

May 4, 2018

Via EDGAR Transmission

United States Securities and Exchange Commission
Division of Corporation Finance
Office of Healthcare & Insurance
100 F Street, N.E.
Washington, D.C. 20549
Attn: Chris Edwards

**Re: Evelo Biosciences, Inc.
Registration Statement on Form S-1
Filed April 13, 2018
Registration No. 333-224278**

Dear Mr. Edwards:

In accordance with Rule 461 of Regulation C of the General Rules and Regulations under the Securities Act of 1933, as amended, we hereby request the acceleration of the effective date of the above-referenced Registration Statement so that it will become effective on May 8, 2018, at 4:00 p.m., Eastern Time, or as soon thereafter as practicable, or at such later time as Evelo Biosciences, Inc. (the "Company") or its counsel may request via telephone call to the staff. Please contact Wesley Holmes of Latham & Watkins LLP, counsel to the Company, at (212) 906-1366, or in his absence, Peter Handrinos at (617) 948-6060, to provide notice of effectiveness, or if you have any other questions or concerns regarding this matter.

Very truly yours,

EVELO BIOSCIENCES, INC.

/s/ Balkrishan (Simba) Gill, Ph.D.
Balkrishan (Simba) Gill, Ph.D.

cc: Wesley Holmes, Latham & Watkins LLP
Peter N. Handrinos, Latham & Watkins LLP