name as shall be designated by such holder. If this Warrant shall have been exercised only in part, then, unless this Warrant has expired, the Company shall, at its expense, at the time of delivery of such certificates, deliver to the holder a new Warrant representing the number of shares with respect to which this Warrant shall not then have been exercised.

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

2. Period of Exercise. This Warrant is exercisable at any time or from time to time during the period (the "Exercise Period") commencing on the first (1st) anniversary of the date on which this Warrant is issued and delivered pursuant to the terms of the Securities Purchase Agreement (the "Issue Date") and ending at 5:00 p.m., New York City time on the thirtieth (30th) Trading Day thereafter (the "Expiration Date"); provided, however, that if, due to the limitations set forth in the second paragraph of Section 1, the holder of this Warrant is unable to fully exercise this Warrant on the last day of the Exercise Period, the Exercise Period shall be extended so that the Exercise Period, as extended, will expire on the earlier of (I) sixty (60) days after the Expiration Date and (II) the date on which the holder of this Warrant is able to fully exercise this Warrant; provided, further, that the Expiration Date shall be delayed by one Trading Day for each Trading Day occurring prior thereto and prior to the full exercise of this Warrant that (i) any Registration Statement (as defined in the Registration Rights Agreement) required to be filed and to be effective pursuant to, and in accordance with the time periods specified in, the Registration Rights Agreement is not effective or sales of all of the Registrable Securities (as defined in the Registration Rights Agreement) otherwise cannot be made thereunder during the Registration Period (as defined in the Registration Rights Agreement) (whether by reason of the Company's failure to properly supplement or amend the prospectus included therein in accordance with the terms of the Registration Rights Agreement or otherwise but not solely as a result of any restrictions imposed related to limitation on beneficial ownership), (ii) any Event of Default (as defined in the Securities Purchase Agreement) exists, without regard to whether any cure periods shall have run or (iii) the Company is in breach of any of its obligations pursuant to Section 4(h) of the Securities Purchase Agreement. Notwithstanding the foregoing, if (a) the 12 Month Price equals or exceeds the Purchase Price, (b) there has been a Qualified Merger Transaction or Transfer of Control Transaction, or (c) so long as during the period beginning ten (10) Trading Days prior to the 25-Trading Day period referred to below and ending on the last day of such 25-Trading Day period (A) the Registration Statement

required to be filed and to be effective pursuant to the Registration Rights Agreement is then in effect and sales of all of the Registrable Securities can be made thereunder, (B) the Company has a sufficient number of shares of Common Stock reserved for issuance upon full exercise of this Warrant and (C) the shares of Common Stock issuable upon exercise of this Warrant are traded on the Nasdaq, the Nasdaq SmallCap Market, the New York Stock Exchange or the American Stock Exchange, if the average of the Closing Bid Prices of the Common Stock for any twenty-five (25) consecutive Trading Days exceeds $4.27 (subject to adjustment for stock splits, combinations and similar events), this Warrant shall immediately expire and shall never be exercisable.

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

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

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

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

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

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

4. Antidilution Provisions. During the Exercise Period, the Exercise Price and the number of Warrant Shares shall be subject to adjustment from time to time as provided in this Paragraph 4. In the event that any adjustment of the Exercise Price as required herein results in a fraction of a cent, such Exercise Price shall be rounded up to the nearest cent.

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

(b) Consolidation or Merger. Subject to the terms of Paragraph 2, in case of any consolidation of the Company with, or merger of the Company into any other corporation, then as a condition of such consolidation or merger, adequate provision will be made whereby the holder of this Warrant will have the right to acquire and receive upon exercise of this Warrant in lieu of the shares of Common Stock immediately theretofore acquirable upon the exercise of this Warrant, such shares of stock, securities or assets as may be issued or payable with respect to or in exchange for the number of shares of Common Stock immediately theretofore acquirable and receivable upon exercise of this Warrant had such consolidation or merger not taken place. In any such case, the Company will make appropriate provision to insure that the provisions of this Paragraph 4 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 or merger unless, prior to the consummation thereof, the successor corporation (if other than the Company) 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.

(c) Distribution of Assets. In case the Company shall declare or 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 shareholders entitled to such distribution, but prior to the date of distribution, the holder of this Warrant shall be entitled upon exercise of this Warrant for the purchase of any or all of the shares of Common Stock subject hereto, to receive the amount of such assets which would have been payable to the holder had such holder been the holder of such shares of Common Stock on the record date for the determination of shareholders entitled to such distribution.

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

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

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

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

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

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

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

(f) Certain Events. If any event occurs of the type contemplated by the adjustment provisions of this Paragraph 4 but not expressly provided for by such provisions, the Company will give written notice of such event 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, including a certification thereof

by the chief financial officer of the Company, and the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of shares of Common Stock acquirable upon exercise of this Warrant so that the rights of the holder of this Warrant shall be neither enhanced nor diminished by such event.

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

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

7. Transfer, Exchange, and Replacement of Warrant.

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

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

(c) Replacement of Warrant. Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction, or mutilation of this Warrant and, in the case of any such loss, theft, or destruction, upon delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company, or, in the case of any such mutilation, upon surrender and

cancellation of this Warrant, the Company, at its expense, will execute and deliver, in lieu thereof, a new Warrant of like tenor.

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

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

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

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

9. Notices. All notices, requests, and other communications required or permitted to be given or delivered hereunder to the holder of this Warrant shall be in writing, and shall be personally delivered, or shall be sent by certified or registered mail or by recognized overnight mail courier, postage prepaid and addressed, to such holder at the address shown for such holder on the books of the Company, or at such other address as shall have been furnished to the Company by notice from such holder. All notices, requests, and other communications required or permitted to be given or delivered hereunder to the Company shall be in writing, and shall be personally

delivered, or shall be sent by certified or registered mail or by recognized overnight mail courier, postage prepaid and addressed, to the office of the Company at 24 Frank Lloyd Wright Drive, P.O. Box 376, Ann Arbor, Michigan 48106, Attention: Chief Executive Officer, or at such other address as shall have been furnished to the holder of this Warrant by notice from the Company. Any such notice, request, or other communication may be sent by facsimile, but shall in such case be subsequently confirmed by a writing personally delivered or sent by certified or registered mail or by recognized overnight mail courier as provided above. All notices, requests, and other communications shall be deemed to have been given either at the time of the receipt thereof by the person entitled to receive such notice at the address of such person for purposes of this Paragraph 8, or, if mailed by registered or certified mail or with a recognized overnight mail courier upon deposit with the United States Post Office or such overnight mail courier, if postage is prepaid and the mailing is properly addressed, as the case may be.

10. Governing Law. THIS WARRANT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF MICHIGAN APPLICABLE TO AGREEMENTS MADE AND TO BE PERFORMED IN THE STATE OF MICHIGAN (WITHOUT REGARD TO PRINCIPLES OF CONFLICT OF LAWS). BOTH PARTIES IRREVOCABLY CONSENT TO THE JURISDICTION OF THE UNITED STATES FEDERAL COURTS AND THE STATE COURTS LOCATED IN DELAWARE WITH RESPECT TO ANY SUIT OR PROCEEDING BASED ON OR ARISING UNDER THIS AGREEMENT, THE AGREEMENTS ENTERED INTO IN CONNECTION HEREWITH OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY AND IRREVOCABLY AGREE THAT ALL CLAIMS IN RESPECT OF SUCH SUIT OR PROCEEDING MAY BE DETERMINED IN SUCH COURTS. BOTH PARTIES IRREVOCABLY WAIVE THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH SUIT OR PROCEEDING. BOTH PARTIES FURTHER AGREE THAT SERVICE OF PROCESS UPON A PARTY MAILED BY FIRST CLASS MAIL SHALL BE DEEMED IN EVERY RESPECT EFFECTIVE SERVICE OF PROCESS UPON THE PARTY IN ANY SUCH SUIT OR PROCEEDING. NOTHING HEREIN SHALL AFFECT EITHER PARTY'S RIGHT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW. BOTH PARTIES AGREE THAT A FINAL NON-APPEALABLE JUDGMENT IN ANY SUCH SUIT OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON SUCH JUDGMENT OR IN ANY OTHER LAWFUL MANNER.

11. Miscellaneous.

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

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

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

(d) Remedies. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the holder of this Warrant, 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 Warrant will be inadequate and agrees, in the event of a breach or threatened breach by the Company of the provisions of this Warrant, that the holder 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 Warrant and to enforce specifically the terms and provisions of this Warrant, without the necessity of showing economic loss and without any bond or other security being required.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Company has caused this Stock Purchase 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 June 8, 2000

FORM OF EXERCISE AGREEMENT

Dated: _____ __ __,

To: Aastrom Biosciences, Inc.

The undersigned, pursuant to the provisions set forth in the within Warrant, hereby agrees to purchase _____ shares of Common Stock covered by such Warrant, and makes payment herewith in full therefor at the price per share provided by such Warrant in cash or by certified or official bank check in the amount of, or, if the resale of such Common Stock by the undersigned is not currently registered pursuant to an effective registration statement under the Securities Act of 1933 (the "Act"), 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 Act, or pursuant to an exemption from registration under the Act.

FORM OF ASSIGNMENT

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

Name of Assignee	Address	No of Shares

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

Dated: _____ __, ____

In the presence of:

_____

Name: _____

Signature: _____

Title of Signing Officer or Agent (if any):

Address: _____
_____
_____

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

Exhibit 5.1

June 20, 2000

Securities and Exchange Commission
Judiciary Plaza
450 Fifth Street, N.W.
Washington, D.C. 20549

Re: Aastrom Biosciences, Inc. Registration
Statement on Form S-3
File No.: 333-_____

Gentlemen:

We have acted as special counsel to Aastrom Biosciences, Inc., a Michigan corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission (the "Commission") of a registration statement filed with the SEC on June 20, 2000 (the "Registration Statement") of the Company on Form S-3 under the Securities Act of 1933, as amended (the "Act"). The Registration Statement relates to the proposed issuance by the Company of shares of the Company's Common Stock (the "Shares") covered by the Registration Statement.

In this connection, we have examined the Registration Statement, including the exhibits thereto, the originals or copies, certified or otherwise identified to our satisfaction, of the Articles of Incorporation and the By-Laws of the Company amended to date, resolutions of the Company's Board of Directors and such other documents and corporate records relating to the Company, and the issuance and sale of the Company's common stock and warrants issued in connection with the sale of such shares (the "Warrants") and the issuance of the Shares upon exercise of the Warrants, as we have deemed appropriate. The opinion expressed herein is based exclusively on the applicable provisions of the Michigan Business Corporation Act as in effect on the date hereof.

On the basis of the foregoing, we are of the opinion that the Shares, including those issued upon exercise of the Warrants, will be, duly authorized, validly issued, fully paid, and non-assessable.

We hereby consent to the reference to our firm under the caption "Legal Matters" in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement. Such consent does not constitute a consent under Section 7 of the Act, since we have not certified any part of such Registration Statement and do not otherwise come within the categories of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

PEPPER HAMILTON LLP

By: /s/ Michael B. Staebler

Michael B. Staebler

Exhibit 23.1

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated December 8, 1999 relating to the financial statements, which appears in Aastrom Biosciences, Inc.'s Current Report on Form 8-K dated December 10, 1999. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PriceWaterhouseCoopers

PRICEWATERHOUSECOOPERS LLP

Minneapolis, Minnesota
June 16, 2000

EXHIBIT 23.2

[GRAY CARY WARE & FREIDENRICH LETTERHEAD]

June 20, 2000

Securities and Exchange Commission
Judiciary Plaza
450 Fifth Street, N.W.
Washington, D.C. 20549

Re: Aastrom Biosciences, Inc.
Registration Statement on Form S-3

Ladies and Gentlemen:

As counsel to Aastrom Biosciences, Inc., a Michigan corporation (the Company"), in connection with the proposed offer and sale of those certain shares of the Company's Common Stock, $0 par value, as set forth in the Registration Statement on Form S-3 (the "Registration Statement"), we hereby consent to the use of our name under the caption "Legal Matters" in the Registration Statement, including the Prospectus constituting a part thereof, as originally filed or as subsequently amended.

Very truly yours,

/s/ GRAY CARY WARE & FREIDENRICH LLP

EXHIBIT 99.1

PRESS RELEASE ISSUED JUNE 12, 2000

AASTROM BIOSCIENCES COMPLETES $6 MILLION PRIVATE EQUITY FINANCING

Ann Arbor, Michigan, June 12, 2000 - Aastrom Biosciences, Inc. (Nasdaq: ASTM) announced today that it has issued $6 million in equity capital through the sale to a single investor of approximately 2,810,000 shares of its common stock. The completion of this financing will allow the Company to further pursue its clinical trial programs for the AastromReplicell(TM) Cell Production System and expand operations.

"The continued investor interest in the Company and stabilized biotech capital markets have allowed us to complete a second financing this year," said R. Douglas Armstrong, Ph.D., President and CEO of Aastrom. "Together, these two separate financings have raised an aggregate of approximately $12 million this year and have allowed us to resume our U.S. clinical trial programs and to initiate expanded operations. Additionally, we are now in the position to resume pilot European marketing of the AastromReplicell(TM) System and to pursue application of our products and technologies into new therapy opportunities."

In addition to the sale of the common stock, the Company may issue additional shares through the exercise of a warrant effectively providing the investor with a limited price adjustment. The warrant is exercisable, if at all, beginning on June 8, 2001 if the market price of the common stock at that time is below $2.135. The warrant will immediately expire if the average price of the Company's common stock during specified periods over the next year exceeds $4.27 per share or upon certain change in control events.

Aastrom is developing a broad range of technologies designed to provide a way for cell-based therapies to become integrated into standard medical practice. These technologies include cell production processes, devices to implement those processes at large scale, and automated clinical systems intended to provide a standardized way of producing cells for therapeutic uses, and as a result, make cells more accessible to patients and physicians. In addition to developing its own cell therapies, Aastrom intends to use its product platform to collaborate with others that are developing such emerging therapies to provide an acceptable commercialization outlet to medical practice.

The AastromReplicell(TM) System is a first of its kind product that consists of an instrumentation platform designed to operate a family of patient-specific cell therapy kits to produce cells for a broad range of therapeutic applications. Each therapy kit is a single use consumable product that is tailored to the specific cell type desired for therapeutic use. Aastrom has developed two such therapy kits including the CB-I Therapy Kit for the production of cord blood cells and the SC-I Therapy Kit for the production of bone marrow-derived stem cells. Aastrom recently announced the initiation of development programs for its CB-II Therapy Kit, to produce significantly higher quantities of cord blood cells compared to its CB-I Therapy Kit, and for its OC-I Therapy Kit, intended for the production of bone-forming cells.

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

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

Contact: Todd E. Simpson, VP Finance & Administration, CFO, Aastrom Biosciences, Inc., 734-930-5777. Investor & Media, Noonan/Russo Communications, Inc., 212-696-4455, Lisa Fern, ext. 353 (media), John Capodanno, ext. 246 (investors).