



DIVISION OF  
CORPORATION FINANCE

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

September 25, 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  
File No. 001-35663**

Dear Mr. Smither:

We have completed our review of your filings. We remind you that our comments or changes to disclosure in response to our comments do not foreclose the Commission from taking any action with respect to the company or 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. 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 rules require.

Sincerely,

/s/ Joel Parker

Joel Parker  
Accounting Branch Chief