UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

July 27, 2011

Via E-mail
Mr. Harry S. Palmin
President and Chief Executive Officer
Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, MA 02458

Re: Novelos Therapeutics, Inc.
Registration Statement on Form S-1
Filed July 1, 2011
File No. 333-175284

Dear Dr. Palmin:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Registration Statement on Form S-1

General

1. Please note that when you file a pre-effective amendment containing pricing-related information, we may have additional comments. As you are likely aware, you must file this amendment prior to circulating the prospectus.

2. Please note that when you file a pre-effective amendment that includes your price range, it must be bone fide. We interpret this to mean that your range may not exceed $2 if you price below $20 and 10% if you price above $20.

3. Please note that where we provide examples to illustrate what we mean by our comments, they are examples and not complete lists. If our comments are applicable to portions of

the filing that we have not cited as examples, please make the appropriate changes in accordance with our comments.

4. Please provide us supplemental copies of proofs of all graphic, visual or photographic information you will provide in the printed prospectus prior to its use.

5. Your Form S-1 does not include the financial statements of Novelos, the registrant, for the years ending December 31, 2010 and 2009 and the quarter ending March 31, 2011. Form S-1 rules also require that you include Rule 8-04 financial statements, which as a result of the reverse acquisition, will be those of the registrant, Novelos. Accordingly, please revise to provide the financial statements of the acquired company in accordance with Rule 8-04.

6. Please provide the information required by Item 304 of Regulation S-K regarding your change of accountants from Stowe & Degon LLC to Grant Thorton LLP.

Prospectus Summary

7. Please briefly define the following terms used in the Prospectus Summary:

    - Radiolabeled;
    - Radioisotope;
    - Apoptosis;
    - Akt;
    - Caspase-mediated;
    - Cytotoxic;
    - Dosimetry.

8. Please note that the Prospectus Summary must be a balanced discussion of the disclosure found within the Prospectus. Accordingly, it must contain information related to the weaknesses and risks faced by the company in addition to its strengths. Please add a subsection to the Prospectus Summary immediately following the "Our Business" subsection to briefly describe the major risks and weaknesses facing the company. This discussion should include your history of losses, your involvement in legal proceedings, your need to raise a substantial amount of funds to continue development of your product candidates, your lack of revenue, and your lack of FDA-approved products.

9. Please briefly describe your material collaborations and license agreements relating to Cellectar products and technologies in this section.

10. Please expand your Prospectus Summary section and Business section briefly to explain how Cellectar developed its technology platform and intellectual property. To the extent that this was developed in-house, please identify the technology.

The Offering

11. You state on page 4 that "unless we specifically state otherwise, the share information in this prospectus is as of June 29, 2011 . . . ." Please confirm that you will update share information with each amendment as of the latest practicable date.

Risk Factors
"We will require additional capital in order to continue our operations . . .," page 7

12. To the extent possible, please quantify the cost of your currently anticipated research and development activities, including the costs you will incur prior, and related to, filing INDs for COLD and LIGHT, and costs you will incur related to the initiation through completion of the Ib trial for HOT.

13. We note your disclosure that your ability to execute your operating plan depends upon your ability to obtain additional funding via the sale of equity and/or debt securities, a strategic transaction, or otherwise. Please disclose whether you have approached any sources for additional funding, or have entered into negotiations for a transaction.

14. We note your disclosure that you may obtain additional financing by issuing debt securities. Please expand your disclosure to inform the investor that any holders of debt securities could have rights superior to existing shareholders.

"We were recently a defendant in a securities fraud class action lawsuit . . .," page 8

15. In the third paragraph of this risk factor, you disclose that the resulting liability from claims may not be covered by insurance. Please expand this risk factor to disclose the types of insurance you carry, and the extent of your coverage.

"The integration of Novelos and Cellectar may be costly and difficult," page 9

16. If you have experienced any difficulties in integrating Novelos and Cellectar, please briefly describe them in this risk factor.

"We have limited in-house research and manufacturing capacity and rely . . .," page 11

17. Please expand this risk factor to discuss the term and termination provisions of any agreements you have with contract manufacturers, and the University of Wisconsin at Madison.

"We may face litigation from third parties who claim . . .," page 12

18. You state in this risk factor that "most of [your] license agreements would likely require that [you] pay the costs associating with defending this type of litigation." It is not clear

if you currently have any license agreements in addition to your license agreement with the University of Michigan. If you do not, please clarify that you are referring to potential future license agreements. If you currently have license agreements in addition to the license agreement with the University of Michigan, they should be described in the Business section.

19. If you have or have had any claims against you alleging infringement, please so disclose in this risk factor.

"If we are unable to protect or enforce our rights to intellectual property . . .," page 13

20. You indicate that you maintain confidentiality and assignment-of-inventions agreements with your employees and other persons with access to your proprietary materials or processes. Please provide the Staff with a supplemental copy of the standard confidentiality agreement and the assignment-of-inventions agreement you enter into with your employees. We may have further comment.

"The use of hazardous materials, including radioactive materials . . .," page 14

21. Please disclose the amount of your insurance coverage.

"If we are unable to convince physicians of the benefits of our intended products. . .," page 15

22. In this risk factor and in the Business section, please describe your target market.

"The market for our products is rapidly changing . . .," page 15

23. Please expand your disclosure in this risk factor to identify the major potential competing products, their indications, and the companies who are selling or developing them.

"We depend on key personnel who may terminate their employment . . . ," page 16

24. To the extent you have experienced problems attracting and retaining highly qualified personnel in the recent past, please revise to describe these problems.

"There may be a limited public market for our securities . . .," page 17

25. Please briefly describe the listing requirements for initial listing on a registered stock exchange that your common stock currently fails to meet.

"Our common stock constitutes a 'penny stock' under SEC rules . . .," page 17

26. Please briefly define a "penny stock."

27. In this risk factor, please also discuss the effect on liquidity, specific legal remedies available to investors of penny stocks, and how such remedies would affect the company.

"If we fail to maintain effective internal controls over financial reporting . . .," page 17

28. Please disclose any past or present weaknesses in your internal control over financial reporting.

Use of Proceeds

29. The second paragraph of this section, beginning with "We may not be successful in selling any or all of the securities offered hereby. . . ." is inappropriate for this filing because this is a firm-commitment offering. Please delete this paragraph.

30. We note your disclosure that you expect to use any proceeds received from this offering to fund your research and development activities, including the further development of your LIGHT, HOT and COLD compounds in a wide range of cancers. Please expand this statement to disclose where in the process of developing LIGHT, HOT, and COLD you expect the application of these proceeds will take you.

Management's Discussion and Analysis of Financial Condition and Results of Operations

31. Please revise to provide us the composition of research and development expenses for each period presented. In this regard, please provide us a break-out, if practicable, by development project, development phase (i.e. preclinical versus clinical), or by some other function/nature for which you report these costs internally.

Liquidity and Capital Resources, page 25

32. Please revise to discuss the reasons for the changes in operating assets and liabilities, which contributed to the reduction in cash used in your operating activities from $1,215,612 in the first quarter of 2010 to $324,566 in the first quarter of 2011. For example, you disclose that accounts payable and accrued liabilities contributed $293,000 to operating cash flows in the first quarter of 2011. However, you do not discuss the reasons for the corresponding increase in accounts payable and accrued liabilities. Ensure that your revised disclosure also describes any known trends, demands, commitments, events or uncertainties that are reasonably likely to result in your liquidity increasing or decreasing in any material way.

Critical Accounting Policies
Stock-based Compensation, page 26

33. In order for us to fully understand the equity fair market valuations reflected in your financial statements, please revise to provide a table disclosing the number of instruments

granted, exercise price, fair value of the underlying stock, fair value of the instrument granted for all equity instruments and the amount of compensation or interest element recorded, if any, for all equity instruments issued during 2010 and 2011 through the date of your response. This table should include the 3,576,400 options issued on May 18, 2011 for $1.40.

34. We may have additional comments on your accounting for stock compensation and related disclosure once you have disclosed an estimated offering price. Once you have disclosed an estimated offering price, please provide quantitative and qualitative disclosures explaining the difference between the estimated offering price and the fair value of each equity issuance.

Business

Business of Novelos, page 27

35. Please clarify in the discussion of LIGHT on page 28 whether an IND has been filed for LIGHT.

Pipeline Product, page 32

36. You suspended development of NOV-002 and NOV-205, pending further revaluation, but continue to describe these compounds as "Legacy Pipeline Products." Please revise your disclosure to clarify the current status of these drug compounds, previously under development by Novelos, and describe the reasonably likely prospects for their continuing future development.

Manufacturing, page 33

37. You state that LIGHT is currently manufactured by your collaborator, the University of Wisconsin, and that you currently rely upon contract manufacturers to produce COLD. Please disclose whether you have any other agreements related to the manufacture of COLD. If so, please describe the material terms of these agreements, including each parties' rights and obligations under the agreement, duration, termination provisions and all other material terms. Please also file any agreements as exhibits to your registration statement, or provide a legal analysis as to why these agreements need not be filed pursuant to Item 601(b)(10) of Regulation S-K.

Competition, page 33

38. Please expand your disclosure to identify the companies that produce Zevalin, Bexxar, and FDG.

Licenses / Collaborations, page 35

39. Please expand your description of the license agreement between Cellectar and the University of Michigan to describe:

    - All of Cellectar's obligations and related deadlines under the agreement;
    - The status regarding these obligations;
    - The consequences of a failure to perform; and
    - Any termination provisions in the license agreement.

Compensation of Directors and Executive Officers
Employment Agreements, page 43

40. You state that on June 1, 2011, the employment agreement between the company and Mr. Palmin was amended. Please file the amended employment agreement as an exhibit to your registration statement pursuant to Item 601(b)(10) of Regulation S-K.

Security Ownership of Certain Beneficial Owners and Management

41. It appears that the total number of shares beneficially owned by Greenway Properties Inc. is miscalculated. It appears that the number should be 2,337,400 instead of 1,337,400. Please revise accordingly.

42. In the footnotes to this table, please identify the natural person(s) who ultimately hold dispositive and voting power over the shares held of record by MEG-Cellectar II LLC and Greenway Properties Inc.

Management

43. It appears that you have a classified board of directors. In the table on page 39, please specify the year in which each director's term will expire.

Notes to Financial Statements
5. Convertible Debt, page F-12

44. Regarding the convertible notes issued on January 25, 2010, please explain the following:

    a. How you calculated the initial beneficial conversion feature of $214,000 that was recognized immediately, specifically addressing the fair value of Cellectar's common stock at the date of grant and the number of shares the convertible notes were convertible into;
    b. Tell us how you determined at January 20, 2011 that the Convertible Notes would be converted into 4,181,535 shares of common stock and how you calculated the

additional shares of 343,963 compared to the original terms of the convertible notes; and

c. Explain how you calculated the additional interest expense of $258,000 in connection with the January 2011 conversion and your basis for recognizing the expense in the second quarter of 2011 rather than the first quarter of 2011.

4. License Agreements, page F-11

45. Please disclose the current status and key terms governing Novelos' collaboration agreements with Lee's Pharmaceutical and Mundipharma that govern NOV-002 and NOV-205 and how these agreements may impact the combined company going forward. In this regard, we note in Novelos' Form 10-K for December 31, 2010, on page 44, that the suspension of NOV-205 may not impact Lee's Pharm development strategy.

15. Subsequent Events, page F-19
Purchase Accounting

46. Please clarify how you determined the $2,219,903 purchase price, specifically why you used the fair value of shares of common stock retained by Novelos shareholders. In addition, explain how you determined the exchange ratio, described on page F-7, of 0.8435 shares of Novelos stock for one share of Cellectar stock.

47. Tell us how you considered the legacy pipeline products, NOV-002 and NOV 205, from Novelos in your purchase price allocation**.**

Other Subsequent Events
Novelos Litigation, page F-22

48. Please disclose whether you expect the impact of litigation contingencies on your future financial position**,** results of operations or cash flows to be material. If so, disclose an estimate of the possible loss or range of loss or a statement that such an estimate cannot be made in accordance with ASC 450-20-50-4.

Unaudited Pro Forma Condensed Combined Financial Statements
Unaudited Pro Forma Consolidated Statement of Operations, page F-27

49. Please revise to show net income (loss) for the three months ended March 31, 2011.

3. Pro Forma Adjustments, page F-31

50. Please tell us why your warrants issued in connection with the securities purchase agreement, described on page F-21, are not required by ASC 815-40-15 to be classified as liabilities in your pro forma presentation.

51. Please explain the methods and assumptions used to value the remaining warrants at March 31, 2011, which appear to be held primarily by Purdue and institutional investors, as described in adjustment "f."

52. Please explain how you computed the $707,973 impact resulting from the conversion of the convertible notes, as described in adjustment "k."

53. Please explain your basis for including $450,000 of merger costs in your pro forma presentation of operating results, as described in adjustment "l."

54. Please explain how you computed the $463,269 impact related to issuance of the beneficial shares upon conversion of the convertible notes, as described in adjustment "n."

Item 16. Exhibits and Financial Statement Schedules

55. We note that some of your exhibits are not yet filed. Please note that once you have filed the remaining agreements as exhibits, we will need time to review the documents, and we may have comments on them.

56. You indicate that portions of Exhibit 10.21 have been omitted pursuant to a confidential treatment request. However, the Form 10-Q for the fiscal quarter ended March 30, 2010 – the form from which the exhibit is incorporated by reference – does not indicate that certain confidential information has been omitted from this exhibit pursuant to a request for confidential treatment, and the agreement appears unredacted. Please amend your exhibit index to remove the notation indicating that Exhibit 10.21 is subject to a confidential treatment order and has been filed in redacted form.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. 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 you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as 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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Frank Wyman at (202) 551-3660 or Melissa Rocha at (202) 551-3854 if you have questions regarding comments on the financial statements and related matters. Please contact Rose Zukin at (202) 551-3239 or me at (202) 551-3710 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Michael A. Littman
Attorney at Law
7609 Ralston Road
Arvada, CO 80002