Mail Stop 6010

June 21, 2006

Lloyd H. Malchow
President and Chief Executive Officer
SenoRx, Inc.
11 Columbia, Suite A
Aliso Viejo, California 92656

Re: SenoRx, Inc.
Registration Statement on Form S-1
Filed May 25, 2006
File No. 333-134466

Dear Mr. Malchow:

We have reviewed your registration statement 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 information so we may better understand your disclosure. After reviewing this information, we may 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

1. Please confirm that any preliminary prospectus you circulate will include all non-Rule 430A information. This includes the price range and related information based on a *bona fide* estimate of the public offering within that range. Also, in the next amendment, please fill in the blanks throughout the filing, and note that we may have additional comments after you do so.

Prospectus Cover Art

2. Please advise us in your response letter whether the features listed on the table describe all of the significant features of both your and your competitor's biopsy systems. For example, are there other features of your competitor's products that are not shared by your products? We may have further comment.

Summary, page 1

Our Business, page 1

3. Tell us why you state here and elsewhere in your prospectus that you currently manufacture and sell devices for the treatment of breast cancer. It appears from your disclosure that you have not yet commercialized any of your product candidates that treat breast cancer.

Recent Developments, page 3

4. Please revise your disclosure to provide greater detail as to what is meant by the phrase "we have not fully transitioned to the redesigned cutter." Also confirm in your response letter that such modification does not require a new clearance from the FDA.

Market Data, page 4

5. Please revise to eliminate your statement in the last sentence of this paragraph that "the accuracy or completeness" of the market data and industry forecasts included in the prospectus "is not guaranteed," as investors are entitled rely on statements made in the prospectus. If you question the accuracy or completeness of any data prepared by third parties, you should omit it from the prospectus.

The Offering, page 5

6. Revise the second bullet point to quantify the number of shares of common stock into which your preferred stock and convertible promissory notes will convert.

7. Please respond to the following comments:
   - Please reconcile the number of common shares outstanding as of March 31, 2006 of 33,073,663 with the number of common shares outstanding as of March 31, 2006 of 8,190,037 on page F-27.
   - Please reconcile your disclosure that all of the information in the prospectus assumes the conversion of your convertible promissory notes with your disclosure that the number of shares of common stock outstanding after the offering excludes the common shares issuable upon conversion of the convertible promissory notes.

- Please tell us why you have excluded the number of shares of common stock issuable upon conversion of the convertible promissory notes from the number of common shares to be outstanding after the offering. On page F-36 you disclose that the notes automatically convert into common shares upon the closing of your IPO.

Summary Financial Data, page 6

8. Please remove the term "(unaudited)" from the column headings for the three months ended March 31, 2006 and 2005 and as of March 31, 2005 to avoid giving the impression that the other periods are audited. Please similarly revise page 26.

9. We note that you include the following transactions related to your notes with the pro forma impact of your offering: (a) the effects of a fair value adjustment and (b) the conversion of the notes into common stock. Please revise your pro forma presentation to separately present the pro forma effects of the offering. Please similarly revise your pro forma presentations on pages 22 and 27.

Risk Factors, page 8

10. We note that you have entered into multiple amendments to your loan agreement with Silicon Valley Bank. Please discuss the risks of default, if material, because of your failure to comply with the covenants in that agreement.

Use of Proceeds, page 21

11. We note that you intend to use some of the offering's proceeds to repay interest owing on the May 2006 convertible promissory notes. It appears from the form of such notes filed as part of Exhibit 10.10 that any accrued and unpaid interest is due and payable along with the principal upon each note's maturity. Please supplement this section to provide the disclosure required by Instruction 4 to Item 504 of Regulation S-K.

Dilution, page 24

12. Please respond to the following comments:

- Please tell us and disclose how the dilution information reflects the conversion of the preferred shares to common shares upon the IPO.
- We note that you include the following transactions related to your notes with the pro forma impact of your offering: (a) the effects of a fair value adjustment and (b) the conversion of the notes into common stock. Please

revise your pro forma presentation to separately present the pro forma effects of the offering.

13. We note that the amount of total consideration for existing stockholders is $47.9 million. It appears that this amount assumes conversion of the preferred stock. Please tell us how you calculated the amount of total consideration and reconcile with pages F-18 and F-27.

14. With respect to your table at the bottom of page 24, please disclose how the conversion of the convertible debt upon the IPO will impact the percentage of shares purchased and the total consideration percentage paid by the new investors and existing stockholders. Please also revise your current disclosure on page 25 with respect to the options and warrants to include the impact of the conversion of this debt.

Management's Discussion and Analysis…, page 28

15. We note your disclosure on page 14 and 58 that the shearing off in patients' breasts of the tip of one of your marker products was a recurring problem. Please tell us in your response letter whether any litigation related to this problem has ensued. Supplement your disclosure to identify any known trends and uncertainties related to this recurring problem to the extent that such events would result in or are reasonably likely to result in your liquidity increasing or decreasing in any material way. Disclosure of such a trend, demand, commitment, event or uncertainty is required unless you are able to conclude either that it is not reasonably likely that the trend, uncertainty or other event will occur or come to fruition, or that a material effect on your liquidity, capital resources or results of operations is not reasonably likely to occur. See Item 303(a)(1) of Regulation S-K and Section III.B.3 of SEC Release 33-8350.

Recent Developments, page 28

16. Please correct your cross-reference to your description of your convertible promissory notes.

Results of Operations, page 30

Three Months Ended March 31, 2006 Compared to Three Months Ended March 31, 2005

17. Please reconcile the decrease in sales of SenoCor 360 of $0.2 million with the table on page F-33. We note that biopsy capital equipment product sales decreased 13%. Please tell us and disclose why these sales and the sales of

SenoCor 360 are declining. Refer to Item 303(b)(2) of Regulation S-K and the instructions thereto, SAB Topic 13.B, and Release 33-8350.

18. Please quantify the impact of the "increased costs associated with scrapping obsolete component inventory" on your gross profit. Refer to FRC 501.04.

Year ended December 31, 2005 compared to year ended December 31, 2004, page 31

19. We note that the increase in net revenues was primarily attributable to a $5.6 million increase in sales of EnCor disposable probes and consoles. Please tell us and disclose the underlying reasons for the increase, especially considering the full commercial launch did not occur until November 2005. Refer to Item 303(a)(3)(iii) of Regulation S-K, SAB Topic 13.B, and Release 33-8350.

20. Please reconcile the increase in sales of Encor disposable probes and consoles of $5.6 million and the decrease in sales of SenoCor 360 of $0.4 million with the table on page F-25. We note that adjunct and other product sales decreased 20%. Please tell us and disclose why these sales are declining. Refer to Item 303(a)(3)(iii) of Regulation S-K, SAB Topic 13.B, and Release 33-8350.

Year ended December 31, 2004 compared to year ended December 31, 2003, page 31

21. Please reconcile the increase in sales of EnCor disposable probes and consoles of $1.5 million, an increase of $1.3 million in tissue marker sales, an increase of $1.3 million in Gamma Finder sales and a $0.4 million decrease in sales of SenoCor 360 with your disclosure on page F-25. On page F-25 we note that biopsy disposable product sales increased $1.9 million, while biopsy capital equipment sales decreased $1.2 million. We also note that marker product sales increased $6.7 million and adjunct and other product sales decreased $4.1 million. Please tell us and disclose in MD&A the reasons for the significant changes in your sales shown by the table on page F-25. Refer to Item 303(a)(3)(iii) of Regulation S-K, SAB Topic 13.B, and Release 33-8350.

Liquidity and Capital Resources, page 33

22. Please reconcile (a) the cumulative gross profit from the sale of your products of $25.0 million with the same amount derived from pages F-5 and F-28 and (b) the cumulative net proceeds from the issuance of preferred stock of $46.8 million with the same amount derived from page F-27.

23. Please discuss material changes in the underlying drivers of your working capital changes (*e.g.* cash receipts from the sale of goods and services and cash payments to acquire materials for manufacture or goods for resale), rather than merely

describing items identified on the face of the statement of cash flows to provide a sufficient basis for a reader to analyze the change. Refer to Item 303(a)(1) of Regulation S-K and Release 33-8350.

24. Please revise your contractual obligations table to include other long-term liabilities reflected in your balance sheet under GAAP, or tell us why the current disclosure complies with Item 303(a)(5) of Regulation S-K.

25. Please tell us how you calculated the $2.0 million of discount value on the 2006 convertible notes. Refer to the fourth paragraph on page 36.

Critical Accounting Policies, page 37

26. Please disclose the aggregate intrinsic value of all outstanding vested and unvested options as of March 31, 2006 based on the midpoint of the estimated IPO price range.

27. We note your reference to a third-party estimate. Please note that if you elect to continue to make such a reference, you will be required to identify the appraisal firm under "Experts" and include their consent in the registration statement. Alternatively, we encourage you to instead clearly disclose that management is primarily responsible for estimating fair value for impairment purposes. We will not object if you wish to state, in revised disclosure, that management considered a number of factors, including valuations or appraisals, when estimating fair value. Regardless of your decision, your disclosure should clearly indicate that management is responsible for the valuation. See Securities Act Rule 436.

Business, page 43

Overview, page 43

28. Revise your disclosure in the third sentence of the first paragraph and in the summary section to clarify that you will need to seek and receive regulatory approval prior to commercializing your therapeutic products.

29. We note your disclosure here and elsewhere in the prospectus that you "expect to seek and obtain FDA 510(k) clearance" at specified future times. Please disclose the basis for your expectation that you will be able to seek and obtain FDA clearance for your product candidates.

Industry Overview, page 43

Breast Cancer, page 43

30. Please provide us with the reports containing data cited throughout the prospectus, clearly marking the relevant sections. For example, in the first two paragraphs you provide data regarding the rate and number of incidences of breast cancer in the United States, in the final full paragraph on page 44 you provide data regarding the number of breast biopsies performed annually in the United States and you cite estimates by Millennium Research Group in the final paragraph on page 45. Please also disclose the source of your quoted data. In addition, please tell us whether the sources of the cited statistics have consented to your use of their data and whether any reports were prepared specifically for your use.

Evolution of Breast Biopsy Procedures, page 44

Surgical Biopsy, page 44

31. We note your statement that "the accuracy of a diagnosis using the surgical method is close to 100%." Please disclose the accuracy rate for alternative biopsy methods, including needle biopsy and vacuum-assisted biopsy.

Vacuum-Assisted Biopsy, page 45

32. Please revise to disclose the comparative advantages and disadvantages of open and closed systems referenced in the final sentence.

Our Solution, page 48

33. Please tell us why you believe it is appropriate at this time to state that you "have developed a broad product line" when it appears from your disclosure that you have not yet fully developed your product candidates for excising, treatment and reconstruction.

34. We note your disclosure that your Vacuum Radiation Balloon is designed to "provide uniform radiation dosing." We further note your disclosure on page 46 that "delivering a uniform radiation dose remains an obstacle" for radiation balloon brachytherapy. Please clarify how your product candidate is able to overcome this obstacle; if it is solely through its use in conjunction with the Single Step device, so state.

Our Products, page 50

35. Please tell us why you believe it is appropriate to make references to your "products" when referring to product candidates that have not yet been commercially sold.

Manufacturing, page 55

36. Please revise your disclosure to identify the manufacturer that provides you with subassembly services in Thailand and file any material agreement required by Item 601(b) of Regulation S-K.

37. Please revise your disclosure to identify the single source suppliers referenced in the second sentence of the fourth full paragraph on page 56.

Patents and Proprietary Technology, page 60

38. Please disclose the duration and scope of all material patents.

Related Party Transactions, page 75

Debt, page 75

39. Disclose all material terms of your May 2006 Note Purchase Agreement and related agreements, including the identities of the parties, their relationships to you, conversion terms, etc., as applicable. This disclosure should appear in narrative form in the text of your prospectus, not solely in a footnote.

40. Using an assumed initial public offering price, please disclose the number of shares and effective price per share paid for the common stock the noteholders will receive upon conversion of the notes at closing of your offering. This calculation should include the $1,800,000 interest payment due to noteholders within 60 days of the closing.

Corporate Finance, page 75

41. Please disclose all the material terms of the Series C preferred stock offerings listed here, including when each such offering took place.

42. Disclose how each of the named entities is affiliated with your officers or directors, if at all. We note, for example, your disclosure in footnote 6 on page 78 regarding the relationship between Mr. Dotzler and De Novo Ventures.

Principal Stockholders, page 77

43. Identify all natural persons who beneficially own the shares held by each of the entities named in the Principal Stockholders table.

Shares Eligible for Future Sale, page 82

Lock-Up Agreements, page 82

44. Please quantify the number of shares of common stock subject to lock-ups.

Financial Statements, page F-1

Statements of Stockholders' Equity, page F-6

45. Please tell us why a portion of the warrants issued during the year ended December 31, 2004 was applied to deferred compensation and how this amount was determined. Please disclose the nature of this transaction in the notes to the financial statements.

Statements of Cash Flows, page F-7

46. Please reconcile the amount of net proceeds from issuance of common stock and stock option exercises for the year ended December 31, 2004 to the amount recorded on the statement of stockholders' equity.

Note 1. General and Significant Accounting Policies, page F-8

Revenue Recognition and Deferred Revenue, page F-10

47. Please clarify the point at which title transfers.

48. In a related matter, please expand your disclosure in the last paragraph of this section to describe what happens to the title to the equipment and amortized cost of the equipment if the customer doesn't purchase a minimum number of disposable devices at the end of the contract.

49. We note that you entered into an arrangement with Century Medical in 2002. Please tell us and disclose all of the significant terms of that agreement, including the circumstances under which you may be obligated to refund the advances. Please provide us with a rollforward of the deferred revenue amount from the inception of the agreement through March 31, 2006. Explain why the amount of deferred revenue is increasing each period. Please tell us in more detail how you

determine the current and long-term portions of the deferred revenue. We note that the current portion is $287,133 as of December 31, 2005, while total sales from 2002 through March 31, 2006 have been only $46,000.

Note 6. Stockholders' Equity, page F-17

50. We note that you issued 961,849 shares of common stock in 2005 at $0.27 per share. On page F-21 it appears that the fair value of your common stock was above $1.00 during 2005. Please tell us how you accounted for the issuance of these shares and why. Tell us the nature of the purchasers and whether they are related parties.

Note 7. Stock Option Plans, page F-20

51. Please note that we are deferring any final evaluation of stock compensation recognized until the estimated offering price is specified, and we may have further comments in that regard when you file the amendment containing that information.

52. Please give us a schedule showing in chronological order, the date of grant, optionee, number of options or warrants granted, exercise price and the deemed fair value of the underlying shares of common stock for the options or warrants issued within the year preceding the contemplated IPO. Also, provide a similar schedule for issuances of common stock. Tell us the objective evidence and analysis which supports your determination of the fair value at each grant and stock issuance date. Discuss the nature of any events which occurred between the dates the options were granted and the date the registration statement was filed. Quantify the effect on the fair value in order to support a valuation below the IPO price.

53. For equity instruments granted during the twelve months prior to the date of the most recent balance sheet, please disclose the following in the notes to your financial statements:

- For each grant date, the number of options or shares granted, the exercise price, the fair value of your common stock, and the intrinsic value (if any) per option.
- Whether the valuation was contemporaneous or retrospective.
- If the valuation specialist was a related party, please disclose that fact.
- Please note that when you refer to an independent valuation you should also disclose the name of the expert and include the consent of the expert if the reference is made in a 1933 Act filing.

Note 11. Segment Information, page F-24

54. Please disclose the nature of the products included in each of the five product categories so that the information can be reconciled to your discussion in MD&A. Refer to paragraph 37 of SFAS 131.

Interim Financial Statements

Note 6. Subsequent Events, page F-36

55. With respect to the 2006 convertible notes, please address the following:

- Please provide us with your analysis of the conversion feature under SFAS 133 and EITF 00-19. We note that the conversion price is 80% of the IPO price. It appears that as a result you would not be able to conclude that you have sufficient authorized and unissued shares. This conclusion, if true, would also cause a similar problem under any other outstanding non-employee convertible instruments.
- We note that you did not identify the interest rate as a derivative even though it is equal to 22.5% of the principal amount of the notes. Please provide us with your analysis of this feature under SFAS 133, including paragraphs 12 and 13.
- On page F-13 you state that you expect to record a fair value adjustment of $3.8 million. Please tell us how you calculated this amount and when you expect to record it. Tell us whether you plan to record the instrument at fair value as of June 30, 2006 and make any associated fair value adjustments.

Part II

Recent Sales of Unregistered Securities – Page II-2

56. Rather than describing unrelated transactions on a group basis, please revise your disclosure in paragraphs 2. and 3. to include all of the information required by Item 701 of Regulation S-K for each individual transaction that was not part of a series of transactions.

Item 17. Undertakings, page II-4

57. Please provide the undertakings contained in Items 512(a)(5)(ii) and 512(a)(6) of Regulation S-K.

Signatures

58. Please provide signatures of all the parties required to execute the registration statement, including your principal financial officer. See Instruction 1 to the Form S-1 signature page.

Exhibits

59. Please file all other required exhibits to allow sufficient time for staff review.

60. We note that you have requested confidential treatment for portions of exhibits 10.11 and 10.13. We will review and provide any comments on your request separately. Comments regarding your request must be resolved before we will accelerate the effectiveness of this registration statement.

* * * * *

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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from

its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact at David Burton at (202) 551-3626 or Kate Tillan, Assistant Chief Accountant, at (202) 551-3604 if you have questions regarding comments on the financial statements and related matters. Please contact Donald C. Hunt at (202) 551-3647 or me at (202) 551-3444 with any other questions.

Sincerely,

Perry Hindin
Branch Chief

cc (via fax): David Saul, Esq., Wilson Sonsini Goodrich & Rosati, P.C.