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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934  
(Amendment No. )\***

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**EVELO BIOSCIENCES, INC.**  
(Name of Issuer)

**Shares of Common Stock, par value \$0.001 per share**  
(Title of Class of Securities)

**299734 10 3**  
(CUSIP Number)

**April 30, 2018**  
(Date of Event which Requires Filing of this Statement)

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Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)  
 Rule 13d-1(c)  
 Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)	
	Dementia Discovery LP	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC USE ONLY	
4.	CITIZENSHIP OR PLACE OF ORGANIZATION  United Kingdom	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5.	SOLE VOTING POWER  379,501(1)
	6.	SHARED VOTING POWER  - 0 -
	7.	SOLE DISPOSITIVE POWER  379,501 (1)
	8.	SHARED DISPOSITIVE POWER  - 0 -
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  379,501(1)	
10.	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (see instructions)  <input type="checkbox"/>	
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  8.3% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)  PN	

- (1) This amount represents shares of Common Stock of the Issuer, \$0.001 par value per share ("Common Stock"), issuable upon the conversion of 1,547,988 shares of Series C Convertible Preferred Stock of the Issuer beneficially owned by the Reporting Persons as of April 30, 2018.
- (2) This percentage is based on 4,551,178 outstanding shares of Common Stock, which is the sum of (i) 4,171,677 shares of Common Stock outstanding as of April 18, 2018, as reported in the Issuer's amended Registration Statement on Form S-1 filed on April 30, 2018, and (ii) approximately 379,501 shares of Common Stock issuable upon the conversion of the Series C Convertible Preferred Stock of the Issuer beneficially owned by the Reporting Persons, which have been added to the shares outstanding in accordance with Rule 13d-3(d)(1)(i) under the Act.

1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)	
	DDF Parallel LLP	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC USE ONLY	
4.	CITIZENSHIP OR PLACE OF ORGANIZATION  United Kingdom	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5.	SOLE VOTING POWER  379,501(1)
	6.	SHARED VOTING POWER  - 0 -
	7.	SOLE DISPOSITIVE POWER  379,501(1)
	8.	SHARED DISPOSITIVE POWER  - 0 -
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  379,501(1)	
10.	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (see instructions)  <input type="checkbox"/>	
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  8.3% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)  PN	

1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)	
	Dementia Discovery GP LP	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC USE ONLY	
4.	CITIZENSHIP OR PLACE OF ORGANIZATION  United Kingdom	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5.	SOLE VOTING POWER  379,501(1)
	6.	SHARED VOTING POWER  - 0 -
	7.	SOLE DISPOSITIVE POWER  379,501(1)
	8.	SHARED DISPOSITIVE POWER  - 0 -
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  379,501(1)	
10.	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (see instructions)  <input type="checkbox"/>	
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  8.3% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)  PN	

1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)	
	Dementia Discovery General Partner LLP	
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (see instructions) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC USE ONLY	
4.	CITIZENSHIP OR PLACE OF ORGANIZATION  United Kingdom	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5.	SOLE VOTING POWER  379,501(1)
	6.	SHARED VOTING POWER  - 0 -
	7.	SOLE DISPOSITIVE POWER  379,501(1)
	8.	SHARED DISPOSITIVE POWER  - 0 -
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  379,501(1)	
10.	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (see instructions)  <input type="checkbox"/>	
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  8.3% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)  PN	

**Item 1.**

- (a) Name of Issuer:  
Evelo Biosciences, Inc.
- (b) Address of Issuer's Principal Executive Offices:  
620 Memorial Drive, Suite 200  
Cambridge, Massachusetts 02139

**Item 2.**

- (a) Name of Person Filing:  
This statement is filed by: (i) Dementia Discovery LP, a United Kingdom limited partnership ("DDL") and DDF Parallel LLP, a United Kingdom limited liability partnership ("DDF"), each direct owners of shares of common stock of the Issuer, \$0.001 par value per share ("Common Stock"); (ii) Dementia Discovery GP LP, a United Kingdom limited partnership ("DDGPLP"), general partner of DDL; and (iii) Dementia Discovery General Partner LLP, a United Kingdom limited liability partnership ("DDGPLLP"), general partner of DDGPLP and managing member of DDF. Each of DDL, DDF, DDGPLP and DDGPLLP are sometimes individually referred to herein as a "Reporting Person" and collectively as the "Reporting Persons."
- (b) Address of the Principal Office or, if none, residence:  
The principal business address of the Reporting Persons is 71 Kingsway, London, United Kingdom WC2B 6ST.
- (c) Citizenship:  
Each of the Reporting Persons are organized under the laws of the United Kingdom. Each of DDL, DDF, and DDGPLLP have their registered office in England and Wales, and DDGPLP has its registered office in Scotland.
- (d) Title of Class of Securities:  
Shares of Common Stock, par value \$0.001 per share
- (e) CUSIP Number:  
299734 10 3

**Item 3.**

Not applicable.

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned:

As of the close of business on April 30, 2018, the effective date of the Issuer's registration of its Common Stock under Section 12 of the Exchange Act (the "Effective Date"), the Reporting Persons may each be deemed to beneficially own, in the aggregate, 1,547,988 shares of Series C Convertible Preferred Stock of the Issuer ("Series C"), convertible into 379,501 shares of Common Stock (the "Shares"), constituting approximately 8.3% of the shares of Common Stock outstanding.

As of the Effective Date, DDL owned directly 1,455,109 shares of Series C, convertible into 356,731 shares of Common Stock, constituting approximately 7.8% of the Common Stock outstanding.

As of the Effective Date, DDF owned directly 92,879 shares of Series C, convertible into 22,770 shares of Common Stock, constituting approximately 0.5% of the Common Stock outstanding.

DDL and DDF (each a "Fund", or collectively the "Funds") may be deemed to beneficially own the shares held by each other Fund because of certain contractual relationships among the Funds and their affiliates. Each of the Funds disclaim beneficial ownership of Shares held by the other Fund except to the extent of any pecuniary interest therein.

DDGPLP, the general partner of DDL, may be deemed to share voting and dispositive power over the shares held by DDL. DDGPLP disclaims beneficial ownership of shares held by DDL except to the extent of any pecuniary interest therein.

DDGPLLP, the general partner of DDGPLP and managing member of DDF, may be deemed to share voting and dispositive power over the shares held by the Funds. DDGPLP disclaims beneficial ownership of shares held by the Funds except to the extent of any pecuniary interest therein.

Ownership percentages as of the Effective Date are based on 4,551,178 outstanding shares of Common Stock, which is the sum of (i) 4,171,677 shares of Common Stock outstanding as of April 18, 2018, as reported in the Issuer's amended Registration Statement on Form S-1 filed on April 30, 2018, and (ii) approximately 379,501 shares of Common Stock issuable upon the conversion of the Series C Convertible Preferred Stock of the Issuer beneficially owned by the Reporting Persons, which have been added to the shares outstanding in accordance with Rule 13d-3(d)(1)(i) under the Act.

On May 9, 2018, the closing date of the initial public offering of the Company's Common Stock (the "Closing Date") all shares of Series C and other preferred stock of the Company were automatically converted into shares of Common Stock. In connection with the initial public offering, the Funds acquired an aggregate 78,125 shares of Common Stock. As of the close of business on the Closing Date, the Reporting Persons may each be deemed to beneficially own, in the aggregate, 457,626 shares of Common Stock, constituting approximately 1.4% of the shares of Common Stock outstanding.

As of the Closing Date, DDL owned directly 430,169 shares of Common Stock, constituting approximately 1.3% of the Common Stock outstanding.

As of the Closing Date, DDF owned directly 27,457 shares of Common Stock, constituting approximately 0.1% of the Common Stock outstanding.

Ownership percentages as of the Closing Date are based on 31,870,854 outstanding shares of Common Stock, as reported in the Issuer's amended Registration Statement on Form S-1 filed on April 30, 2018.

(b) Percent of class: Item 4(a) is incorporated herein by reference.

(c) Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote: 379,501 (\*)

(ii) Shared power to vote or to direct the vote: -0-

(iii) Sole power to dispose or to direct the disposition of: 379,501 (\*)

(iv) Shared power to dispose or to direct the disposition of: -0-

(\*) Each of DDL and DDF has sole power to vote and dispose of the Shares they own directly. Each of DDGPLP, DDGPLLP and DDF may be deemed to have sole power to vote and dispose of the Shares reported in this Schedule 13G owned directly by DDL. Each of DDGPLP, DDGPLLP and DDL may be deemed to have sole power to vote and dispose of the Shares reported in this Schedule 13G owned directly by DDF. Item 4(a) is incorporated herein by reference.

#### **Item 5. Ownership of Five Percent or Less of a Class.**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than 5 percent of the class of securities, check the following .

#### **Item 6. Ownership of More than Five Percent on Behalf of Another Person.**

Not applicable.

#### **Item 7. Identification and Classification of the Subsidiary which Acquired the Security Being Reported on by the Parent Holding Company.**

Not applicable.

**Item 8. Identification and Classification of Members of the Group.**

See Exhibit A attached hereto.

In addition, certain stockholders of the Issuer, including Reporting Persons, and the Issuer, entered into a Fourth Amended and Restated Voting Agreement in February 2018, as amended on April 11, 2018 (the "Voting Agreement"), pursuant to which certain directors were elected to serve as members on Issuer's board of directors. The Voting Agreement terminated on the Closing Date, and members previously elected to Issuer's Board of Directors pursuant to the Voting Agreement continue to serve as directors until they resign, are removed or their successors are duly elected.

Based on the execution of the Voting Agreement, the parties to the Voting Agreement may be deemed to have formed a "group" within the meaning of Section 13(d)(3) of the Securities Exchange Act of 1934, as amended, until the termination of the Voting Agreement. Other than as reported in Item 4 of this report, the Reporting Persons expressly disclaim beneficial ownership of any Issuer securities which may be beneficially owned by other parties to the Voting Agreement.

**Item 9. Notice of Dissolution of Group.**

Item 8 is incorporated herein by reference.

**Item 10. Certification.**

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.



After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: May 18, 2018

DEMENTIA DISCOVERY GP LP

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS SOLE GENERAL PARTNER

By: /s/ James Costine  
Name: James Costine  
Title: Member

DEMENTIA DISCOVERY GENERAL PARTNER LLP

By: /s/ James Costine  
Name: James Costine  
Title: Member

DDF PARALLEL LLP

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS MANAGING MEMBER

By: /s/ James Costine  
Name: James Costine  
Title: Member

DEMENTIA DISCOVERY LP

BY: DEMENTIA DISCOVERY GP LP, ITS SOLE GENERAL  
PARTNER

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS SOLE GENERAL PARTNER

By: /s/ James Costine  
Name: James Costine  
Title: Member

EXHIBIT INDEX

Exhibit A. Joint Filing Agreement by and among Dementia Discovery LP, DDF Parallel LLP, Dementia Discovery GP LP and Dementia Discovery General Partner LLP, dated May 18, 2018.\*

\* Filed herewith.

**JOINT FILING AGREEMENT**

In accordance with Rule 16a-3(j) and Rule 13d-1(k)(1) and under the Securities Exchange Act of 1934, as amended, the undersigned agree to the joint filing on behalf of each of them of Forms 3, 4, 5 and Schedules 13D and 13G (including any and all amendments thereto) with respect to the Shares of Common Stock, par value \$0.001 per share, of Evelo Biosciences, Inc. and further agree that this Joint Filing Agreement shall be included as an exhibit to such joint filings.

The undersigned further agree that each party hereto is responsible for the timely filing of such Forms 3, 4, 5 and Schedules 13D and 13G and any amendments thereto, and for the completeness and accuracy of the information concerning such party contained therein; provided that no party is responsible for the completeness or accuracy of the information concerning any other filing party, unless such party knows or has reason to believe that such information is inaccurate.

This Joint Filing Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original instrument, but all of such counterparts together shall constitute one agreement.

In evidence thereof, the undersigned, being duly authorized, hereby execute this Joint Filing Agreement as of May 18, 2018.

DEMENTIA DISCOVERY GP LP

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS SOLE GENERAL PARTNER

By: /s/ James Costine  
Name: James Costine  
Title: Member

DEMENTIA DISCOVERY GENERAL PARTNER LLP

By: /s/ James Costine  
Name: James Costine  
Title: Member

DDF PARALLEL LLP

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS MANAGING MEMBER

By: /s/ James Costine  
Name: James Costine  
Title: Member

DEMENTIA DISCOVERY LP

BY: DEMENTIA DISCOVERY GP LP, ITS SOLE GENERAL  
PARTNER

BY: DEMENTIA DISCOVERY GENERAL PARTNER LLP,  
ITS SOLE GENERAL PARTNER

By: /s/ James Costine  
Name: James Costine  
Title: Member