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 July 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 July 17, 2019, NuCana plc (the "Company") issued a press release announcing that the first patients have been dosed in the Company's Phase I study of NUC-7738. 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 July 17, 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: July 17, 2019

Exhibit 99.1

NuCana Announces First Patients Dosed in Phase I Study of NUC-7738

NUC-7738 is NuCana's Third ProTide to Enter the Clinic

Study Will Enroll Up To 61 Patients with Advanced Solid Tumors

Edinburgh, United Kingdom, July 17, 2019 (GLOBE NEWSWIRE) – NuCana plc (NASDAQ: NCNA), a clinical-stage biopharmaceutical company focused on significantly improving treatment outcomes for patients with cancer, today announced that the first patients have been dosed in the Phase I study of NUC-7738. This is the third ProTide NuCana has advanced to clinical studies and further broadens the therapeutic scope of the ProTide portfolio. NUC-7738 is NuCana's ProTide transformation of 3'-deoxyadenosine (or cordycepin), a novel nucleoside analog with a unique mode of action, that has shown potent anti-cancer activity in preclinical studies.

Hugh Griffith, NuCana's Chief Executive Officer, stated: "The dosing of the first patients in this Phase I study of NUC-7738 is another major step in the expansion of NuCana's product pipeline. NUC-7738 is our third ProTide to advance to the clinic and the first that is based on a novel nucleoside analog. We are grateful to the patients and clinicians who are making this study possible."

More information about this study may be found here.

NUC-7738 is a ProTide transformation of cordycepin, a nucleoside analog that was isolated from the fungus *Cordyceps sinensis* in 1950. Cordycepin has demonstrated potent anti-cancer activity in multiple preclinical studies, but has not been successfully developed primarily due to its degradation by the enzyme adenosine deaminase (or ADA). Unlike the parent nucleoside analogue, NUC-7738 is not a substrate for this enzyme and is therefore resistant to degradation by ADA. Similar to NuCana's other ProTides, NUC-7738 is designed to generate significantly higher levels of the active anti-cancer metabolite of cordycepin, 3'-deoxyadenosine triphosphate (or 3'-dATP), directly inside cells, bypassing the resistance mechanisms of transport, activation and breakdown.

Sarah Blagden, Associate Professor of Experimental Cancer Therapeutics at The University of Oxford and Principal Investigator of the study stated: "Oxford Early Phase Trials unit has enrolled the global first cancer patient to receive NUC-7738, the latest ProTide anti-cancer agent from NuCana's pipeline. This is an exciting study to participate in and we look forward to seeing the clinical results."

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. Our third ProTide, NUC-7738, is a transformation of a novel nucleoside analog (cordycepin or 3'-dATP) and is in a Phase I study for patients with advanced solid tumors.

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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