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

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of October 2016

Commission File Number: 001-36826

ADVANCED ACCELERATOR APPLICATIONS S.A.
(Exact name of registrant as specified in its charter)

20 rue Diesel
01630 Saint Genis Pouilly, France
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Yes ☐ No ☒

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

Yes ☐ No ☒

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ADVANCED ACCELERATOR APPLICATIONS S.A.

By: /s/ Heinz Mäusli

Name: Heinz Mäusli
Title: Chief Financial Officer

Date: October 4, 2016

ADVANCED ACCELERATOR APPLICATIONS S.A.

EXHIBIT INDEX

Exhibit No.	Description
99.1	Press Release dated October 4, 2016 titled "Advanced Accelerator Applications S.A. Announces Proposed Public Offering of American Depositary Shares"

Exhibit 99.1

PRESS RELEASE

Advanced Accelerator Applications S.A. Announces Proposed Public Offering of American Depositary Shares

Saint-Genis-Pouilly, France – October 4, 2016 – Advanced Accelerator Applications S.A. (NASDAQ:AAAP) ("AAA" or the "Company"), an international specialist in Molecular Nuclear Medicine (MNM), today announced that it has commenced an underwritten public offering of $125 million of American Depositary Shares ("ADSs") representing ordinary shares of the Company. All ADSs will be offered by AAA. In addition, AAA expects to grant the underwriters a 30-day option to purchase up to $18,750,000 of additional ADSs at the public offering price, less the underwriting discount.

J.P. Morgan Securities LLC, Jefferies LLC and Wells Fargo Securities, LLC are acting as joint book-running managers for the offering. Canaccord Genuity Inc. and JMP Securities LLC are acting as co-managers. The offering is subject to market and other conditions, and there can be no assurance as to whether or when the offering may be completed.

A registration statement on Form F-1 relating to the securities proposed to be sold in this offering has been filed with the Securities and Exchange Commission but has not yet become effective. These securities may not be sold nor may offers to buy the securities be accepted prior to the time that the registration statement becomes effective.

The offering is being made solely by means of a prospectus. A copy of the preliminary prospectus can be obtained from J.P. Morgan Securities LLC, Attention: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, or by phone at 1-866-803-9204, or by email at prospectus-eq_fi@jpmchase.com; Jefferies LLC, Attention: Equity Syndicate Prospectus Department, 520 Madison Avenue, 2nd Floor, New York, NY 10022 or by phone at (877) 821-7388 or by email at Prospectus_Department@Jefferies.com; or Wells Fargo Securities, LLC, Attention: Equity Syndicate Department, 375 Park Avenue, New York, New York 10152, or by phone at (800) 326-5897 or by email at cmclientsupport@wellsfargo.com.

This press release shall not constitute an offer to sell or a solicitation of an offer to buy the securities, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

About Advanced Accelerator Applications

AAA is an innovative radiopharmaceutical company that develops, produces and commercializes Molecular Nuclear Medicine (MNM) products. AAA's lead therapeutic product candidate, Lutathera®, is a novel MNM compound that AAA is currently developing for the treatment of Neuro Endocrine Tumors, a significant unmet medical need. Founded in 2002, AAA has its headquarters in Saint-Genis-Pouilly, France.

Cautionary Statement Regarding Forward-Looking Statements

This press release may contain forward-looking statements. All statements, other than statements of historical facts, contained in this press release, including statements regarding the Company's anticipated public offering, strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements reflect the Company's current expectation regarding future events. These forward-looking statements involve risks and uncertainties that may cause actual results, events or developments to be materially different from any future results, events or developments expressed or implied by such forward-looking statements. Such factors include, but are not limited to, changing market conditions, the successful and timely completion of clinical studies, EMA, U.S. FDA and other regulatory approvals for our product candidates, the establishment of corporate alliances, the impact of competitive products and pricing, new product development, and uncertainties related to the regulatory approval process or the ability to obtain drug product in sufficient quantity or at standards acceptable to health regulatory authorities to complete clinical trials or to meet commercial demand. Except as required by applicable securities laws, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Contacts

AAA Corporate Communications
Rachel Levine
Director of Communications
rachel.levine@adacap.com
Tel: + 1-212-235-2395

AAA Investor Relations
Jordan Silverstein
Director of Investor Relations
jordan.silverstein@adacap.com
Tel: + 1-212-235-2394

Media inquiries:

Axess Public Relations (Italy)
Dario Francolino
dario.francolino@axesspr.com
Tel: +39 3488818029