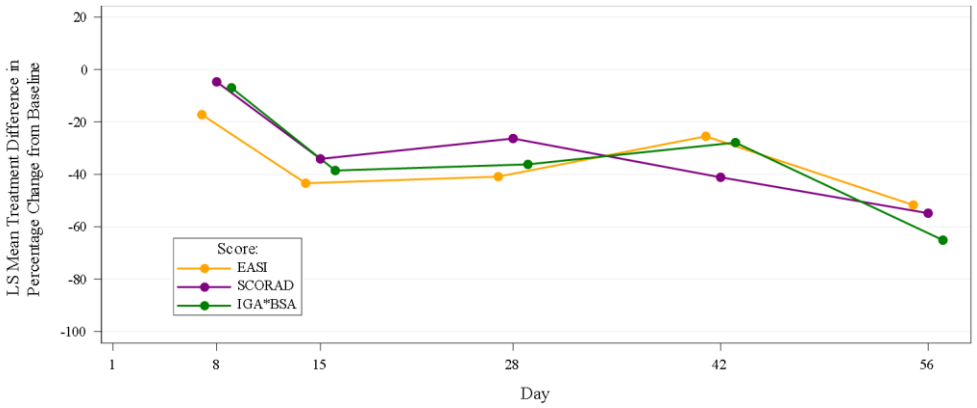
Evelo Biosciences Presents Further Positive Data from Phase 1b Clinical Trial of EDP1815 in Atopic Dermatitis

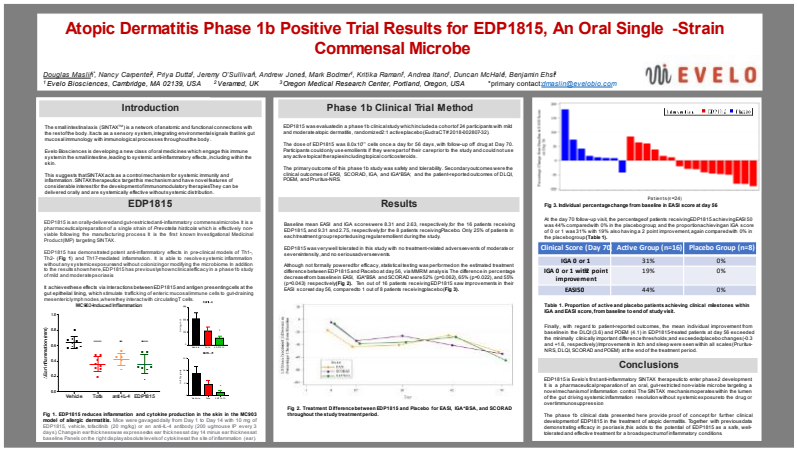
–Evelo presents late-breaking abstract at the International Society of Atopic Dermatitis Annual Meeting–
–Meaningful improvements over placebo on clinical scores, including new data released on key IGA endpoints–
–Initiation of Phase 2 trial of EDP1815 in atopic dermatitis expected in 3Q 2021–

CAMBRIDGE, Mass., April 20, 2021 – Evelo Biosciences, Inc. (Nasdaq:EVLO), a clinical stage biotechnology company developing a new modality of orally delivered medicines, today presented full clinical data from the Phase 1b clinical trial cohort evaluating EDP1815 for the treatment of mild and moderate atopic dermatitis in a poster presentation at the International Society of Atopic Dermatitis (ISAD) Hybrid Meeting 2021. The Company previously reported positive data for all 24 patients in the cohort, which is re-iterated in the presentation, together with new data on the Investigator Global Assessment (IGA) score.

The primary endpoint of the Phase 1b trial was safety and tolerability. As previously disclosed, EDP1815 was well tolerated, with no treatment-related adverse events of moderate or severe intensity and no serious adverse events. The full results reinforce the data released on January 20, 2021, demonstrating that treatment with EDP1815 resulted in clinically meaningful improvements in both patient- and physician-reported outcomes. At the day 70 follow-up visit, 31% more EDP1815-treated patients achieved an IGA score of 0 or 1 greater than placebo. At this same time point, 19% more EDP1815-treated patients reached an IGA score of 0 or 1 with a two-point improvement from baseline greater than placebo. This, in addition to the treatment differences seen within the Eczema Area and Severity Index (EASI), SCORing Atopic Dermatitis (SCORAD), and IGA times Body Surface Area (IGA*BSA) clinical endpoints as shown in the image below, suggests the potential of EDP1815 to be an effective, safe, well-tolerated, oral treatment for patients with mild and moderate atopic dermatitis.



Treatment Difference between EDP1815 and Placebo for EASI, IGA*BSA, and SCORAD throughout the study treatment period



Click [here](#) to view the ISAD poster

"We are pleased to present this complete dataset from our Phase 1b cohort at the ISAD conference, as it demonstrates the strong potential of EDP1815 as a therapy for patients with atopic dermatitis – many of whom are underserved by a lack of effective, convenient, safe treatment options," said Douglas Maslin, M.Phil, M.B. B.Chir, Dermatology and Pharmacology Physician at Addenbrooke's Hospital and Immunology Clinical Lead of Evelo. "We are further encouraged by the IGA data, which showed that EDP1815 has the potential to provide clinical benefit to patients. We look forward to initiating our Phase 2 atopic dermatitis trial in the third quarter of this year in patients with mild, moderate and severe atopic dermatitis."

About the EDP1815 Phase 1b Clinical Trial

EDP1815-101 is a double-blind, placebo-controlled Phase 1b trial designed to evaluate the safety and tolerability of EDP1815 in healthy volunteers and patients with psoriasis or atopic dermatitis. The atopic dermatitis cohort enrolled 24 patients with mild and moderate atopic dermatitis, randomized 2:1 to receive oral administration of the enteric capsule formulation of EDP1815 or placebo once daily, for 56 days, with follow-up at day 70. Patients were not allowed to use active topical treatments and were not required to use emollients. The primary endpoint was safety and tolerability. Secondary endpoints included a range of established markers of atopic dermatitis.

About EDP1815

EDP1815 is an investigational oral medicine being developed for the treatment of inflammatory diseases. It is a non-live pharmaceutical preparation of a strain of Prevotella histicola, selected for its potential to provide systemic pharmacological effects after oral administration with gut-restricted distribution. Being non-live, it has not been observed to colonize the gut or modify the microbiome. Preclinically, EDP1815 had anti-inflammatory effects in models that cover multiple pathways of inflammation, Th1, Th2, and Th17. Clinical results from five independent cohorts provide evidence supporting EDP1815's potential to address Th1, Th2 and Th17-mediated inflammation.

In the psoriasis cohorts of the Phase 1b clinical trial, EPD1815 was also observed to limit the systemic production of multiple inflammatory cytokines, including IL-6, IL-8, TNF, and IL-1, which are well-established mediators of potentially harmful effects in patients with inflammatory diseases. Preclinical and clinical data to date showed that EDP1815 achieved this anti-inflammatory activity without inducing immunosuppression. EDP1815 has been observed to be well-tolerated in clinical studies to-date.

About Atopic Dermatitis

Atopic dermatitis, also known as eczema, is a common chronic inflammatory skin disease that affects both children and adults, with a prevalence of up to 3-6% in adults worldwide. It typically presents as a red, intensely itchy rash that may cause lifelong symptoms. Due to the chronic nature and frequency of relapses, atopic dermatitis is associated with a substantial physical and psychosocial burden on patients and their families. It can also occur alongside other atopic diseases including food allergy, asthma, and allergic rhinitis, as these conditions are all

associated with an imbalance towards a Th2 inflammatory response – an immune pathway on which EDP1815 has been shown to have potent pre-clinical, and now also clinical, activity.

Patients with atopic dermatitis are often treated with topical medications, which are inconvenient and burdensome in application, leading to poor adherence and reduced efficacy in a real-world setting. Beyond topicals, patients have limited treatment options, especially patients with mild and moderate disease, who represent 80-90% of atopic dermatitis patients worldwide. This group of patients typically do not have access to high-cost, injectable antibody therapies or may be uncomfortable with the toxicity concerns and monitoring requirements of systemic immunosuppressants. There is a large need across the spectrum of disease severity, especially for the midline, pre-biologic patients, for a safe and well-tolerated oral medicine that resolves the systemic inflammation that drives atopic dermatitis.

About Evelo Biosciences
Evelo Biosciences is a clinical stage biotechnology company developing orally delivered medicines that act on SINTAX™, the small intestinal axis, to have systemic therapeutic effects. SINTAX plays a central role in governing the immune, metabolic, and neurological systems. The Company's first product candidates are pharmaceutical preparations of single strains of microbes selected for defined pharmacological properties.

Evelo currently has four product candidates in development: EDP1815, EDP1867, and EDP2939 for the treatment of inflammatory diseases and EDP1908 for the treatment of cancer. Evelo is advancing additional product candidates in other disease areas.

For more information, please visit www.evelobio.com and engage with Evelo on LinkedIn.

Forward Looking Statements
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this press release that do not relate to matters of historical fact should be considered forward-looking statements, including statements concerning the development of EDP1815, the timing of and plans for clinical trials, and the promise and potential impact of EDP1815.

These forward-looking statements are based on management's current expectations. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the following: the impact of the COVID-19 pandemic on our operations, including our preclinical studies and clinical trials, and the continuity of our business; we have incurred significant losses, are not currently profitable and may never become profitable; our need for additional funding; our limited operating history; our unproven approach to therapeutic intervention; the lengthy, expensive, and uncertain process of clinical drug development, including potential delays in regulatory approval; our reliance on third parties and collaborators to expand our microbial library, conduct our clinical trials, manufacture our product candidates, and develop and commercialize our product candidates, if approved; our lack of experience in manufacturing, selling, marketing, and distributing our product candidates; failure to compete successfully against other drug companies; protection of our proprietary technology and the confidentiality of our trade secrets; potential lawsuits for, or claims of, infringement of third-party intellectual property or challenges to the ownership of our intellectual property; our patents being found invalid or unenforceable; risks associated with international operations; our ability to retain key personnel and to manage our growth; the potential volatility of our common stock; our management and principal stockholders have the ability to control or significantly influence our business; costs and resources of operating as a public company; unfavorable or no analyst research or reports; and securities class action litigation against us.

These and other important factors discussed under the caption "Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020 and our other reports filed with the SEC could cause actual results to

differ materially from those indicated by the forward-looking statements made in this press release. Any such forward-looking statements represent management's estimates as of the date of this press release. While we may elect to update such forward-looking statements at some point in the future, except as required by law, we disclaim any obligation to do so, even if subsequent events cause our views to change. These forward-looking statements should not be relied upon as representing our views as of any date subsequent to the date of this press release.

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