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

FORM 6-K

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

For the month of June 2019

(Commission File No. 001-38215)

NUCANA PLC
(Translation of registrant's name into English)

3 Lochside Way
Edinburgh EH12 9DT
United Kingdom
(Address of registrant's principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover 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): ☐

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): ☐

Other Events

On June 12, 2019, NuCana plc (the "Company") issued a press release announcing that the U.S. Food and Drug Administration has granted orphan-drug designation for the Company's investigational drug, Acelarin® (NUC-1031), for the treatment of biliary tract cancer. The press release is attached as Exhibit 99.1 hereto and is incorporated by reference herein.

The information in the attached Exhibit 99.1 is being furnished and shall not be deemed "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that Section, nor shall it be deemed incorporated by reference in any filing made by the Company under the Securities Act of 1933, as amended, or the Exchange Act, except as otherwise set forth herein or as shall be expressly set forth by specific reference in such a filing.

Exhibits

99.1 Press Release, dated June 12, 2019

SIGNATURES

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.

NuCana plc

By: /s/ Donald Munoz
Name: Donald Munoz
Title: Chief Financial Officer

Date: June 13, 2019

Exhibit 99.1

NuCana Receives Orphan Drug Designation from the U.S. Food and Drug Administration for Acelarin® for the Treatment of Biliary Tract Cancer

NuCana Remains on Track to Open Global Phase III Study in 2019

Edinburgh, United Kingdom, June 12, 2019 (GLOBE NEWSWIRE) – NuCana plc (NASDAQ: NCNA) today announced that the U.S. Food and Drug Administration (FDA) has granted orphan drug designation for the Company's investigational drug, Acelarin® (NUC-1031), for the treatment of biliary tract cancer. Acelarin is a new chemical entity and is NuCana's ProTide transformation of gemcitabine.

"We are pleased to have received orphan drug designation from the FDA for Acelarin in biliary tract cancer," said Hugh Griffith, NuCana's Founder and Chief Executive Officer. "There is a high unmet need for patients suffering from this cancer type. Our Phase Ib study of Acelarin combined with cisplatin showed an approximate doubling of the response rate expected with the standard of care, gemcitabine plus cisplatin, with several patients achieving significant reductions in their tumor volume as well as further tumor shrinkage over time. We believe Acelarin represents a potential significant advance in biliary tract cancer and we remain on track to open our global Phase III study in combination with cisplatin as a front-line treatment for patients with advanced biliary tract cancer in 2019."

Orphan drug designation is granted by the FDA to drugs that are defined as those intended for the treatment, prevention or diagnosis of rare diseases or conditions that affect fewer than 200,000 people in the United States. Orphan drug designation provides certain benefits and incentives that may include tax credits towards the cost of clinical trials and prescription drug user fee waivers.

About Biliary Tract Cancer

Biliary tract cancer is a form of cancer that develops in the bile duct system, which connects the liver, gallbladder, and small intestine, moving bile – a fluid that helps digest fats – to the small intestine. Approximately 178,000 new cases of biliary tract cancer are diagnosed each year worldwide, with more than 12,000 of those diagnoses in the United States.

About NuCana plc

NuCana® is a clinical-stage biopharmaceutical company focused on significantly improving treatment outcomes for cancer patients by applying our ProTide™ technology to transform some of the most widely prescribed chemotherapy agents, nucleoside analogs, into more effective and safer medicines. While these conventional agents remain part of the standard of care for the treatment of many solid tumors, their efficacy is limited by cancer cell resistance mechanisms and they are often poorly tolerated. Utilizing our proprietary technology, we are developing new medicines, ProTides, designed to overcome key cancer resistance mechanisms and generate much higher concentrations of anti-cancer metabolites in cancer cells. Our most advanced ProTide candidates, Acelarin® and NUC-3373, are new chemical entities derived from the nucleoside analogs gemcitabine and 5-fluorouracil, respectively, two widely used chemotherapy agents. Acelarin is currently being evaluated in three clinical studies, including a Phase Ib study for patients with biliary tract cancer, a Phase II study for patients with ovarian cancer and a Phase III study for patients with pancreatic cancer. NUC-3373 is currently in a Phase I study for the potential treatment of a wide range of advanced solid tumors and a Phase Ib study for patients with advanced colorectal cancer.

Forward-Looking Statements

This press release may contain “forward-looking” statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are based on the beliefs and assumptions and on information currently available to management of NuCana plc (the “Company”). All statements other than statements of historical fact contained in this press release are forward-looking statements, including statements concerning the Company’s planned and ongoing clinical studies for the Company’s product candidates and the potential advantages of those product candidates, including Acelarin, NUC-3373 and NUC-7738; the initiation, enrollment, timing, progress, release of data from and results of those planned and ongoing clinical studies; and the utility of prior preclinical and clinical data in determining future clinical results. In some cases, you can identify forward-looking statements by terminology such as “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other comparable terminology. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the Company’s actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. These risks and uncertainties include, but are not limited to, the risks and uncertainties set forth in the “Risk Factors” section of the Company’s Annual Report on Form 20-F for the year ended December 31, 2018 filed with the Securities and Exchange Commission (“SEC”) on March 7, 2019, and subsequent reports that the Company files with the SEC. Forward-looking statements represent the Company’s beliefs and assumptions only as of the date of this press release. Although the Company believes that the expectations reflected in the forward-looking statements are reasonable, it cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, the Company assumes no obligation to publicly update any forward-looking statements for any reason after the date of this press release to conform any of the forward-looking statements to actual results or to changes in its expectations.

For more information, please contact:

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