# FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

|                       |  | Washington, D.C. 20549   |  | OMB APPROVAL  |                |
|-----------------------|--|--|--|---|----------------|
|                       | Check this box if no longer subject to<br>Section 16. Form 4 or Form 5<br>obligations may continue. See<br>Instruction 1(b).   | TATEMENT OF CHANGES IN BENEFICIAL OWNE<br>Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934<br>or Section 30(h) of the Investment Company Act of 1940 | ERSHIP   | OMB Number: 32<br>Estimated average burden<br>hours per response: | 35-0287<br>0.5 |
| V                     | Check this box to indicate that a transaction was made pursuant to a contract, instruction or written plan for the purchase or sale of equity securities of the issuer that is intended to satisfy the affirmative defense conditions of Rule 10b5-1(c). See Instruction 10. |  |  |   |                |
| <u>T</u><br>(La<br>C/ | O BICYCLE THERAPEUTICS PLC   | 01/02/2025   | (Check all applicable<br>Director<br>I Officer (give<br>below) | 10% Own   | er<br>ecify    |
|                       | OCKS A & B, PORTWAY BUILDING   |  |  |   |                |

| Thompson T  |  |                   | BICYCLE THERAPEUTICS PLC [ BCYC ]                              | (Check all applicable)<br>Director 10% Owner<br>Officer (give title Other (specify  |  |  |  |  |  |  |  |  |
|---|--|-------------------|--|---|--|--|--|--|--|--|--|--|
|   | st) (First) (Middle)<br>D BICYCLE THERAPEUTICS PLC<br>OCKS A & B, PORTWAY BUILDING |                   | 3. Date of Earliest Transaction (Month/Day/Year)<br>01/02/2025 | below) below) chief ACCOUNTING OFFICER  |  |  |  |  |  |  |  |  |
| BLOCKS A & B, PORTWAY<br>(Street)<br>CAMBRIDGE X0<br>(City) (State) |  | CB21 6GS<br>(Zip) | 4. If Amendment, Date of Original Filed (Month/Day/Year)       | <ul> <li>6. Individual or Joint/Group Filing (Check Applicable<br/>Line)</li> <li>Form filed by One Reporting Person</li> <li>Form filed by More than One Reporting<br/>Person</li> </ul> |  |  |  |  |  |  |  |  |
|   | Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned   |                   |  |   |  |  |  |  |  |  |  |  |

| 1. Title of Security (Instr. 3) | 2. Transaction<br>Date<br>(Month/Day/Year) | 2A. Deemed<br>Execution Date,<br>if any<br>(Month/Day/Year) | 3.<br>Transaction<br>Code (Instr.<br>8) |   |                       |               |                                | 5. Amount of<br>Securities<br>Beneficially<br>Owned Following<br>Reported | 6. Ownership<br>Form: Direct<br>(D) or Indirect<br>(I) (Instr. 4) | 7. Nature<br>of Indirect<br>Beneficial<br>Ownership<br>(Instr. 4) |
|---------------------------------|--|---|---|---|-----------------------|---------------|--------------------------------|---|---|---|
|                                 |  |   | Code                                    | v | Amount                | (A) or<br>(D) | Price                          | Transaction(s)<br>(Instr. 3 and 4)  |   | (1150.4)  |
| Ordinary Shares                 | 01/02/2025                                 |   | A                                       |   | 17,500 <sup>(1)</sup> | A             | <b>\$0</b> <sup>(2)</sup>      | 36,741  | D   |   |
| Ordinary Shares                 | 01/02/2025                                 |   | <b>S</b> <sup>(3)</sup>                 |   | 1,750                 | D             | <b>\$</b> 14.09 <sup>(4)</sup> | 34,991  | D   |   |
| Ordinary Shares                 | 01/03/2025                                 |   | <b>S</b> <sup>(3)</sup>                 |   | 159                   | D             | <b>\$</b> 14.75 <sup>(5)</sup> | 34,832  | D   |   |
| Ordinary Shares                 | 01/06/2025                                 |   | <b>S</b> <sup>(6)</sup>                 |   | 2,686                 | D             | \$15                           | 32,146  | D   |   |

| Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
| (e.g., puts, calls, warrants, options, convertible securities)                |  |  |  |  |  |  |  |

| 1. Title of<br>Derivative<br>Security<br>(Instr. 3) | 2.<br>Conversion<br>or Exercise<br>Price of<br>Derivative<br>Security | 3. Transaction<br>Date<br>(Month/Day/Year) | 3A. Deemed<br>Execution Date,<br>if any<br>(Month/Day/Year) | 4.<br>Transa<br>Code (<br>8) |   | n of   |     | 6. Date Exercisable and<br>Expiration Date<br>(Month/Day/Year) |                    | 7. Title and<br>Amount of<br>Securities<br>Underlying<br>Derivative Security<br>(Instr. 3 and 4) |  | 8. Price of<br>Derivative<br>Security<br>(Instr. 5) | 9. Number of<br>derivative<br>Securities<br>Beneficially<br>Owned<br>Following<br>Reported<br>Transaction(s)<br>(Instr. 4) | 10.<br>Ownership<br>Form:<br>Direct (D)<br>or Indirect<br>(I) (Instr. 4) | 11. Nature<br>of Indirect<br>Beneficial<br>Ownership<br>(Instr. 4) |
|---|---|--|---|------------------------------|---|--------|-----|--|--------------------|--|--|---|--|--|--|
|   |   |  |   | Code                         | v | (A)    | (D) | Date<br>Exercisable  | Expiration<br>Date | Title  | Amount<br>or<br>Number<br>of<br>Shares |   |  |  |  |
| Employee<br>Stock<br>Option<br>(right to<br>buy)    | \$14  | 01/02/2025                                 |   | A                            |   | 43,500 |     | (7)  | 01/02/2035         | Ordinary<br>Shares   | 43,500                                 | \$0   | 43,500   | D  |  |

### Explanation of Responses:

1. Represents a restricted stock unit ("RSU") award. One-fourth (1/4) of the total number of RSUs shall vest on January 2, 2026 and the remaining RSUs shall vest in 12 equal quarterly installments thereafter.

2. Each RSU represents a contingent right to receive one ordinary share.

3. Represents the number of shares required to be sold to cover the statutory tax withholding obligations in connection with the vesting and settlement of the RSUs. This sale is mandated by the Reporting Person's award agreement that requires the satisfaction of minimum statutory tax withholding obligations to be funded by a "sell to cover" transaction and does not represent a discretionary sale by the Reporting Person.

4. The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$13.90 to \$14.15 inclusive. The Reporting Person undertakes to provide to the Issuer, any security holder of the Issuer, or the staff of the Securities and Exchange Commission, upon request, full information regarding the number of shares sold at each separate price within the ranges set forth in footnotes (4) and (5).

5. The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$14.69 to \$14.75 inclusive.

6. This transaction occurred automatically pursuant to a Rule 10b5-1 trading plan adopted by the Reporting Person on August 13, 2024.

7. This option shall vest with respect to one-fourth (1/4) of the total number of shares underlying the option on January 2, 2026 and the remaining shares in 36 equal monthly installments thereafter.

#### /s/ Jason Minio, Attorney-in-01/06/2025

7

\*\* Signature of Reporting Person Date

Fact

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

## **POWER OF ATTORNEY**

### (For Executing Form ID and Forms 3, 4 and 5)

Know all by these presents, that the undersigned hereby constitutes and appoints each of Jaime Chase, Dayne Brown and Jason Minio of Cooley LLP, and Alethia Young, Zafar Qadir and Hayden Ziebel-Lipitz of Bicycle Therapeutics plc (the "*Company*"), signing individually, the undersigned's true and lawful attorneys-in fact and agents to:

(1) Prepare, execute in the undersigned's name and on the undersigned's behalf, and submit to the Securities and Exchange Commission (the "*SEC*") Form ID and Forms 3, 4 and 5 (including amendments thereto and joint filing agreements in connection therewith) in accordance with Section 16(a) of the Securities Exchange Act of 1934, as amended (the "*Exchange Act*") and the rules thereunder in the undersigned's capacity as an officer, director or beneficial owner of more than 10% of a registered class of securities of the Company;

(2) Do and perform any and all acts for and on behalf of the undersigned that may be necessary or desirable to prepare and execute any such Forms 3, 4 or 5 (including amendments thereto and joint filing agreements in connection therewith) and file such forms with the SEC and any stock exchange, self-regulatory association or any similar authority; and

(3) Take any other action of any type whatsoever in connection with the foregoing that, in the opinion of such attorneyin-fact, may be of benefit to, in the best interest of, or legally required of the undersigned, it being understood that the documents executed by the attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as the attorney-in-fact may approve in the attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, and their substitutes, in serving in such capacity at the request of the undersigned, are not assuming (nor is the Company assuming) any of the undersigned's responsibilities to comply with Section 16 of the Exchange Act.

This Power of Attorney shall remain in full force and effect until the earliest to occur of (a) the undersigned is no longer required to file Forms 3, 4 and 5 with respect to the undersigned's holdings of and transactions in securities issued by the Company, (b) revocation by the undersigned in a signed writing delivered to the Company and the foregoing attorneys-in fact or (c) as to any attorney-in-fact individually, until such attorney-in-fact is no longer employed by the Company or Cooley LLP, as applicable.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of the date written below.

Date: January 3, 2024

<u>/s/ Travis Thompson</u> Travis Thompson