Registration No. 333-

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

FORM S-8

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

MORPHIC HOLDING, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of Incorporation or Organization)

> 35 Gatehouse Drive, A2 Waltham, Massachusetts 02451 (781) 996-0955

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Amended and Restated 2019 Equity Incentive Plan 2019 Employee Stock Purchase Plan

(Full title of the plans)

Praveen P. Tipirneni, M.D. Chief Executive Officer Morphic Holding, Inc. 35 Gatehouse Drive, A2 Waltham, Massachusetts 02451 (781) 996-0955

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Please send copies of all communications to: Effie Toshav, Esq. Robert Freedman, Esq. Julia Forbess, Esq.

Fenwick & West LLP 555 California Street, 12th Floor San Francisco, California 94104 (415) 875-2300

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 \boxtimes Accelerated filer \Box Smaller reporting company \boxtimes Emerging growth company \Box

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 Exchange Act.

47-3878772 (I.R.S. Employer Identification No.)

REGISTRATION OF ADDITIONAL SHARES PURSUANT TO GENERAL INSTRUCTION E

Morphic Holding, Inc. (the "Registrant") is filing this Registration Statement with the Securities and Exchange Commission (the "Commission") to register (a) 1,543,387 additional shares of common stock available for issuance under the Registrant's Amended and Restated 2019 Equity Incentive Plan (the "Amended and Restated 2019 EIP"), pursuant to the provision of the Amended and Restated 2019 EIP providing for an annual 4% automatic increase in the number of shares reserved for issuance thereunder and (b) 385,846 additional shares of common stock available for issuance under the Registrant's 2019 Employee Stock Purchase Plan (the "2019 ESPP"), pursuant to the provision of the 2019 ESPP providing for an annual 1% automatic increase in the number of shares reserved for issuance thereunder.

In accordance with General Instruction E of Form S-8, and only with respect to the common stock issuable under the Amended and Restated 2019 EIP and 2019 ESPP, this Registration Statement hereby incorporates by reference the contents of the Registrati's Registration Statements on Form S-8 filed with the Commission on June 27, 2019 (Registration No. 333-232372), on February 27, 2020 (Registration No. 333-236727), on March 1, 2021 (Registration No. 333-253678), and on February 24, 2022 (Registration No. 333-262950), to the extent not superseded hereby.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed by the Registrant with the Commission pursuant to the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended (the "Exchange Act") are incorporated herein by reference:

- (a) the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022, filed with the Commission on February 23, 2023 pursuant to Section 13 of the Exchange Act;
- (b) all other reports filed pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by the Registrant's Annual Report on Form 10-K referred to in (a) above; and
- (c) the description of the Registrant's common stock contained in the Registrant's registration statement on Form 8-A12B (File No. 001-38940) filed on June 14, 2019 under Section 12(b) of the Exchange Act, including any amendment or report filed for the purpose of updating such description.

All documents filed by the Registrant pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the filing of this Registration Statement and prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference into this Registration Statement and to be a part hereof from the date of filing such documents, except as to specific sections of such documents as set forth therein. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained in any subsequently filed document which also is deemed to be incorporated by reference herein modifies or supersedes such statement.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 8. Exhibits.

The following exhibits are filed herewith:

Exhibit Number	Exhibit Description	Incorporated by Reference Form	File No.	Exhibit	Filing Date	Filed Herewith
4.1	Restated Certificate of Incorporation of the Registrant	10-Q	001-38940	3.1	8/13/2019	
4.2	Amended and Restated Bylaws of the Registrant	8-K	001-38940	3.1	2/13/2023	
4.3	Form of Registrant's Common Stock certificate	S-1/A	333-231837	4.1	6/14/2019	
5.1	Opinion of Fenwick & West LLP					Х
23.1	Consent of Fenwick & West LLP (contained in Exhibit 5.1)					Х
23.2	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm					Х
24.1	<u>Power of Attorney (included on the signature</u> page to this Registration Statement)					Х
99.1	Amended and Restated 2019 Equity Incentive Plan	10-Q	001-38940	10.1	8/3/2022	
99.2	Form of Stock Option Award Agreement (Included in the 2019 Equity Incentive Plan)	S-1/A	333-231837	10.3	6/14/2019	
99.3	Form of Restricted Stock Award Agreement (Included in the 2019 Equity Incentive Plan)	S-1/A	333-231837	10.3	6/14/2019	
99.4	2019 Employee Stock Purchase Plan and forms of award agreements thereunder	S-1/A	333-231837	10.4	6/14/2019	
107.1	<u>Filing Fee Table</u>					Х

SIGNATURES

Pursuant to the requirements of the Securities Act, 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 the City of Waltham, Commonwealth of Massachusetts, on this 23rd day of February, 2023.

MORPHIC HOLDING, INC.

By: /s/ Praveen Tipirneni Praveen Tipirneni

Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Praveen P. Tipirneni and William D. DeVaul, and each of them, as his or her true

and lawful attorney-in-fact and agent with full power of substitution, for him or her in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities and on the date indicated.

Signature	Title	Date
/s/ Praveen P. Tipirneni	Chief Executive Officer and Director (Principal Executive Officer)	February 23, 2023
Praveen P. Tipirneni, M.D.		
/s/ Marc Schegerin	Chief Financial Officer and Chief Operating Officer (Principal Financial Officer)	February 23, 2023
Marc Schegerin, M.D.		
/s/ Robert E. Farrell, Jr.	Chief Accounting Officer (Principal Accounting Officer)	February 23, 2023
Robert E. Farrell, Jr., CPA		
/s/ Norbert Bischofberger	Director	February 23, 2023
Norbert Bischofberger, Ph.D.		
/s/ Gustav Christensen	Director	February 23, 2023
Gustav Christensen		
/s/ Martin Edwards	Director	February 23, 2023
Martin Edwards		
/s/ Susannah Gray	Director	February 23, 2023
Susannah Gray		
/s/ Nisha Nanda	Director	February 23, 2023
Nisha Nanda, Ph.D.		
/s/ Amir Nashat	Director	February 23, 2023
Amir Nashat		
/s/ Joseph P. Slattery	Director	February 23, 2023
Joseph P. Slattery, CPA		
/s/ Timothy A. Springer	Director	February 23, 2023
Timothy A. Springer, Ph.D.		

CALCULATION OF FILING FEE TABLES

Form S-8 (Form Type)

Morphic Holding, Inc. (Exact Name of Registrant as Specified in its Charter)

Table 1 – Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common stock, par value \$0.0001 per share	Rule 457(c) and Rule 457(h)	1,543,387 (2)	\$ 39.56 (3)	\$ 61,056,390	\$0.00011020	\$ 6,728
Equity	Common stock, par value \$0.0001 per share	Rule 457(c) and Rule 457(h)	385,846 (4)	\$ 33.62 (5)	\$ 12,972,143	\$0.00011020	\$ 1,430
Total Offering Amounts				\$ 74,028,533		\$ 8,158	
Total Fee Offsets						-	
Net Fee Due						\$ 8,158	

(1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of the Registrant's common stock, par value \$0.0001 per share ("Common Stock"), that become issuable under the Registrant's Amended and Restated 2019 Equity Incentive Plan (the "Amended and Restated 2019 EIP") and 2019 Employee Stock Purchase Plan (the "2019 ESPP") in respect of the securities identified in the above table by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without the receipt of consideration that increases the number of the Registrant's outstanding shares of Common Stock.

(2) Represents additional shares of Common Stock reserved for issuance under the Registrant's Amended and Restated 2019 EIP resulting from the annual 4% automatic increase in the number of authorized shares available for issuance under the Amended and Restated 2019 EIP.

(3) Estimated in accordance with Rule 457(c) and (h) under the Securities Act solely for the purpose of calculating the registration fee on the basis of \$39.56, the average of the high and low prices of the Common Stock as reported on the Nasdaq Global Select Market on February 16, 2023.

- (4) Represents additional shares of Common Stock reserved for issuance under the 2019 ESPP resulting from the annual 1% automatic increase in the number of authorized shares available for issuance under the 2019 ESPP.
- (5) Estimated in accordance with Rule 457(c) and (h) under the Securities Act solely for the purpose of calculating the registration fee on the basis of \$33.62, the average of the high and low prices of the Common Stock as reported on the Nasdaq Global Select Market on February 16, 2023, multiplied by 85%, which is the percentage of the trading price per share applicable to purchasers under the 2019 ESPP.

EXHIBIT 5.1

FENWICK

801 California Street Mountain View, CA 94041 650.988.8500 Fenwick.com

February 23, 2023

Morphic Holding, Inc. 35 Gatehouse Drive, A2 Waltham, MA 02451

Re: Registration Statement on Form S-8

Ladies and Gentlemen:

As counsel to Morphic Holding, Inc., a Delaware corporation (the "*Company*"), we have examined the Registration Statement") to be filed by the Company with the Securities and Exchange Commission (the "*Commission*") on or about February 23, 2023 in connection with the registration under the Securities Act of 1933, as amended (the "*Securities Act*"), of an aggregate of 1,929,233 shares (the "*Shares*") of the Company's Common Stock, \$0.0001 par value per share (the "*Common Stock*"), that consists of (a) 1,543,387 additional shares of Common Stock that are subject to issuance by the Company upon the exercise or settlement of awards granted or to be granted under the Company's Amended and Restated 2019 Equity Incentive Plan (the "*Amended and Restated 2019 Plan*") pursuant to the provision of the Amended and Restated 2019 Plan providing for an annual 4% automatic increase in the number of shares reserved for issuance thereunder and (b) 385,846 additional shares of Common Stock granted or to be granted under the Company bursuant to the provision of the provision of the Purchase Plan (the "*Purchase Plan*") pursuant to the provision of the provision of the Purchase Plan providing for an annual 1% automatic increase in the number of shares reserved for issuance thereunder. The Amended and Restated 2019 Plan and the Purchase Plan are collectively referred to in this letter as the "*Plans*".

As to matters of fact relevant to the opinions rendered herein, we have examined such documents, certificates and other instruments which we have deemed necessary or advisable, including a certificate addressed to us and dated the date hereof executed by the Company (the "*Opinion Certificate*"). We have not undertaken any independent investigation to verify the accuracy of any such information, representations or warranties or to determine the existence or absence of any fact, and no inference as to our knowledge of the existence or absence of any fact should be drawn from our representation of the Company or the rendering of the opinion set forth below. We have not considered parol evidence in connection with any of the agreements or instruments reviewed by us in connection with this letter.

In our examination of documents for purposes of this letter, we have assumed, and express no opinion as to, the genuineness and authenticity of all signatures on original documents, the authenticity and completeness of all documents submitted to us as originals, that each document is what it purports to be, the conformity to originals of all documents submitted to us as copies or facsimile copies, the absence of any termination, modification or waiver of or amendment to any document reviewed by us (other than as has been disclosed to us), the legal competence or capacity of all persons or entities (other than the Company) executing the same and (other than the Company) the due authorization, execution and delivery of all documents by each party thereto. We have also assumed the conformity of the documents filed with the Commission via the Electronic Data Gathering, Analysis and Retrieval System ("EDGAR"), except for required EDGAR formatting changes, to physical copies submitted for our examination.

The opinions in this letter are limited to the existing General Corporation Law of the State of Delaware now in effect. We express no opinion with respect to any other laws.

Based upon, and subject to, the foregoing, it is our opinion that the Shares, when issued and sold by the Company in accordance with the terms (including, without limitation, payment and authorization provisions) of the applicable Plan and the applicable form of award agreement thereunder, against the Company's receipt of payment therefor (in an amount and type of consideration not less than the par value per Share), and duly registered on the books of the transfer agent and registrar for the Shares in the name or on behalf of the holders thereof, will be validly issued, fully paid and non-assessable.

We consent to the use of this opinion as an exhibit to the Registration Statement and further consent to all references to us, if any, in the Registration Statement, the prospectuses constituting a part thereof and any amendments thereto. We do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

This opinion is intended solely for your use in connection with issuance and sale of the Shares subject to the Registration Statement and is not to be relied upon for any other purpose. In providing this letter, we are opining only as to the specific legal issues expressly set forth above, and no opinion shall be inferred as to any other matter or matters. This opinion is rendered on, and speaks only as of, the date of this letter first written above, and does not address any potential change in facts or law that may occur after the date of this opinion letter. We assume no obligation to advise you of any fact, circumstance, event or change in the law or the facts that may hereafter be brought to our attention, whether or not such occurrence would affect or modify any of the opinions expressed herein.

Very truly yours,

/s/ Fenwick & West LLP

FENWICK & WEST LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the Morphic Holding, Inc. Amended and Restated 2019 Equity Incentive Plan and the 2019 Employee Stock Purchase Plan of our report dated February 23, 2023, with respect to the consolidated financial statements of Morphic Holding, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2022.

/s/ Ernst & Young LLP

Boston, Massachusetts February 23, 2023