



Morphic Therapeutic Presents Positive Preclinical Data Supporting Development of MORF-057 in Inflammatory Bowel Disease at Digestive Disease Week 2020

June 29, 2020

Receptor occupancy, potency and selectivity data further build MORF-057 preclinical profile as an oral small molecule treatment candidate for IBD

IND filing on track for mid-year and phase 1 clinical trial expected third-quarter 2020

WALTHAM, Mass., June 29, 2020 (GLOBE NEWSWIRE) -- Morphic Therapeutic (NASDAQ: MORF), a biopharmaceutical company developing a new generation of oral integrin therapies for the treatment of serious chronic diseases, today announced a presentation highlighting Morphic's product candidate MORF-057 at the 2020 Digestive Disease Week (DDW) virtual event. The new data presented at DDW expand on Morphic's [recent oral presentation](#) at the 15th Congress of the European Crohn's and Colitis Organisation (ECCO), which support MORF-057's development as a potent, selective, and orally available small molecule inhibitor of the integrin $\alpha_4\beta_7$, a validated target for the treatment of inflammatory bowel disease (IBD).

"The data presented at DDW demonstrate that MORF-057 successfully targets the integrin $\alpha_4\beta_7$ with high potency and selectivity. These studies recapitulate results from previous *in vitro* and *in vivo* models of increasing complexity and bolster the emerging profile of MORF-057 by demonstrating saturation of $\alpha_4\beta_7$ in non-human primate receptor occupancy studies," commented Bruce Rogers, Ph.D., chief scientific officer of Morphic Therapeutic. "We believe a safe and effective oral inhibitor of $\alpha_4\beta_7$ would provide a highly differentiated new treatment for IBD and we now look forward to filing the Investigational New Drug Application for MORF-057 and the initiation of clinical studies for this promising drug candidate."

About the MORF-057 DDW Presentation

The data presented at DDW demonstrate MORF-057's inhibition of $\alpha_4\beta_7$ -expressing lymphocyte migration to the gut, which is a fundamental contributor to IBD. In mice, its inhibitory activity demonstrated potency comparable to an anti- $\alpha_4\beta_7$ antibody. In non-human primate (NHP) models, MORF-057 demonstrated important proof of mechanistic activity by driving accumulation of mucosal homing $\alpha_4\beta_7$ -high expressing T cells in the peripheral blood, in an analogous manner to the approved anti- $\alpha_4\beta_7$ antibody, vedolizumab. Importantly, a MORF-057 analog demonstrated >90% receptor occupancy of $\alpha_4\beta_7$ in NHPs, providing an important indicator of the product candidate's target engagement.

In biochemical assays MORF-057 demonstrated high selectivity over a broad panel of integrins. These results were consistent in cell adhesion assays, where MORF-057 showed greater than 3,000-fold targeted selectivity of $\alpha_4\beta_7$ integrin over its nearest family members, including $\alpha_4\beta_1$. MORF-057 was designed to achieve high selectivity for $\alpha_4\beta_7$ over $\alpha_4\beta_1$ to help prevent unwanted localized immune suppression potentially leading to certain adverse opportunistic infections. In contrast to small molecule or antibody inhibitors of $\alpha_4\beta_1$, a MORF-057 analog did not show a statistically significant increase in lymphocytes in mice in these studies.

Details of the Poster Presentation at DDW 2020:

Title: *Preclinical Characterization of an Oral Small Molecule Inhibitor Targeting the Integrin $\alpha_4\beta_7$ for the Treatment of Inflammatory Bowel Diseases (IBD)*

Presenter: Dr. Jamie Wong, Ph.D.

Contributors: Jamie Wong, Matthew Bursavich, Natalia Blanco, Adam Camblin, Laura Cappellucci, Rhianna Cohen, Dan Cui, Kris Hahn, Megan Krumpoch, Dooyoung Lee, Fu-Yang Lin, Blaise Lippa, Alex Lugovskoy, Molly McShea, Maloy Mangada, Siavash Mostafavi, Terence Moy, Adrian Ray, Naresh Redhu, Allison Sang, Andrew Sullivan, Peter Traber, Dawn Troast, Cheng Zhong, Liangsu Wang, Bruce Rogers

This DDW presentation is available on the Morphic website on the [Investor page](#).

About MORF-057

Morphic is developing MORF-057 as a selective, oral small molecule inhibitor of the $\alpha_4\beta_7$ integrin for patients with inflammatory bowel disease (IBD). $\alpha_4\beta_7$ has been clinically validated as a target for the treatment of IBD by the success of the approved antibody therapeutic vedolizumab. MORF-057 is designed to block the interactions between $\alpha_4\beta_7$ on the surface of lymphocytes and the mucosal endothelial cell ligand MAdCAM-1, preventing lymphocyte migration from the bloodstream into intestinal mucosal tissues and causing inflammation.

About Morphic Therapeutic

Morphic Therapeutic is a biopharmaceutical company developing a new generation of oral integrin therapies for the treatment of serious chronic diseases, including autoimmune, cardiovascular and metabolic diseases, fibrosis and cancer. In collaboration with AbbVie, Janssen, and Schrödinger, Morphic is advancing its pipeline and discovery activities using its proprietary MInT technology platform which leverages the Company's unique understanding of integrin structure and biology. For more information, visit www.morphictx.com.

Cautionary Note Regarding Forward-Looking Statements

This press release contains "forward-looking" statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to: Morphic's plan to develop and commercialize oral small-molecule integrin therapeutics; the ability of MORF-057 to treat inflammatory bowel disease; and Morphic's expectations about timing and ability to obtain regulatory approvals for MORF-057 or

any other of its product candidates. Statements including words such as “believe,” “plan,” “continue,” “expect,” “will be,” “develop,” “signal,” “potential,” or “ongoing” and statements in the future tense are forward-looking statements. These forward-looking statements involve risks and uncertainties, as well as assumptions, which, if they do not fully materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. Forward-looking statements are subject to risks and uncertainties that may cause Morphic’s actual activities or results to differ significantly from those expressed in any forward-looking statement, including risks and uncertainties related to Morphic’s ability to develop, obtain regulatory approval for and commercialize MORF-720, MORF-057, and other product candidates, the timing and results of preclinical studies and clinical trials, the potential impact of the COVID-19 pandemic, Morphic’s ability to protect intellectual property; and other risks set forth in our filings with the Securities and Exchange Commission. These forward-looking statements speak only as of the date hereof and Morphic specifically disclaims any obligation to update these forward-looking statements or reasons why actual results might differ, whether as a result of new information, future events or otherwise, except as required by law.

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