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February 18, 2011

VIA EDGAR AND FEDERAL EXPRESS

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attention: Jim B. Rosenberg

Re: Aastrom Biosciences, Inc.
Form 10-K for the Year Ended June 30, 2010
Filed September 7, 2010
File No. 000-22025

Ladies and Gentlemen:

This letter is submitted by Aastrom Biosciences, Inc. (the "Company") in response to the comments of the staff of the Division of Corporation Finance (the "Staff") of the Securities and Exchange Commission (the "Commission") raised in your letter of January 28, 2011 regarding the Company's Form 10-K for the fiscal year ended June 30, 2010 filed on September 7, 2010 (the "Comment Letter"). For reference purposes, the text of the Comment Letter has been reproduced herein with responses below each numbered comment.

Cover Page

1. *You have indicated through check marks that you are both an accelerated filer and a smaller reporting company. In future filings, please only check the correct box.*

   Response 1:

   The Company acknowledges the Staff's comment and will check only the correct box in future filings and in the Amended Reports (as defined below).

Item 1. Business

Production

2. *You state in your disclosure that you rely on certain third parties to manufacture or supply certain devices and manufacturing equipment, as well as components and other materials that are used in your cell manufacturing process. Specifically, you refer to the following third parties: Sparton Corporation, Ethox, ATEK Medical, Lonza Walkersville,*

Inc., Genpore, BioLife Solutions, Inc., and Invitrogen Corporation. Please provide us with draft disclosure for future filings that describes the material terms of each of these agreements, including their payment, duration and termination provisions. Furthermore, you have not filed most of these agreements as exhibits to your annual report; we request that you do so. If you believe you are not substantially dependent on any of these arrangements, please provide us with your analysis.

Response 2:

In response to the Staff's comment, we respectfully advise the Staff that the Company is not substantially dependent on any arrangements with Sparton Corporation, Ethox, Lonza Walkersville, Inc., Genpore, BioLife Solutions, Inc., and Invitrogen Corporation, as the Company would experience only a minor disruption in business if any of these arrangements were to change or terminate, and that these arrangements were made in the ordinary course of business and are of the type ordinarily accompanying the kind of business conducted by the Company. Thus, the Company has determined that none of these arrangements is material as such term is defined under Regulation S-K Item 601(b)(10). The Company further advises the Staff that, subsequent to the filing of its Annual Report on Form 10-K on November 8, 2010 and as disclosed in the Company's Current Report on Form 8-K filed on November 12, 2010, the Company finalized the terms of a manufacturing and supply agreement with ATEK Medical, LLC (the "ATEK Agreement"). As the Company will be substantially dependent on the ATEK Agreement, the Company anticipates filing the ATEK Agreement as a material contract with its upcoming Annual Report on Form 10-K for the fiscal year ended December 31, 2010 along with the submission of a Confidential Treatment Request for certain pricing information provided in the ATEK Agreement.

The Company advises the Staff that it will revise its disclosure in future filings, to the extent applicable, to read as set forth in Exhibit A hereto. For the Staff's convenience, this disclosure has been marked against the applicable sections from the Company's Form 10-K for the fiscal year ended June 30, 2010 and is set forth in Exhibit B hereto.

Patents and Proprietary Rights, page 7

3. *In future filings, please include the duration of each of your material patents in this disclosure. Please confirm you will do so.*

Response 3:

The Company advises the Staff that it will include the duration of each of our material patents in future filings with the Commission.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 27

4. *In your July 14, 2005 response to the first comment of our April 15, 2005 letter you represent that you will disclose, in tabular format, the historical costs incurred on your research and development projects. Please provide us draft disclosure for inclusion in your future periodic reports that discloses the costs you incurred during each period presented and to date on each of your projects. In this regard, it appears that at a minimum you should separately disclose the costs incurred for your Critical Limb Ischemia and Dilated Cardiomyopathy projects.*

   Response 4:

   The Company advises the Staff that it will revise its disclosure in future filings, to the extent applicable, to separately disclose our costs for our Critical Limb Ischemia, Dilated Cardiomyopathy and other projects in tabular format for each period presented in Management's Discussion and Analysis of Financial Condition and Results of Operations, beginning with our Form 10-K for the fiscal year ended December 31, 2010. See Exhibit C for our draft disclosure.

Notes to Consolidated Financial Statements

Note 4: Shareholders' Equity, page 48

5. *It appears that the warrants issued in conjunction with your January 21, 2010 unit offering were made pursuant to a shelf registration statement. Please explain to us why you have not accounted for your Class A warrants issued in this unit offering as derivative liabilities under either or both of the following scenarios:*

   - *Please explain to us how you overcome the presumption in ASC 815-40-25-14 that these warrants are net cash settleable. In this regard, although it appears that sections 3(a) and 3(b) of the warrant agreement permit the holder the option to exercise the warrant on a cashless basis if a valid registration statement for the resale of the underlying common stock is not effective, the warrant agreement does not appear to require cashless exercise. It therefore appears that by operation of the U.S. Securities Laws the warrant holder may demand settlement in registered shares, a result which is beyond your control, and thereby trigger derivative liability treatment under ASC 815-40-25-14.*
   - *It appears that section 4.4 of your warrant agreement provides the holder price protection whereby the exercise price is reduced if you issue equity instruments at prices lower than the warrant exercise price. Please explain to us how this provision does not violate the requirement under ASC 815-40-15-7 to be indexed to your own stock. In this regard, although this provision adjusts the exercise price of the warrant*

based on a mathematical formula, it does not appear that this formula adjusts the exercise price solely for the dilutive effect of the future equity issuance being below the then-current market price. Please see Example 17 at ASC 815-40-55-42 and 55-43.

Response 5:

In response to the Staff's comments, the Company reviewed the accounting of its Class A warrants issued in connection with its January 21, 2010 offering and determined that these Class A warrants should be reflected as liabilities in its financial statements. Furthermore, in connection with this determination, the Company reviewed its previously issued warrants to purchase shares of common stock because these warrants generally provide (i) that in the event the related registration statement is not available for the issuance of the warrant shares, the warrants could potentially require cash settlement, and/or (ii) the holder with weighted-average anti-dilution price protection in the event the Company issues securities at a price per share that is less than the exercise price of the warrants. After the completion of this expanded review, the Audit Committee of the Company, together with management, determined that the Company's previously issued financial statements for all periods included in the Company's annual report on Form 10-K for the fiscal year ended June 30, 2010 and included in the Company's quarterly reports on Form 10-Q for the quarters ended September 30, 2008 through September 30, 2010 (collectively, the "Affected Periods") should be restated because of a misapplication in the guidance around accounting for warrants and should no longer be relied upon. Specifically, the financial statements in the Affected Periods should be restated to reflect the warrants as liabilities in accordance with Accounting Standards Codification 815, with subsequent changes in their estimated fair value recorded as non-cash income or expense in each Affected Period. Please note that the restatement of the Company's financial statements for the Affected Periods covers fiscal periods that are broader than the initial scope of the Staff's comment. Please see the Current Report on Form 8-K filed by the Company on February 14, 2011 for additional information regarding the restatement of the Company's financial statements for the Affected Periods.

The Company anticipates filing an amended Annual Report on Form 10-K/A for the fiscal year ended June 30, 2010 and amended Quarterly Reports on Form 10-Q/A for the fiscal quarters ended September 30, 2009, December 31, 2009, March 31, 2010 and September 30, 2010, each with restated financial statements reflecting reclassification of the warrants. The Company is presently targeting making these filings by February 28, 2011.

Item 9A. Controls and Procedures

Management's Report on Internal Control over Financial Reporting, page 53

6. *We note your statement that "(m)anagement . . . assessed the effectiveness of our internal control over financial reporting . . . and concluded that it was effective at a reasonable level." Item 308(a)(3) of Regulation S-K requires you to state whether or not your internal control over financial reporting was effective during the applicable period. Qualifying this statement as you have done here is not appropriate. Please amend your*

annual report to remove this qualification by stating that your internal controls were either effective or were not effective.

Response 6:

The Company advises the Staff that it will re-file its previously filed Annual Report on Form 10-K for the fiscal year ended June 30, 2010 to incorporate the Staff's comments. As indicated above, the Company expects to re-file this report by February 28, 2011.

Signatures, page 56

7. *Please amend your annual report to include the signatures of your principal financial officer and your principal accounting officer or controller. If any of the current signatories act in these capacities, please advise us and confirm that you will revise your signature page in the future to indicate all the capacities in which the signatories have signed the report.*

Response 7:

The Company advises the Staff that it will re-file its previously filed Annual Report on Form 10-K for the fiscal year ended June 30, 2010 to incorporate the Staff's comments. As indicated above, the Company expects to re-file this report by February 28, 2011.

As requested in the Comment Letter, the Company acknowledges that:

- The Company is responsible for the adequacy and accuracy of the disclosure in the filings;
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filings; and
- The Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

* * *

If you should have any questions concerning the enclosed matters, please contact the undersigned at (734) 930-5552.

Very truly yours,

Scott C. Durbin, Chief Financial Officer

cc: Timothy Mayleben, *Aastrom Biosciences, Inc.*
Mitchell S. Bloom, Esq., *Goodwin Procter LLP*
Danielle Lauzon, Esq., *Goodwin Procter LLP*
Jacqueline Mercier, Esq., *Goodwin Procter LLP*
Jeff Riedler, *U.S. Securities and Exchange Commission*
Mark Brunhofer, *U.S. Securities and Exchange Commission*
Kei Nakada, *U.S. Securities and Exchange Commission*
Scot Foley, *U.S. Securities and Exchange Commission*

Exhibit A

Production

Cell Manufacturing and Cell Production Components

In the United States, we operate a cell manufacturing facility in Ann Arbor, Michigan. The facility supports the current U.S. clinical trials and has sufficient capacity, with minor modifications, to supply our early commercialization needs. We may establish and operate larger commercial-scale cell manufacturing facilities for the U.S. market in the future to accommodate potential market growth.

We have established relationships with manufacturers that are registered with the FDA as suppliers of medical products to produce various components of our patented cell manufacturing system.

We have established relationships with various third parties such who manufacture and/or supply certain components, equipment, disposable devices and other materials used in our cell manufacturing process to develop our cell products, as well as our final assemblies, component parts, subassemblies and associated spare parts used in the instrumentation platform of our cell production system.

There can be no assurance that we will be able to continue our present arrangements with our manufacturers and/or suppliers, supplement existing relationships or establish new relationships, or that we will be able to identify and obtain certain components, equipment, disposable devices, other materials, including ancillary materials that are necessary to develop our product candidates or that are used in our cell manufacturing and cell production components processes. Our dependence upon third parties for the supply and manufacture of such items could adversely affect our ability to develop and deliver commercially feasible cell products on a timely and competitive basis. See “Risk Factors.”

Our Arrangement with ATEK

On November 8, 2010, we entered into a contract manufacturing and supply agreement (the “Supply Agreement”) with ATEK Medical, LLC (“ATEK”) for the manufacture our proprietary cell cassette for use in our manufacturing process. Pursuant to the terms of the Supply Agreement, we have granted ATEK the exclusive right to manufacture our proprietary cell cassette and to assemble, package, label and sterilize the cassettes in ATEK’s facilities. ATEK will be responsible for obtaining all of our approved components pertaining to the cassettes and we are obligated to order and purchase the cassettes from ATEK on an agreed upon schedule and in agreed upon quantities. In addition, we will provide ATEK with reasonable engineering support to initiate and ramp up manufacturing of the cassettes and will supply all manufacturing equipment.

The Supply Agreement has an initial term of four years and will terminate automatically without notice unless prior to that time the term is extended by mutual written consent delivered at least six months prior to the termination date. The minimum term extension is generally to be no less than two years.

The Supply Agreement provides that we may discontinue the manufacture of the cassettes at our sole discretion. In such event, we agree to use commercially best efforts to notify ATEK at least 120 days prior to our intention to discontinue manufacture of the cassettes. Failure to provide such notice will not be a breach of the Supply Agreement, but without such notice, we agree to purchase from ATEK (i) certain finished goods that are in usable condition and (ii) certain components or raw materials inventory or work in process in each case to the extent convertible into finished cassettes.

We or ATEK may terminate the Supply Agreement if the other party materially defaults in the performance of any provision of the Supply Agreement and, should any such default occur, then the non-defaulting party may give written notice to the defaulting party that if the default is not cured within 45 days, the Supply Agreement will be terminated. If the non-defaulting party gives such notice and the default is not cured during the 45 day period, then the Supply Agreement shall automatically terminate at the end of such period unless an extension is mutually agreed to by ATEK and us. In addition to other remedies, either party may terminate the Supply Agreement at any time if either of us breach our confidentiality obligations under the Supply Agreement, in which case termination shall be effective immediately upon receipt of notice of the breach and of termination. Either party may immediately terminate the Supply Agreement by written notice if the other party is or becomes insolvent, appoints or has appointed a receiver for all or substantially all of its assets, or makes an assignment for the benefit of its creditors. In addition, either party may terminate the Supply Agreement by written notice if the other party files a voluntary petition, or has filed against it an involuntary petition, for bankruptcy and such petition is not dismissed within 90 days.

Upon termination of the Supply Agreement, ATEK agrees to provide reasonable technical support at ATEK's published engineering rates for the transfer of manufacturing technology to an alternative manufacturer chosen by us to conduct final manufacture, package and test of the cassettes in the event that ATEK, for a period of 150 days from the date of receipt of the associated purchase order, is unable to manufacture all of our orders for any reason, or if ATEK fails or refuses to meet our orders for cassettes pursuant to the terms of the Supply Agreement.

There can be no assurance that we will be able to continue our present arrangement with ATEK. Our dependence upon our arrangement with ATEK for the supply and manufacture of our proprietary cell cassette could adversely affect our ability to develop and deliver commercially feasible cell products on a timely and competitive basis. See "Risk Factors."

Exhibit B

Production

Cell Manufacturing and Cell Production Components

In the United States, we operate a cell manufacturing facility in Ann Arbor, Michigan. The facility supports the current U.S. clinical trials and has sufficient capacity, with minor modifications, to supply our early commercialization needs. We may establish and operate larger commercial-scale cell manufacturing facilities for the U.S. market in the future to accommodate potential market growth.

We have established relationships with manufacturers that are registered with the FDA as suppliers of medical products to produce various components of our patented cell manufacturing system.

We have established relationships with **various** third parties such ~~BioLife Solutions, Inc., Lonza Walkersville, Inc. and Invitrogen Corporation to~~**who** manufacture and/or supply certain components, equipment, disposable devices and other materials used in our cell manufacturing process to develop our cell products~~.~~**, as well as our final assemblies, component parts, subassemblies and associated spare parts used in the instrumentation platform of our cell production system.**

There can be no assurance that we will be able to continue our present arrangements with our **manufacturers and/or** suppliers, supplement existing relationships or establish new relationships, or that we will be able to identify and obtain certain components, equipment, disposable devices ~~and~~**,** other materials**, including ancillary materials that are necessary to develop our product candidates or that are** used in our cell manufacturing ~~process~~**and cell production components processes**. Our dependence upon third parties for the supply and manufacture of such items could adversely affect our ability to develop and deliver commercially feasible cell products on a timely and competitive basis. See "Risk Factors."

~~***Cell Production Components***~~

~~We have established relationships with manufacturers that are registered with the FDA as suppliers of medical products to produce various components of our patented cell manufacturing system.~~

Our Arrangement with ATEK

On November 8, 2010, we entered into a contract manufacturing and supply agreement (the "Supply Agreement") with ATEK Medical, LLC ("ATEK") for the manufacture our proprietary cell cassette for use in our manufacturing process. Pursuant to the terms of the Supply Agreement, we have granted ATEK the exclusive right to manufacture our proprietary cell cassette and to assemble, package, label and sterilize the cassettes in ATEK's facilities. ATEK will be responsible for obtaining all of our approved components pertaining to the cassettes and we are obligated to order and purchase the cassettes from ATEK on an agreed upon schedule and in agreed upon quantities. In addition, we will provide ATEK with reasonable engineering support to initiate and ramp up manufacturing of the cassettes and will supply all manufacturing equipment.

The Supply Agreement has an initial term of four years and will terminate automatically without notice unless prior to that time the term is extended by mutual written consent delivered at least six months prior to the termination date. The minimum term extension is generally to be no less than two years.

The Supply Agreement provides that we may discontinue the manufacture of the cassettes at our sole discretion. In such event, we agree to use commercially best efforts to notify ATEK at least 120 days prior to our intention to discontinue manufacture of the cassettes. Failure to provide such notice will not be a breach of the Supply Agreement, but without such notice, we agree to purchase from ATEK (i) certain finished goods that are in usable condition and (ii) certain components or raw materials inventory or work in process in each case to the extent convertible into finished cassettes.

We or ATEK may terminate the Supply Agreement if the other party materially defaults in the performance of any provision of the Supply Agreement and, should any such default occur, then the non-defaulting party may give written notice to the defaulting party that if the default is not cured within 45 days, the Supply Agreement will be terminated. If the non-defaulting party gives such notice and the default is not cured during the 45 day period, then the Supply Agreement shall automatically terminate at the end of such period unless an extension is mutually agreed to by ATEK and us. In addition to other remedies, either party may terminate the Supply Agreement at any time if either of us breach our confidentiality obligations under the Supply Agreement, in which case termination shall be effective immediately upon receipt of notice of the breach and of termination. Either party may immediately terminate the Supply Agreement by written notice if the other party is or becomes insolvent, appoints or has appointed a receiver for all or substantially all of its assets, or makes an assignment for the benefit of its creditors. In addition, either party may terminate the Supply

Agreement by written notice if the other party files a voluntary petition, or has filed against it an involuntary petition, for bankruptcy and such petition is not dismissed within 90 days.

~~Sparton Corporation, formerly Astro Instrumentation, LLC, manufactures our final assemblies, component parts, subassemblies and associated spare parts used in the instrumentation platform of our cell production system. This agreement automatically renews every 12 months unless terminated. We retain all proprietary rights to our intellectual property that is utilized by Sparton pursuant to this agreement.~~

~~Through August 2010, Moll Industries, Inc. (Moll) was our supplier of the cell culture cassettes used in the production of our products. Moll performed the manufacturing and assembly of the cassettes while we retained all rights to our intellectual property that was utilized by Moll pursuant to this agreement. In April 2010, Moll filed for bankruptcy protection in a Delaware court. As a result, we plan to engage ATEK Medical (ATEK) to manufacture our cell culture cassettes. We are in the process of finalizing the terms of our agreement with ATEK and expect that the terms will be substantially similar to those we had previously with Moll, including retention of all rights to our intellectual property.~~

Upon termination of the Supply Agreement, ATEK agrees to provide reasonable technical support at ATEK's published engineering rates for the transfer of manufacturing technology to an alternative manufacturer chosen by us to conduct final manufacture, package and test of the cassettes in the event that ATEK, for a period of 150 days from the date of receipt of the associated purchase order, is unable to manufacture all of our orders for any reason, or if ATEK fails or refuses to meet our orders for cassettes pursuant to the terms of the Supply Agreement.

There can be no assurance that we will be able to continue our present ~~arrangements with our suppliers, supplement existing relationships or establish new relationships or that we will 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~~**arrangement with ATEK. Our dependence upon our arrangement with ATEK** for the supply and manufacture of ~~such items~~**our proprietary cell cassette** could adversely affect our ability to develop and deliver commercially feasible **cell** products on a timely and competitive basis. See "Risk Factors."

Exhibit C

Project	June 30, 2009	June 30, 2010	December 31, 2009*	December 31, 2010*
Critical Limb Ischemia				
Dilated Cardiomyopathy				
Other				
Total Research and Development Expense				

* Periods presented reflect the Company's change in year end from June 30 to December 31 as disclosed in a Form 8-K filed on November 12, 2010.