



DIVISION OF
CORPORATION FINANCE

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

September 10, 2014

Via E-mail

John W. Smither
Chief Financial Officer
KYTHERA Biopharmaceuticals, Inc.
30930 Russell Ranch Road, Third Floor
Westlake Village, CA 91362

**Re: Kythera Biopharmaceuticals, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2013
Filed March 17, 2014
Form 10-Q for the Quarterly Period Ended June 30, 2014
Filed August 7, 2014
File No. 001-35663**

Dear Mr. Smither:

We have limited our review of your filings to your financial statements and related disclosures and do not intend to expand our review to other portions of your documents.

Please respond to this letter within 10 business days by amending your filing or by advising us when you will provide the requested response. If you do not believe the comment applies to your facts and circumstances, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your response to our comment.

After reviewing any amendment to your filing and the information you provide in response to this comment, we may have additional comments.

Form 10-Q for the quarterly period ended June 30, 2014

Exhibits 31.1 and 31.2

1. Please amend your filing to revise the Principal Executive Officer and Principal Financial Officer certifications to include the introductory language of paragraph 4 of Item 601(b)(31) of Regulation S-K to include reference to internal controls as well as the language of paragraph 4(b) of Item 601(b)(31).

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include the information the Securities Exchange Act of 1934 and all applicable Exchange 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.

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In responding to our comment, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Vanessa Robertson, Staff Accountant, at (202) 551-3649 or Joel Parker, Accounting Branch Chief, at (202) 551-3651 if you have any questions regarding the comment. In this regard, do not hesitate to contact me at (202) 551-3679.

Sincerely,

/s/ Jim B. Rosenberg

Jim B. Rosenberg
Senior Assistant Chief Accountant