UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of

the Securities Exchange Act of 1934

Date of report (Date of earliest event reported): February 7, 2022

EVELO BIOSCIENCES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**001-38473**	**46-5594527**
(State or other jurisdiction of incorporation or organization)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

620 Memorial Drive

Cambridge, Massachusetts 02139

(Address of principal executive offices) (Zip Code)

(617) 577-0300

(Registrant's telephone number, including area code)

N/A

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value per share	EVLO	Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

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 13(a) of the Exchange Act. ☐

Item 8.01. Other Events.

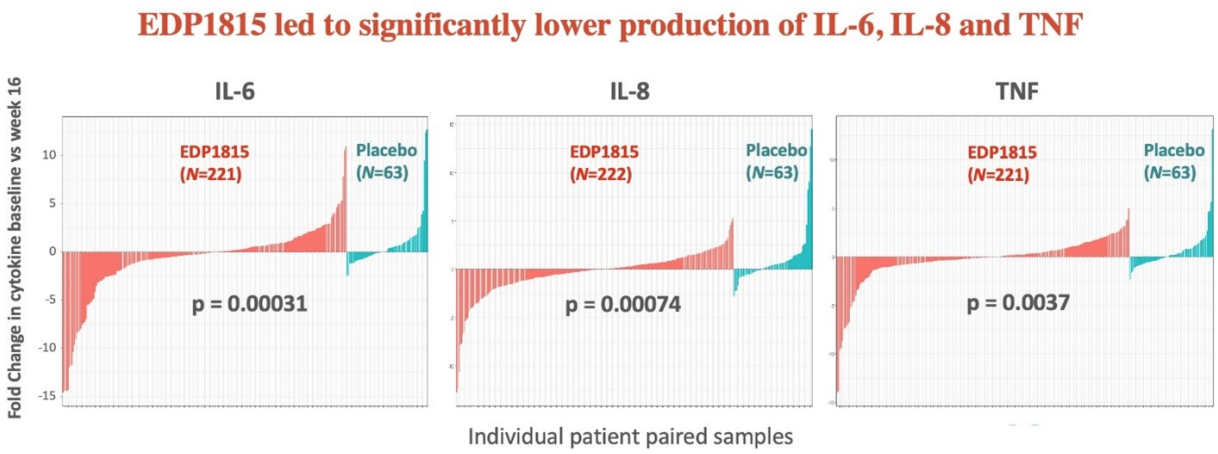
Evelo Biosciences, Inc. (the "Company") recently updated its business information as follows:

Biomarker Analyses from Phase 2 Clinical Trial of EDP1815 in mild and moderate psoriasis

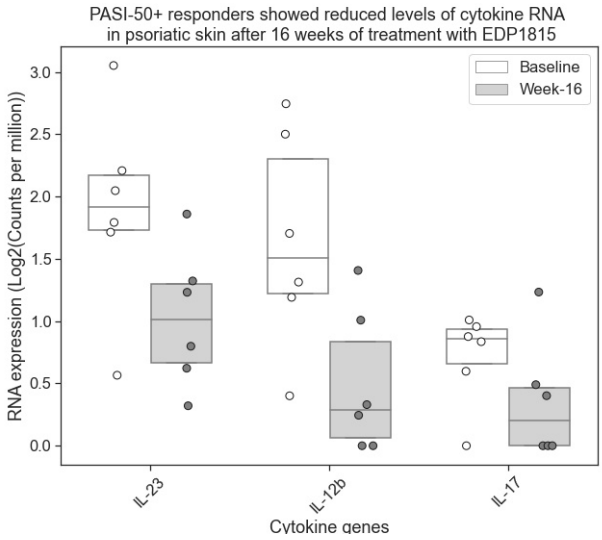
On February 7, 2022, the Company announced the results of immunological biomarker analyses from its previously reported Phase 2 trial of orally-dosed EDP1815 in mild and moderate psoriasis. The Company previously reported reductions in inflammatory cytokines in a Phase 1b trial of EDP1815 in mild and moderate psoriasis. These data have now been replicated in the Phase 2 psoriasis trial, with high statistical significance.

Blood samples were taken from 96 patients at baseline and after 16 weeks of dosing with EDP1815 or placebo. The figure below shows the changes in pro-inflammatory cytokines interleukin 6 (IL-6), interleukin 8 (IL-8) and tumor necrosis factor (TNF). Each vertical bar represents the fold change up or down from 0 in *ex vivo* stimulated cytokine production between the baseline and week 16 samples from a patient. Three different stimuli were used on each sample and the results from all three stimuli are presented together in the figures, giving the aggregate N (sample) numbers shown in the figures.

Treatment with EDP1815 led to a statistically significant reduction in the release of cytokines compared to placebo: IL-6 (p=0.0003), IL-8 (p=0.0007), and TNF (p=0.0037). The effect of EDP1815 is clearly seen by the deep tail of reduced cytokine production on the left of the distribution for each cytokine, which is absent in the placebo groups. There was no worsening compared to placebo on the right of the distributions, resulting in the overall significant difference between EDP1815 and placebo.



In addition, skin biopsies of active lesions were taken from a subset of six patients who received EDP1815 and achieved at least a 50% improvement in their Psoriasis Area and Severity Index (PASI) score (PASI-50) from baseline at week 16. RNAseq analysis showed reductions in transcript levels for psoriasis-relevant cytokines interleukin 23 (IL-23), interleukin 12b (IL-12b), and interleukin 17 (IL-17) in these lesions between baseline and week 16. The box plot below shows the median and interquartile ranges, as well as individual values of the cytokine expression levels in the skin, at baseline and week 16. These data were consistent with the systemic effects in blood described above, suggesting that EDP1815 reduces inflammation in the skin by modulating multiple proinflammatory cytokines systemically.



These data highlight the biology of the small intestinal axis, or SINTAX, and support the development of a new class of medicine that acts locally in the small intestine to exert significant effects on inflammation throughout the body. There was no observed distribution of EDP1815 outside the gut. In the Phase 2 trial, EDP1815 was observed to have safety and tolerability data comparable to placebo. Six-month follow-up efficacy and safety data from the Phase 2 trial are expected to be available later in the first quarter of 2022.

About the EDP1815 Phase 2 Clinical Trial ex vivo Stimulation Analysis Protocol

Blood samples were taken from 96 patients at baseline and after 16 weeks of daily oral administration of EDP1815 (N=74) or placebo (N=22) in the Company's Phase 2 clinical trial in mild and moderate psoriasis. Whole blood was incubated with three stimuli separately: lipopolysaccharide (LPS), antibodies to CD3 and CD28, and staphylococcal enterotoxin B (SEB), which cover a broad range of immune cell function. Analyses were performed on blood samples from 96 of the patients in the trial. Fifty-five of these patients achieved at least a PASI-50 at week 16 or had PASI scores greater than 150% worse than baseline at week 16, selected from both active and placebo treatment groups. The other 41 patients were drawn at random from active and placebo groups pro rata to assemble a representative sample of the trial population, enriched by both tails of PASI outcomes. The differences in *ex vivo* stimulated cytokine production at baseline and week 16 were calculated.

About the EDP1815 Phase 2 Clinical Trial in mild to moderate psoriasis

EDP1815-201 is a double-blind, placebo-controlled, dose-ranging Phase 2 trial designed to evaluate three doses of an enteric capsule formulation of EDP1815 versus placebo in 249 patients with mild and moderate psoriasis over a 16-week treatment period. In the trial, the PASI scores were assessed by both mean changes from baseline and responder rates. The primary endpoint is mean percentage reduction in PASI score at 16 weeks. Secondary endpoints include the proportion of trial participants who achieve a PASI-50 response or greater and other clinical measures of disease such as Physicians Global Assessment (PGA), Body Surface Area (BSA), PGA x BSA, Psoriasis Severity Index (PSI), and Dermatology Life Quality Index (DLQI). The initial treatment phase of the trial is complete. A six-month follow-up phase of the trial is ongoing as of the date of this Current Report on Form 8-K (the "Current Report").

Forward-Looking Statements

This Current Report contains forward-looking statements including within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this Current Report that do not relate to matters of historical fact should be considered forward-looking statements, including without limitation statements concerning the development of EDP1815 and the Company's other product candidates, the promise and potential impact of the Company's product candidates, the timing of and plans for clinical trials, and future results for the Phase 2 clinical trial of EDP1815 in mild to moderate psoriasis.

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 the Company's 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 the Company's operations, including the Company's preclinical studies and clinical trials, and the

continuity of the Company's business; that the Company has incurred significant losses, is not currently profitable and may never become profitable; the Company's need for additional funding; the Company's limited operating history; the Company's unproven approach to therapeutic intervention; the lengthy, expensive, and uncertain process of clinical drug development, including potential delays in regulatory approval; the Company's reliance on third parties and collaborators to expand the Company's microbial library, conduct clinical trials, manufacture product candidates, and develop and commercialize product candidates, if approved; the Company's lack of experience in manufacturing, selling, marketing, and distributing the Company's product candidates; failure to compete successfully against other drug companies; issues with the protection of the Company's proprietary technology and the confidentiality of the Company's trade secrets; potential lawsuits for, or claims of, infringement of third-party intellectual property or challenges to the ownership of the Company's intellectual property; the Company's patents being found invalid or unenforceable; risks associated with international operations; the Company's ability to retain key personnel and to manage growth; the potential volatility of the Company's common stock; that the Company's management and principal stockholders have the ability to control or significantly influence the Company's business; costs and resources of operating as a public company; unfavorable or no analyst research or reports; and securities class action litigation against the Company.

These and other important factors discussed under the caption "Risk Factors" in our Quarterly Report on Form 10-Q for the three months ended September 30, 2021, 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 Current Report. Any such forward-looking statements represent management's estimates as of the date of this Current Report. While the Company may elect to update such forward-looking statements at some point in the future, except as required by law, the Company disclaims any obligation to do so, even if subsequent events cause the Company's views to change. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date of this Current Report.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

EVELO BIOSCIENCES, INC.

Date: February 07, 2022

By: /s/ Daniel S. Char
Daniel S. Char
General Counsel & Secretary