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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the

Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): December 19, 2019

PROTHENA CORPORATION PUBLIC LIMITED COMPANY

(Exact name of registrant as specified in its charter)

Ireland	**001-35676**	**98-1111119**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

77 Sir John Rogerson's Quay, Block C
Grand Canal Docklands
Dublin 2, D02 T804, Ireland

(Address of principal executive offices, including Zip Code)

Registrant's telephone number, including area code: 011-353-1-236-2500

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Ordinary Shares, par value $0.01 per share	PRTA	The Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 8.01. Other Events

Prothena Corporation plc, a clinical-stage neuroscience company announces interim data from Phase 1 study of PRX004 in patients with hereditary transthyretin amyloidosis (hATTR amyloidosis)

- Three-month data from first five of six dose-level cohorts reported here; study ongoing and additional dose-escalation data anticipated to be reported in 2020
- All five dose levels of PRX004 found to be generally safe and well tolerated
- Target engagement demonstrated by dose-dependent decrease in levels of unbound non-native forms of TTR protein (misTTR) in plasma of study patients
- Consistent with proposed mechanism of action, PRX004 administration did not appear to impact levels of normal tetrameric transthyretin (TTR)
- 12 of 15 patients from cohorts 1 through 5 remain on study in the long-term extension (LTE)

Prothena conducted an interim analysis from its Phase 1 study of PRX004, an investigational antibody designed to deplete the circulating and deposited abnormal, non-native forms of TTR protein (misTTR) in patients with hATTR amyloidosis. Based on these interim data, Prothena plans to complete the Phase 1 dose escalation study as planned and report additional detailed data (including pharmacokinetics, pharmacodynamics, and safety) at a scientific conference in 2020.

About PRX004 and Depleter Mechanism of Action

The investigational humanized monoclonal antibody PRX004 is designed to deplete misTTR associated with disease pathology that underlies both hereditary and wild type ATTR amyloidosis (hATTR and wtATTR, respectively), without affecting the native, or normal tetrameric form of the protein.

It is generally accepted that, at the time of diagnosis, affected organs in ATTR patients (both hATTR and wtATTR amyloidosis) contain extracellular amyloid deposits. These deposits, together with prefibrillar species, are believed to cause organ dysfunction. PRX004's proposed mechanism of action is to deplete both (i) circulating misTTR to prevent further deposition and (ii) deposited amyloid to improve organ function. PRX004 has been shown in preclinical studies to inhibit amyloid fibril formation, neutralize soluble aggregate forms of misTTR, and promote clearance of insoluble amyloid fibrils through antibody-mediated phagocytosis. This differentiated mechanism of action (depleter) could be developed as a monotherapy approach to ATTR amyloidosis, and may also complement existing therapeutic approaches which either stabilize or reduce production of the native TTR tetramer.

Interim Phase 1 Dose Escalation Study Data

As of this analysis, 15 patients in the dose escalation phase of the study had each received 3 infusions in dose-level cohorts 1 through 5 representing 0.1, 0.3, 1.0, 3.0 and 10.0 mg/kg. PRX004 was found to be generally safe and well tolerated and demonstrated pharmacokinetic (PK) profiles consistent with that of an immunoglobulin gamma 1 (IgG1) monoclonal antibody. Target engagement was demonstrated by a dose-dependent decrease in plasma levels of unbound misTTR (misTTR not captured by PRX004), as measured by Prothena's proprietary misTTR biomarker assay.

For the three patients in the 10.0 mg/kg dose-level (the highest dose-level in this interim analysis), the maximum observed reductions in misTTR levels within 24 hours of the first infusion were 54%, 66% and 76%. As expected, because PRX004 was designed to recognize an epitope exposed only on the misTTR species, PRX004 did not appear to impact levels of normal tetrameric TTR.

The Phase 1 open-label, multicenter study (NCT03336580) may enroll up to 36 patients with hATTR amyloidosis with peripheral neuropathy who may also have cardiomyopathy. In the escalation phase of the study, patients receive PRX004 intravenously once every 28 days for up to 3 infusions. Six dose levels (0.1, 0.3, 1.0, 3.0, 10.0, and 30.0 mg/kg) are being evaluated. Additional patients may be enrolled in the expansion phase in order to further characterize the safety, tolerability, PK, and target engagement of PRX004.

Eligible patients who complete the escalation or expansion phase can enroll in the LTE phase of the study and receive up to 15 additional infusions of PRX004 every 28 days. Of the 15 patients (from cohorts 1 through 5), 12 patients were eligible for the LTE and are currently enrolled. Of the three patients not enrolled in the LTE, 2 patients from cohort 1 were ineligible due to early termination during the escalation phase and 1 patient from cohort 2 was ineligible based on the LTE screening criteria.

To date, no dose-limiting toxicities have been observed in the escalation phase. In cohorts 1 through 5 of the escalation phase, one severe treatment emergent adverse event (TEAE) was reported which was a worsening of a pre-existing condition, deemed unrelated to PRX004 by the investigator, and subsequently resolved.

The Phase 1 dose escalation study is ongoing and Prothena plans to present additional results from all six dose level cohorts at a future scientific conference in 2020. Additionally, the exploratory clinical measures of neuropathy being assessed in the LTE phase of the study may provide further insight into this depleter mechanism of action.

About ATTR Amyloidosis

Transthyretin amyloidosis (ATTR amyloidosis) is a rare, progressive and often fatal disease characterized by deposition of abnormal, non-native forms of TTR protein (misTTR) in vital organs. ATTR amyloidosis can be hereditary (hATTR) when caused by a mutation in the TTR gene, or wild-type (wtATTR) when it occurs sporadically. In both forms of the disease, patients can experience a spectrum of clinical manifestations affecting multiple organs, most commonly the heart and/or nervous system. TTR protein is produced primarily in the liver and in its native tetrameric form serves as a carrier for thyroxin and retinol binding protein (a transporter for vitamin A).

Forward-looking Statements

This Current Report on Form 8-K contains forward-looking statements. These statements relate to, among other things, our plans to complete the Phase 1 clinical study of PRX004 as planned and report additional data and results from all six dose level cohorts at a future scientific conference in 2020; the design of that Phase 1 study; the design and proposed mechanisms of action of PRX004, and its potential as a treatment for ATTR amyloidosis; the potential of PRX004 to be developed as a monotherapy approach to ATTR amyloidosis and to also complement existing therapeutic approaches; and the potential for exploratory clinical measures of neuropathy being assessed in the Phase 1 study to provide further insight into PRX004's mechanism of action. These statements are based on estimates, projections, and assumptions that may prove not to be accurate, and actual results could differ materially from those anticipated due to known and unknown risks, uncertainties and other factors, including but not limited to the risks, uncertainties, and other factors described in the "Risk Factors" sections of our Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) on March 15, 2019, and our subsequent Quarterly Reports on Form 10-Q filed with the SEC. Prothena undertakes no obligation to update publicly any forward-looking statements contained in this Form 8-K as a result of new information, future events, or changes in Prothena's expectations.

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 hereunto duly authorized.

Date: December 19, 2019

PROTHENA CORPORATION PLC

By: /s/ Tran B. Nguyen

Name: Tran B. Nguyen

Title: Chief Operating Officer and Chief Financial Officer