



DIVISION OF  
CORPORATION FINANCE

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

July 16, 2015

Via E-mail

Armando Anido  
Chairman and Chief Executive Officer  
Zynerba Pharmaceuticals, Inc.  
80 W. Lancaster Avenue, Suite 300  
Devon, Pennsylvania 19333

**Re: Zynerba Pharmaceuticals, Inc.  
Registration Statement on Form S-1  
Filed June 30, 2015  
File No. 333-205355**

Dear Mr. Anido:

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.

Clinical Trials, page 88

1. We note your disclosure with respect to the process and regulation of clinical trials in the United States. We also note you intend to conduct Phase 1 and potentially Phase 2 trials in Australia for your lead product candidate ZYN002. Please expand your disclosure in this section to provide a brief explanation to potential investors of the process for commencing clinical trials and the associated regulatory review in Australia. Please also disclose the steps taken and the current status related to the application or approvals to commence your clinical trials. If you have not begun the regulatory approval process in Australia please clarify such fact in your disclosure.

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

Armando Anido  
Zynerba Pharmaceuticals, Inc.  
July 16, 2015  
Page 2

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 at James Peklenk at (202) 551-3661 or Lisa Vanjoske at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Tara Keating Brooks at (202) 551-8336 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler  
Assistant Director

cc: Via E-mail  
Rachael M. Bushey  
Pepper Hamilton LLP