

Mail Stop 3561

October 5, 2007

Dr. Tina S. Nova  
Chief Executive Officer  
Genoptix, Inc.  
2110 Rutherford Road  
Carlsbad, CA 92008

**RE: Genoptix, Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
File No. 333-144997  
Amendment Filed September 10, 2007**

Dear Dr. Nova:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General Comments

1. We do not believe that the company has responded completely to our prior comment 3 from our letter dated September 4, 2007. Accordingly, we reissue that comment. Please revise to fill in all blanks in your next amendment except for pricing information. In this regard, please understand that failure to fill in these

terms of the offering may delay clearance to the extent that we have comments on your revisions.

2. We note your response to our prior comment 6. Item 501(b)(8)(i) of Regulation S-K requires an identification of the nature of the underwriting arrangement, while, as you correctly note, 501(b)(8)(ii) requires a description of the arrangement if the offering is made on other than a firm commitment basis. Please revise to identify the nature of your underwriting arrangement to indicate that yours is a firm commitment underwritten offering.

Prospectus Summary, page 1

3. We note your response to our prior comment eight and your revised disclosure on page 4. Please revise to indicate, consistent with your existing disclosure elsewhere, that your existing business is highly dependent upon this arrangement and that a substantial portion of your revenues is assigned from Cartesian to you. Alternatively, advise why no revision is necessary.
4. We note your response to our prior comment ten and your comparative discussion with respect to the three labs. However, it is unclear how many specialized diagnostic labs exist. Please advise, preferably with reference to appropriate third party sources, of the number of labs within your market niche.
5. We note your response to our prior comment 15 and the conforming revisions you have made throughout the prospectus. We further note that you have estimated the market size based upon an average price per test of \$3,000. Please advise how this average was determined. In this regard we note your page 53 disclosure that your service revenue per case is \$2,212.

Risk Factors, page 9

6. We note your response to our prior comment 18, and revised disclosure on page ten. Please revise your existing disclosure to briefly address the impact, if any, of treating a patient as "in-network." Also indicate in this risk factor that approximately half of the company's revenues are derived from non-contracted payors.
7. Please revise risk factor 29, on page 24, to indicate when the company entered into the PSA with Cartesian. Also indicate that prior to December 31, 2005 the company contracted with individual physicians who provided services to the company. Please revise to address any risks associated with this prior structure and the potential assertion by regulatory authorities that the company was engaged in the corporate practice of medicine.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 39

8. We note disclosure throughout your prospectus, including page one and page 50, that you made accounting changes which positively impacted your results for the six months ended June 30, 2007. Please revise to address these changes within your overall results of operations discussion, in addition to your existing disclosure.
9. Please revise your disclosure on pages 51 and 53 to incorporate substantially all of your response to our prior comment 32. Alternatively, advise why no revision is necessary.
10. In addition to the foregoing comment, we note your disclosure on page 40 and elsewhere that a "substantial portion" of your revenue is a result of your assignment agreement with Cartesian. Please revise, where appropriate, to indicate how you use the term substantial – i.e., is it greater than 50%, 80% etc., and indicate whether you would have any revenue in the absence of the Cartesian agreement.

Results of Operations, page 50

11. We note that the company has made revisions throughout this section in response to our prior comments 38 through 44. However, we do not believe that the company has responded sufficiently to our prior comments. Please provide a more detailed discussion of your results of operations for each period addressed. Quantify and explain material items and changes period to period and explain how the items and changes relate to your overall business.

Liquidity and Capital Resources, page 55

12. Please revise your page 55 discussion to clarify the distinction between your note and line of credit. In this respect, disclose the borrowings under each, the purpose of the borrowings, the interest rate, and any amounts available under each for future borrowings. See prior comment 46.
13. It does not appear that the company has responded completely to our prior comment 45. Accordingly, we reissue it. Please revise your discussion of liquidity and capital resources to provide enhanced analysis and explanation of the sources and uses of cash and material changes in particular items underlying the major captions reported on your financial statements.

14. We were unable to locate the disclosure responsive to our prior comment 49. Please revise to quantify the time period that the company believes the net proceeds of the offering will fund its planned growth and operating activities.

Business, page 58

15. We do not believe that the company has responded with sufficient detail to prior comment 16 with respect to sub-parts b-c. Accordingly, we reissue them. Please provide additional disclosure of where, geographically, you expect to focus your sales force increase; which markets you will focus on; how sales and selling efforts are conducted; and, how new hem/oncs are sourced.

Cartesian Medical Group, Inc., page 72

16. On page 72 you disclose that you contracted with individual physicians prior to your entering an agreement with Cartesian in 2005. Please clarify the nature of these individual agreements – employment, independent contractor, etc., and indicate whether these physicians subsequently took positions with Cartesian.
17. Please revise to indicate what role, if any, the company played in forming Cartesian. Also, indicate whether you had any relationship with Dr. Dabbas prior to your agreement with Cartesian.
18. Please indicate the terms, including financial terms, of the medical director agreement with Dr. Dabbas.
19. Please revise to indicate whether you are obligated to approve Cartesian's provision of services to other entities or patients after they notify you.
20. We note that the succession agreement provides Dr. Dabbas' shares in Cartesian are transferred to a successor medical director or other designee of your choosing "upon the occurrence of certain other events." Please revise to briefly address the certain other events.

Executive Compensation, page 82

21. We note your response to our prior comment 69 and your statement that "[n]o vice president of the Company is in charge of a principal business unit, division or function, and no other officer or person performs a policy making function. However, your page 74 disclosure lists nine individuals under "Key Employees and Consultants" including seven with the title Vice President. Please provide us

with an detailed analysis explaining why none of these individuals fall within Rule 3b-7 of the Securities Exchange Act of 1934 and Item 402(a)(3) of Regulation S-K.

22. We note that the company has made revisions on pages 82 through 86 in response to our prior comments 70 through 74. However, we believe that additional disclosure is warranted. Please advise or revise to:
  - a. Provide additional support for your statement that compensation is “generally comparable” and explain the difference between your statement and benchmarking; and,
  - b. Explain why the company has revised this section to remove the prior references to benchmarking and provide additional disclosure about the board’s analysis with respect to executive compensation.
23. It does not appear that the company has responded completely to our prior comment 70 from our letter dated September 4, 2007. Accordingly, we reissue it. Please revise to indicate, in greater detail, the key performance measures that your executive compensation program is designed to award, whether they were met, and how the executive was rewarded as a result. In this regard please provide additional disclosure beyond “[t]hese factors were subjectively assessed” to, at a minimum, address the process of assessing these salaries.
24. It does not appear that the company has responded in sufficient detail to our prior comment 73 from our letter dated September 4, 2007. Accordingly, we reissue it. Please revise to indicate, in greater detail, the factors considered in increasing your named executive officers’ base salaries. In this respect we are looking for a more specific discussion of the factors considered.
25. It does not appear that the company has responded in sufficient detail to our prior comment 74 from our letter dated September 4, 2007. Accordingly, we reissue it. Please revise to indicate the individual and corporate performance objectives applicable to the 2007 Annual Executive Bonus Plan.

#### Exhibits

26. We continue to note that several of your exhibits, including your legality opinion, have not been filed. Please note we will review and comment upon these agreements when they are filed.

#### Exhibit 10.14

27. Please revise your disclosure to address Section 12 of the Form of Physician Employment Agreement, including how it impacts the relationship between you, Cartesian, and your Hemplaths.

Closing Comments

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

You may contact Raj Rajan (202) 551-3388 if you have questions regarding comments on the financial statements and related matters. Questions on other disclosure issues may be directed to Jay Williamson at (202) 551-3393.

Sincerely,

John Reynolds  
Assistant Director

cc. Frederick Muto  
(858) 550-6420