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

DIVISION OF
CORPORATION FINANCE

May 10, 2019

Praveen P. Tipirneni, M.D.
Chief Executive Officer
Morphic Holding, Inc.
35 Gatehouse Drive, A2
Waltham, MA 02451

Re: Morphic Holding, Inc.
Draft Registration Statement on Form S-1
Submitted April 12, 2019
CIK No. 0001679363

Dear Dr. Tipirneni:

We have reviewed your draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Draft Registration Statement on Form S-1 Submitted April 12, 2019

Prospectus Summary, page 1

1. Please revise the "Overview" section on page 1 to clarify that your operations are preclinical in nature.

2. With reference to the second sentence of the "Overview", please revise to clarify the meaning of the term "validated targets".

3. Please revise to balance your Summary presentation by highlighting the developmental challenges confronting oral integrin modulators. In this regard, we refer to your disclosure on page 95 and your risk factor disclosures on page 17-18 indicating that (i) no regulatory authority has granted approval for an oral small-molecule integrin inhibitor and (ii) you currently have only limited data regarding the oral bioavailability of your product candidates.

4. We refer to the table highlighting your "Lead Product Candidates". Please revise this table to remove the discovery-stage programs (*i.e.*, rows 3 through 7). In this regard, it is premature to prominently highlight each of these programs in your Summary presentation given that you do not identify specific molecules or indications that you seek to develop, and you do not discuss IND-enabling studies in the prospectus.

Our future clinical trials..., page 21

5. We note your risk discussion indicating that preclinical results have indicated that PML is an adverse effect with the modulated target of A_4B_7. Please revise to clarify whether you conducted this testing and also revise the Business section to explain this testing in greater detail.

Management's Discussion and Analysis of Financial Condition
Critical Accounting Policies and Significant Estimates
Determination of the Fair Value of Equity-Based Awards, page 85

6. Once you have an estimated offering price or range, please explain to us how you determined the fair value of the common stock underlying your equity issuances and the reasons for any differences between the recent valuations of your common stock leading up to the IPO and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation and beneficial conversion features.

Development Challenges of Oral Integrin Modulators, page 95

7. We note your disclosure concerning the "conceptually similar paradoxical exacerbation of symptoms" observed in trials of oral non-selective inhibitor of A_4B_1 and A_4B_7. Please revise to clarify whether this means that greater platelet aggregation and increased rates of adverse events occurred for the same reasons as observed in the trials of the AII_bB_3 inhibitors.

Our Solution, page 100

8. We refer to your disclosure indicating that your A_4B_7 inhibitor molecules have exhibited good oral absorption in preclinical studies. Please revise your Business section to discuss these preclinical studies, or revise your disclosure on pages 100-101 to clarify how the referenced studies support the claim.

Preclinical Data, Pharmacology and Biomarker Data, page 100

9. We refer to your disclosures on pages 100-108 concerning numerous preclinical studies/models/assays. For each such study that you reference, please revise to include information about the nature, design and results of that work so that investors have a basis to assess the applicable observation that you present. Without limitation, your discussion should identify the type of cells and methods utilized in the referenced study. Your disclosure also should indicate whether the results were or were not statistically significant and you should include all p-values and n-values. In addition, please review your italicized disclosure in Figures 3 through 9 and consider whether some or all of this information should be included in the main text.

10. Please revise to include Table 1. Also revise the the last full sentence on page 100 to clarify whether you made the 1000-fold selectively observation and discuss in greater detail the testing that supports this claim.

11. Please explain why you believe that *in vitro* IC90 values in the cell adhesion assays with human serum are most predictive for *in vivo* efficacy. In this regard, we refer to your disclosure that IC50 values are commonly accepted measurements of drug potency.

Our Integrin Approach to Fibrosis, page 103

12. Based on the disclosures for Figures 4 through 8, it is not clear whether MORF-720 is among the A_vB_6 inhibitors that produced the disclosed results. Please revise to clarify, or advise.

MORF-720 - Our most advanced integrin candidate product, page 107

13. Please revise to provide support for your disclosure that MORF-720 has been observed to be highly selective. Similarly, please discuss the preclincial data supporting your belief that MORF-720 will be suitable to support favorable dosing strategies.

License Agreements
AbbVie Agreement, page 110

14. We note your disclosure on page 110 that you are eligible to earn tiered royalties from high single to "low double digits" on worldwide net sales for each licensed product. The upper bound of the range is very broad and therefore does not provide investors with a meaningful understanding of the potential royalty payments. Accordingly, please revise so that the range for the upper bound is discernible within 10 percentage points.

Restated Certificate of Incorporation and Restated Bylaw Provisions, page 154

15. We note that your restated certificate of incorporation, which will be in effect upon the completion of this offering, provides that the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on your behalf. Please revise the prospectus to include a discussion regarding whether your exclusive forum provision applies to actions arising under the federal securities laws. In this regard, we note that Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. Please also note that we may have additional comment once you file Exhibit 3.2.

General

16. Please provide us proofs of all graphics, visual, or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note that we may have comments regarding this material.

17. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

You may contact SiSi Cheng at 202-551-5004 or Jim Rosenberg at 202-551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Jeffrey Gabor at 202-551-2544 or Joe McCann at 202-551-6262 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Healthcare & Insurance

cc: Rob Freedman, Esq.