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October 4, 2011

United States Securities and Exchange Commission
Division of Corporate Finance
Mail Stop 4720
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeffrey Riedler
Staci Shannon
Lisa Vanjoske
Jennifer Riegel
Daniel Greenspan

**Re: NewLink Genetics Corporation
Registration Statement on Form S-1 (File No. 333-171300)**

Dear Mr. Riedler, Ms. Shannon, Ms. Vanjoske, Ms. Riegel and Mr. Greenspan:

Enclosed for electronic filing via EDGAR pursuant to the Securities Act of 1933, as amended (the “**Securities Act**”), on behalf of our client NewLink Genetics Corporation (the “**Company**”), is Amendment No. 4 (“**Amendment No. 4**”) to the Company’s Registration Statement on Form S-1 (the “**Registration Statement**”) originally filed with the Securities and Exchange Commission (the “**Commission**”) on December 21, 2010 and amended by Amendment No. 1 the Registration Statement (“**Amendment No. 1**”) originally filed with the Commission on February 28, 2011, Amendment No. 2 the Registration Statement (“**Amendment No. 2**”) originally filed with the Commission on March 18, 2011 and Amendment No. 3 the Registration Statement (“**Amendment No. 3**”) originally filed with the Commission on September 14, 2011. The copy of Amendment No. 4 that is enclosed with the paper copy of this letter is marked to show changes from Amendment No. 3. As discussed with the staff of the Commission (the “**Staff**”) on October 3, 2011, the Company plans to file a subsequent amendment that reflects the estimated price range and the reverse stock split.

Amendment No. 4 is being filed in response to comments received from the Staff by letter dated September 28, 2011 with respect to Amendment No. 3 (the “**Comment Letter**”). The numbering of the paragraphs below corresponds to the numbering in the Comment Letter, the text of which we have incorporated into this response letter for convenience. Except where otherwise indicated, page references in the text of the responses below correspond to the page numbers of Amendment No. 4.

Staff Comments and Company Responses

General

1. *We will complete our review of your filing when the IPO price and reverse stock split to be effected before the completion of the offering is reflected throughout the document*

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Response: The Company acknowledges the Staff’s comment.

Business

Analysis of Historical Controls, page 91

2. *We note that you have deleted the descriptions of the clinical trials conducted in surgically-resected Stage I/II pancreatic cancer that was previously disclosed on pages 91 to 92 of your Amendment No. 2 to Form S-1. Please reinstate this disclosure in your filing as it provides material background information on the clinical trials you disclose on pages 92 and 93 of your Amendment No. 3 to Form S-1.*

Response: The Company acknowledges the Staff’s comment and has revised its disclosure on pages 93 and 94 of Amendment No. 4 to reinstate the descriptions of the clinical trials conducted in surgically-resected Stage I/II pancreatic cancer that were previously disclosed.

3. *We note that a total of 538 patients were enrolled in the RTOG 97-04 clinical trial. Of this number, it appears that the RTOG 97-04 investigators performed a primary analysis of a subpopulation of 451 patients, only 221 of which received gemcitabine along with adjuvant 5-FU-based chemoradiation. In your discussion of RTOG 97-04 on pages 88- 93, please revise your disclosure where necessary to make clear to the reader what patient population you are referring to: the total number of patients; the subpopulation of 451 patients; or the 221 patients who received gemcitabine. For example, on page 90, please clarify which RTOG 97-04 patient population the Kaplan-Meier estimate of 18.8 months median overall survival is based on.*

Response: The Company acknowledges the Staff’s comment and has revised its disclosure on pages 89 through 93 of Amendment No. 4 to make clear to the reader what patient population the Company is referring to in each specific instance.

4. *We note that the overall survival at 1 year for the subset of 221 patients in the RTOG 97-04 study was 69%, as disclosed in the table on page 92. On page 91, however, you provide a table indicating that the overall survival at 1 year was also 69% for “all patients” in the RTOG 97-04 trial. Please confirm*

to us that the overall survival at 1 year was 69% for all patients in the RTOG 97-04 trial as well as for the subpopulation of 221 patients in such trial.

Response: The Company acknowledges the Staff's comment and has revised its disclosure on page 91 of Amendment No. 4 to make it clear to the reader that overall survival at 1 year equals 69% for the subset of 221 patients in the RTOG 97-04 and not for "all patients" in the RTOG 97-04 trial.

5. *We note that you removed the columns "Local invasion", "High Tumor Grade", and "Disease Free Survival Median" from your table on page 92. Please reinstate these columns. Alternatively, please provide us with a detailed analysis which supports your conclusion that this information is not material despite your inclusion of a discussion of these characteristics on pages 91 to 92.*

Response: The Company acknowledges the Staff's comment and has revised its disclosure on pages 92-94 of Amendment No. 4 to include the columns titled "Local Invasion", "High Tumor Grade," and "Disease-Free Survival Median" in the tables on those pages.

6. *We note that you removed the data from ESPAC-1, ESPAC-3 and CONKO-001 from your table on page 92. Please reinstate this information as it provides a context for your disclosure under "European studies" on page 93.*

Response: The Company acknowledges the Staff's comment and has revised its disclosure on page 94 of Amendment No. 4 to include a table of the data from ESPAC-1, ESPAC-3 and CONKO-001.

Clinical Trials, page 99

7. *Please define hypophysitis and disclose the impact of this condition.*

Response: The Company acknowledges the Staff's comment and has revised its disclosure on page 102 of Amendment No. 4 to define hypophysitis and disclose the impact of this condition.

BPS Grants and Contracts with the United States Government, page 102

8. *You disclose that on March 24, 2011, BPS received a second grant from NIH to continue the study of yellow fever and arena viruses. The original grant is filed as Exhibit 10.74 to this registration statement. Please file a copy of this subsequent grant as an exhibit to this registration statement. Alternatively, please provide us with an analysis that supports your conclusion that you are substantially dependent on the original grant, but are not substantially dependent on this additional grant.*

Response: The Company acknowledges the Staff's comment and has filed this second grant from NIH with Amendment No. 4.

Notes to Consolidated Financial Statements

16. Net Loss per Common Share, page F-41

9. *We note that, on page F-43, you have assumed a conversion price of \$6.25. We also note, on page F-30, that you indicate if you close an IPO on or before December 31, 2011, the Series E conversion price will automatically be adjusted to a price equal to the product of (A) the price at which shares of your Common Stock are sold to the public in the IPO and (B) 0.85. Please tell us why you have utilized \$6.25 as the conversion price instead of the conversion price based on the mid-point of your estimated IPO price range in the conversion of your preferred stock, and revise your disclosure as appropriate. Also, please tell us whether your pro forma information throughout the filing, or as included in your supplemental response dated September 20, 2011, reflects the conversion of your Series E preferred stock based on the mid-point of your estimated IPO price range instead of the \$6.25 conversion price. We believe that your pro forma information should reflect the estimated IPO price range, including the Series E preferred stock conversion. Please revise your disclosure as appropriate.*

Response: The Company acknowledges the Staff's comment and respectfully submits that it will revise its disclosures at pages F-43 and F-30 to include reference to the mid-point of the estimated IPO price range when it files its pricing amendment. Additionally, the Company will revise its pro forma information throughout the pricing amendment to reflect the conversion of the Series E preferred stock based on the mid-point of the estimated IPO price range instead of the \$6.25 conversion price in a manner consistent with the supplemental response dated September 20, 2011.

21. Subsequent Events (Unaudited), page F-49

10. *Please revise your disclosure to address how you will account for your amendment to change the vesting period for the initial grant of stock options from five to three years, and the extent to which this amendment will impact your results of operations.*

Response: The Company acknowledges the Staff's comment and respectfully submits that in July 2011, the Company's nonemployee director compensation policy was amended to change the vesting period for the initial grant of stock options from five years to three years. All outstanding director grants shall be amended accordingly. All share-based compensation related to the initial grants with five year vesting periods has been fully recognized in the Company's results of operations as reported. The impact of this change on the Company's results of operations is prospective and impacts one initial grant dated July 29, 2011.

Item 16. Exhibits and Financial Statement Schedules, page II-4

11. *On page F-49, you describe two amendments to your Restated Certificate of Incorporation. Please file copies of these amendments prior to seeking acceleration of your registration statement. Please note that we will need time to review these amendments after they are filed.*

Response: The Company acknowledges the Staff's comment and has filed one of the amendments to its Restated Certificate of Incorporation with Amendment No. 4. The second amendment will be filed prior to seeking acceleration of the Company's registration statement.

The Company respectfully requests the Staff's assistance in completing the review of the Registration Statement and Amendment No. 4 as soon as possible. Please advise us if we can provide any further information or assistance to facilitate your review. Please direct any further comments or questions regarding Amendment No. 4 or this response letter to me at (720) 566-4010 or Brent D. Fassett at (720) 566-4025.

Sincerely,

Cooley LLP

/s/ James C. T. Linfield

James C. T. Linfield