UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Post-Effective Amendment to: Form S-8 Registration Statement No. 333-255063 Form S-8 Registration Statement No. 333-263220 Form S-8 Registration Statement No. 333-270344 Form S-8 Registration Statement No. 333-278501

FORM S-8 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Achilles Therapeutics plc

(Exact Name of Registrant as Specified in Its Charter)

England and Wales (State of Incorporation) Not Applicable (IRS Employer Identification No.)

3rd Floor, 1 Ashley Road Altrincham, Cheshire WA14 2DT United Kingdom Tel: +44 (0)20 8154 4600 (Address of Principal Executive Offices)

Achilles TX Limited 2020 Omnibus Plan Achilles Therapeutics plc 2021 Omnibus Incentive Plan Achilles Therapeutics plc 2021 Employee Share Purchase Plan (Full Title of the Plans)

> Cogency Global Inc. 122 East 42nd Street, 18th Floor New York, New York 10168 (Name and Address of Agent for Service)

(212) 947-7200 (Telephone Number, including Area Code, of Agent for Service)

Copies to:

Mitchell S. Bloom Finnbarr Murphy Goodwin Procter LLP 100 Northern Avenue Boston, Massachusetts 02210 +1 617 570 1000 Sophie C. McGrath Goodwin Procter (UK) LLP 100 Cheapside London EC2V 6DY United Kingdom +44 20 7447 4200

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer \Box

Non-accelerated filer

Accelerated filer□Smaller reporting company□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 7(a)(2)(B) of the Securities Act.

EXPLANATORY NOTE

This post-effective amendment (the "Post-Effective Amendment") relates to the following Registration Statements of Achilles Therapeutics plc (the "Company") on Form S-8 (collectively, the "Registration Statements"):

- 1. Registration Statement No. 333-255063, registering 364,282 ordinary shares, nominal value £0.001 per share ("Ordinary Shares") issuable pursuant to the Achilles TX Limited 2020 Omnibus Plan, 2,572,558 Ordinary Shares issuable pursuant to the Achilles Therapeutics plc 2021 Omnibus Incentive Plan (the "2021 Plan") and 467,738 Ordinary Shares issuable pursuant to the Achilles Therapeutics plc 2021 Employee Share Purchase Plan (the "2021 ESPP"), which was filed with the SEC on April 6, 2021;
- 2. Registration Statement No. 333-263220, registering 1,624,139 Ordinary Shares issuable pursuant to the 2021 Plan, which was filed with the SEC on March 2, 2022;
- 3. Registration Statement No. 333-270344, registering 1,637,309 Ordinary Shares issuable pursuant to the 2021 Plan and 409,327 Ordinary Shares issuable pursuant to the 2021 ESPP, which was filed with the SEC on March 8, 2023; and
- 4. Registration Statement No. 333-278501, registering 1,637,309 Ordinary Shares issuable pursuant to the 2021 Plan and 409,327 Ordinary Shares issuable pursuant to the 2021 ESPP, which was filed with the SEC on April 4, 2024.

As previously announced, the board of directors of the Company has determined that it would be in the best interests of the Company and its members as a whole to put proposals to the shareholders to undertake a members' voluntary liquidation (the "Liquidation") of the Company to return capital to shareholders.

In connection with the proposed Liquidation, on February 28, 2025, the Company announced its intention to delist its ADSs from the Nasdaq Stock Market and deregister under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). The Company filed a Form 25 with the Securities and Exchange Commission ("SEC") on March 11, 2025 to effect the voluntary delisting of its ADSs from the Nasdaq Stock Market and expects the delisting to be effective on March 20, 2025. The Company intends to file a Form 15 with the SEC on or about March 21, 2025 to deregister its ADSs and ordinary shares under the Exchange Act. The Company's obligation to file periodic reports under the Exchange Act will be suspended immediately upon the filing of the Form 15.

The Company has terminated any and all offerings of the Company's securities pursuant to this Post-Effective Amendment to the Registration Statements. In accordance with an undertaking made by the Company in the Registration Statements to remove from registration, by means of post-effective amendments, any of the securities that had been registered for issuance that remain unsold at the termination of the offering, the Company hereby removes from registration all of such securities of the Company registered under the Registration Statements that remain unsold as of the date of this Post-Effective Amendment, and to terminate the effectiveness of the Registration Statements.

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in London, England, on March 19, 2025

Achilles Therapeutics plc

By: /s/ Robert Coutts

Name: Robert Coutts Title: Chief Financial Officer

No other person is required to sign these Post-Effective Amendments in reliance upon Rule 478 under the Securities Act of 1933, as amended.

SIGNATURE OF AUTHORIZED REPRESENTATIVE IN THE UNITED STATES

Pursuant to the requirements of the Securities Act of 1933, the undersigned, the duly authorized representative in the United States of the registrant has signed this registration statement, on March 19, 2025.

Cogency Global Inc.

By: /s/ Colleen A. De Vries

Name:Colleen A. De VriesTitle:Sr. Vice President on behalf of Cogency Global Inc.