Charles Bair
(858) 550-6142
cbair@cooley.com

VIA EDGAR AND FEDEX

June 2, 2015

United States Securities and Exchange Commission
Division of Corporate Finance
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeffrey P. Riedler

Re: Kura Oncology, Inc.
Registration Statement on Form S-1
Filed April 17, 2015
File No. 333-203503

Dear Mr. Riedler:

Enclosed on behalf of our client, Kura Oncology, Inc. (the ***"Company"***), is a first amendment to registration statement on Form S-1 (***"Amended Registration Statement"***). The Amended Registration Statement updates the Company's registration statement on Form S-1 (the ***"Registration Statement"***) originally filed with the Securities and Exchange Commission (the ***"Commission"***) on April 17, 2015. The copy of the Amended Registration Statement that is enclosed with the paper copy of this letter is marked to show changes from the Registration Statement filed on April 17, 2015.

The Amended Registration Statement is being submitted in response to comments received from the staff of the Commission (the ***"Staff"***) by letter dated May 15, 2015 with respect to the Registration Statement (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 the Amended Registration Statement.

Staff Comments and Company Responses

Prospectus Summary

1. *Please include in your Prospectus Summary, under an appropriate subheading, a brief discussion of the most material risks facing your operations.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on pages 4 and 5.

Our Product Candidates, page 4

2. *We note your disclosure elsewhere in the prospectus that you have not conducted any clinical trials for tipifarnib in either the HRAS or T-Cell lymphoma indications. In a footnote or narrative disclosure to the pipeline chart on this page, you should disclose the identity of the entity that conducted pre-clinical and Phase 1 clinical trials for tipifarnib and when these trials were conducted. Please additionally disclose, if true, that you expect to rely on data from these completed Phase 1 studies in order to file your INDs and launch directly into Phase 2.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 4.

Business, page 50

3. *Please clarify the meaning of any significant scientific or technical terms the first time they are used in the Business section in order to ensure that lay readers will understand the disclosure. For example, please define "protein farnesylation", "kinases" and "RECIST v.1.1" at their first use in this section. Similarly, please revise your prospectus as necessary to explain the meaning of any important scientific terms or concepts that are reasonably likely to be unfamiliar to lay readers.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on pages 51 and 57.

Leverage Companion Diagnostics to Realize Positive Clinical Outcomes, page 51

4. *We note your statement that you intend to utilize effective companion diagnostics in your clinical trials. We also note your disclosure on page 16, that your development programs may be dependent on the development and commercialization of companion diagnostics. In light of these statements, please expand on the exact role that companion diagnostics will play for your primary product candidates. Specifically, please clarify what role such diagnostics will play in completing successful clinical trials and what stage of clinical trials require the use of such diagnostics.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 57.

Clinical Programs and Pipelines, page 53

5. *Please revise the pipeline table that appears on pages 4 and 53 so that the arrows indicating tipifarnib's developmental progress do not extend into Phase 2, as your Phase 2 trials have not yet begun.*

Response: The Company acknowledges the Staff's comment and respectfully advises the Staff that the Company has begun Phase 2 clinical trials of tipifarnib for HRAS. As a result, the Company has revised the pipeline table on pages 4 and 55 with respect to tipifarnib's developmental progress for T-cell lymphoma only.

Tipifarnib – An Oral Farnesyl Transferase Inhibitor
Overview, pages 53-54

6. *We note your disclosure that tipifarnib's anti-cancer activity has been insufficient to support marketing approval by the FDA. Please disclose:*

- *whether an NDA was previously filed with the FDA;*
- *when the NDA was filed;*
- *the entity which filed the NDA;*
- *your relationship to this entity; and*
- *the reasons(s) the NDA was not approved.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 55.

Preclinical Data Supporting Tipifarnib as an Inhibitor of HRAS Function, page 55

7. *Please provide a brief explanation of the term "IC50" as a measurement of tipifarnib effectiveness.*

Response: The Company acknowledges the Staff's comment and respectfully advises the Staff that the Company has removed the disclosure that included the term "IC50" as a measurement of tipifarnib effectiveness.

Clinical Development in HRAS Mutant Tumors, page 55

8. *Please disclose whether you have filed an Investigational New Drug (IND) application for this indication. If no IND was filed, please tell us why.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on pages 55 and 57.

9. *We note that you have not conducted Phase 1 clinical trials for this indication and you intend to launch directly into Phase 2. To the extent that you plan to use data from a third party's previously completed Phase 1 clinical trials to advance the product candidate into Phase 2 trials, please revise your disclosure to accurately reflect this information. Specifically, please briefly discuss the Phase 1 trials and their results, identify who conducted the trials and when, and the extent to which relying on a third party's data poses any material risks to product approval.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on pages 55 and 57. The Company also respectfully advises the Staff that the risk factor disclosure under the heading "Preclinical and clinical testing…" on page 16 addresses risks relating to reliance on third party data.

Previous Phase II Experience with Tipifarnib in the Treatment of PTCL, page 56

10. *Please identify the third party responsible for conducting this Phase 2 clinical trial and indicate the dates during which the trial was conducted.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 58.

Clinical Development of Peripheral T-cell Lymphoma, page 58

11. *Please disclose whether you have filed an Investigational New Drug (IND) application for this indication. If no IND was filed, please tell us why.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 60.

12. *We note that you have not conducted Phase 1 clinical trials for this indication and you intend to launch directly into Phase 2. To the extent that you plan to use data from a third party's previously completed Phase 1 clinical trials to advance the product candidate into Phase 2 trials, please revise your disclosure to accurately reflect this information. Specifically, please briefly discuss the Phase 1 trials and their results and identify who conducted the trials and when, and the extent to which relying on a third party's data poses any material risks to product approval.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 60. The Company also respectfully advises the Staff that the risk factor disclosure under the heading "Preclinical and clinical testing…" on page 16 addresses risks relating to reliance on third party data.

License and Asset Purchase Agreements, page 63

13. *We note your references to various agreements which appear material to your business, including your license agreements with the University of Michigan and the University of San Francisco. Please amend your disclosure to discuss the material terms of these and any other material agreements. In your description of these agreements you should specifically identify, to the extent material:*

- *Each party's rights and obligations;*
- *Nature and scope of intellectual property transferred if the agreement involves a license;*
- *Duration of agreement and royalty term, if applicable;*

- *Termination provisions;*
- *Investment features or share purchases;*
- *Payment provisions, which may include the following:*
  - *Up-front or execution payments received or paid*
  - *Aggregate amounts paid or received to date under agreement*
  - *Aggregate future milestone payments to be paid or received*
  - *Royalty rates*
  - *Profit or revenue-sharing provisions*

In addition, please file each agreement as an exhibit to your registration statement as required under Item 601(b)(10) of Regulation S-K.

Response: The Company acknowledges the Staff's comment and respectfully advises the Staff that, while they may become material to the Company's business in the future, neither the Company's license agreement with the University of Michigan (the "***Michigan License Agreement***") nor the Company's license agreement with The Regents of the University of California San Francisco (together with the Michigan License Agreement, the "***License Agreements***") is currently material to the Company's business. The Company further respectfully advises the Staff that the Company does not have any material agreements which have not been disclosed in and filed as an exhibit to the Amended Registration Statement.

The Company has determined that the License Agreements are not currently material to the Company's business because the intellectual property rights licensed under the License Agreements are at a very early stage, no development candidates have been identified and it is not clear whether any development candidates will ever be produced from such intellectual property rights. In addition, the financial terms of the License Agreements do not rise to a level of materiality for the Company. For purposes of clarity, the Company's Menin-MLL program is only partially dependent on the intellectual property rights licensed under the Michigan License Agreement. The Company respectfully advises the Staff that should one or both of the License Agreements become material to the Company's business in the future, the Company will disclose the material terms and file such material License Agreement(s) with the Commission as required in a future public filing of the Company.

Intellectual Property, page 67

14. *We note your disclosure regarding your patents and patent applications. With respect to the portion of your patent portfolio relevant to each of your significant development programs, please clearly disclose:*

- *whether the patents are owned or licensed from third parties;*
- *applicable jurisdictions where patents are issued or where patent applications are pending;*
- *type of patent protection such as composition of matter, use or process; and*

- *expected expiration dates for your patents and patent applications in each of (1) the U.S. and (2) foreign jurisdictions, as a group.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 69.

Certain Relationships and Related Person Transactions, pages 103-108

15. *Please file the following agreements as exhibits to your registration statement pursuant to Item 601(b)(10) of Regulation S-K:*

- *Note purchase agreement with Araxes entered into in October 2014;*
- *Note purchase agreement with certain investors entered into in January 2015;*
- *Registration rights agreement with the investors in the Private Placement;*
- *Service Agreement with Wellspring entered into in October 2014; and*
- *Management services agreement with Araxes entered into in October 2014.*

Response: The Company acknowledges the Staff's comment and has filed the agreements listed in bullets three through five as exhibits to the Amended Registration Statement. With respect to the agreements listed in bullets one and two, the Company respectfully advises the Staff that such agreements are not material contracts to the Company and do not need to be filed pursuant to Item 601(b)(10) of Regulation S-K. The Company has determined that such agreements are not material because the convertible notes issued pursuant to such agreements have been previously converted into shares of the Company's common stock and there are no material provisions under such agreements that continued after the issuance of such convertible notes.

16. *Please describe the services agreement with Wellspring and the management services agreement with Araxes in greater detail. Please disclose the material terms of the agreements including the parties' rights and obligations, payment terms and termination provisions.*

Response: The Company acknowledges the Staff's comment and has revised the disclosure on page 111.

Notes to Financial Statements
9. Stockholders' Equity
Restricted Stock Awards, page F-15

17. *Please present disclosures for employee awards separately from non-employee awards. In addition:*

- *Disclose the basis for recognizing $236,618 of share-based compensation expense;*
- *Disclose the amount of and basis for any unrecognized share-based compensation; and*
- *Disclose the terms of the non-employee awards that require you to re-measure them as they vest, as disclosed in Note 2 under share-based compensation. Separately provide us your analysis with reference to authoritative literature supporting this accounting including your use of the intrinsic value method.*

Response: Kura Oncology, Inc., a privately held Delaware corporation ("***Prior Kura***"), was incorporated in August 2014. Prior Kura initially had ten employees and had no intellectual property until December 2014. On December 18, 2014, Prior Kura entered into a license with Janssen Pharmaceutica NV under which Prior Kura received certain intellectual property rights related to tipifarnib in the field of oncology. Tipifarnib is the Company's lead candidate and is currently being evaluated in Phase 2 clinical studies. In addition, in late December 2014 Prior Kura purchased from its affiliated company, Araxes Pharma LLC, certain early stage rights related to compounds in the field of oncology. As such, the fair value of Prior Kura was estimated to be $0.001 per share in August 2014 and $2.83 in late December 2014.

Since inception in August 2014 through December 31, 2014, Prior Kura had granted only restricted stock awards ("***RSAs***") to its employees and non-employee consultants under its 2014 equity incentive plan. These RSAs were granted at an exercise price equal to the estimated fair value at the applicable dates of grant. In addition, these RSAs are subject to a repurchase right by the Company where the RSA shares are released from such repurchase right over a period of time of continued service by the recipient.

From August 2014 through October 2014, Prior Kura granted an aggregate of 9,887,000 RSAs, of which 8,192,000 and 1,695,000 RSAs were granted to employees and non-employee consultants, respectively, at a weighted-average grant price of $0.001 per share. There were no RSAs granted in November and December 2014.

Under ASC 718, share-based payments to employees are measured based on the estimated fair value at the grant date. For RSAs granted to employees, Prior Kura received proceeds equal to the grant date fair value of the awards. As such, there was no share-based compensation to be recognized for the employee awards. The employee RSAs vest over a period of four years.

Under ASC 718, share-based payments to non-employees are also measured based on fair value. In addition, ASC 505-50-30-10 and 505-30-30-18 state that the fair value of equity instruments issued to a non-employee be measured on the earlier of: (1) the performance commitment date, or (2) the date the services required under the arrangement have been completed. Throughout the service period, the underlying shares of non-employee RSAs vest and the related repurchase right lapses. Pursuant to ASC 505-50, at each vest date, the Company (and previously Prior Kura) measures the number of vested shares at fair value on the vest date. Because the awards which are being measured are RSAs, and not stock options, the use of Black-Scholes or other valuation models is not necessary to determine fair value. The fair value of the RSA award is equal to the estimated fair value of our common stock on the date of vesting, less the purchase price. Upon the repurchase right lapsing, the Company recognizes share-based compensation for non-employee RSAs using the intrinsic value method by taking the difference between the vest date fair value and the award exercise price paid, which was the grant date fair value. Unrecognized share-based compensation cannot be determined for non-employee awards because the non-employee awards are remeasured as they vest.

As of December 31, 2014, Prior Kura had granted 1,695,000 RSAs to non-employees for consulting services. The non-employee RSAs vest over a period of four years with certain grants providing for accelerated vesting upon the occurrence of specified events. Non-employee RSAs vested during 2014 as follows:

Vest Date	Number of Shares Vested	Vest Date Fair Value per share	Vest Date Fair Value	Less: RSA Price Received	Share-based Compensation Recognized
9/29/14	31,354	$ 0.01	$ 313	$ 31	$ 282
10/29/14	31,354	$ 0.01	$ 313	$ 31	$ 282
11/28/14	834	$ 0.01	$ 8	$ 8	$ 0
11/29/14	31,354	$ 0.01	$ 313	$ 31	$ 282
12/22/14	50,000	$ 2.83	$141,500	$ 500	$ 141,000
12/28/14	834	$ 2.83	$ 2,360	$ 8	$ 2,352
12/29/14	31,354	$ 2.83	$ 88,732	$ 31	$ 88,701
TOTAL	**177,084**				**$ 232,899**

The Company has revised the disclosure on pages F-9 and F-16.

The Company respectfully requests the Staff's assistance in completing the review of the Amended Registration Statement 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 the Amended Registration Statement or this response letter to me at (858) 550-6142.

Sincerely,

Cooley LLP

/s/ Charles J. Bair, Esq.

Charles J. Bair Esq.

cc: Heidi Henson, Kura Oncology, Inc.
Annette North, Kura Oncology, Inc.
James Pennington, Cooley LLP