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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

September 17, 2015

Via E-mail
Stefano Buono
Chief Executive Officer
Advanced Accelerator Applications S.A.
20 rue Diesel
01630 Saint Genis Pouilly, France

Re: Advanced Accelerator Applications S.A.
Draft Registration Statement on Form F-1
Submitted August 21, 2015
CIK No. 0001611787

Dear Mr. Buono:

We have reviewed your draft 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 providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. 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 the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Summary
Our Business
Overview, page 1

1. Please revise your prospectus summary to remove the discussion of the results of your Phase 3 trial of Lutathera including your reference to p-values and what they indicate about the statistical significance of results observed during the trial. Your discussion of such information should be limited to sections of the prospectus where additional detailed information on clinical results provides context for evaluating such information.

2. Please define the term "orphan drug designation" the first time this term is used.

3. Please revise your disclosure to explain what it means to perform a "partial lock-up" of your Phase 3 trials and how it compares to a "complete lock-up."

Use of Proceeds, page 59

4. Please revise your fifth bullet point in this section to disclose how far in the development process the allocated proceeds will allow you to reach with respect to Annexin V-128 and Somakit.

Business
Strategy, page 94

5. In light of the inherent uncertainty with respect to the timing of obtaining regulatory approval, please remove your statement that you anticipate obtaining FDA and/or EMA approval by the end of 2016.

Our Product Candidates in Clinical Development
Lead Therapeutic Candidate – Lutathera

6. We note your disclosure that "the safety profile initially observed in the study was consistent with that observed in the Phase 1/2 Erasmus Study." Please revise your disclosure to describe the initial safety profile observations made in the Phase 3 study including the extent and frequency with which patients experienced severe adverse events.

Phase 3 Trial, page 102

7. In the third paragraph of this section, please describe the meaning and significance of the hazard ratio which is provided.

Licensing, page 117

8. We note your disclosure concerning your entry into an exclusive distribution and license agreement for Lutathera in Japan with FUJIFILM RI Pharma Co., Ltd. in June 2015. Please revise your disclosure to further describe the material terms of this agreement including agreement including the rights and obligations of the parties, any material payment obligations, and term and termination provisions. Please also file the agreement as an exhibit or provide an analysis as to why it is not required to be filed.

Compensation of Directors and Senior Management, page 143

9. Please file the stock option plan and warrants plan as exhibits.

Other Comments

10. We note that there are a number of additional exhibits that still need to be filed. Please provide these exhibits as promptly as possible. Please note that we may have comments on these materials once they are provided.

11. Please confirm that the graphics included in your registration statement are the only graphics you will use in your prospectus. If those are not the only graphics, please provide any additional graphics prior to their use for our review.

12. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm.

Please keep in mind that we may publicly post filing review correspondence in accordance with our December 1, 2011 policy (http://www.sec.gov/divisions/corpfin/cfannouncements/edgarcorrespondence.htm). If you intend to use Rule 83 (17 CFR 200.83) to request confidential treatment of information in the correspondence you submit on EDGAR, please properly mark that information in each of your confidential submissions to us so we do not repeat or refer to that information in our comment letters to you.

You may contact Frank Wyman at (202) 551-3660 or Lisa Vanjoske at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170, Bryan Pitko at (202) 551-3203 or me at (202) 551-3675 with any other questions.

Sincerely,

/s/ *Bryan J. Pitko* for

Suzanne Hayes
Assistant Director

cc: Via E-mail
John G. Crowley, Esq.
Davis Polk & Wardwell LLP