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**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

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**SCHEDULE 13D**

**Under the Securities Exchange Act of 1934  
(Amendment \_\_\_)\***

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**Kaleido Biosciences, Inc.**

(Name of Issuer)

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

**483347100  
(CUSIP Number)**

**Noubar B. Afeyan, Ph.D.  
Flagship Ventures  
55 Cambridge Parkway, Suite 800E  
Cambridge, MA 02142  
(617) 868-1888**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

**March 4, 2019  
(Date of Event Which Requires Filing of this Statement)**

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If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

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**Note:** Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Section 240.13d-7 for other parties to whom copies are to be sent.

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\* 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, as amended ("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. Flagship VentureLabs IV, LLC	
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.	Source of Funds (See Instructions) WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 0
	8.	Shared Voting Power 42,865
	9.	Sole Dispositive Power 0
	10.	Shared Dispositive Power 42,865
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 42,865	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) .1%	
14.	Type of Reporting Person (See Instructions) OO	

1.	Names of Reporting Persons. Flagship Ventures Fund IV, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  989,976
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  989,976
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  989,976	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  3.3%	
14.	Type of Reporting Person (See Instructions)  PN	

1.	Names of Reporting Persons. Flagship Ventures Fund IV General Partner LLC	
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.	Source of Funds (See Instructions)  AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  989,976
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  989,976
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  989,976	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  3.3%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Flagship VentureLabs V, LLC	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,500,000
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,500,000
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,500,000	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  8.4%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Flagship VentureLabs V Manager LLC	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,500,000
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,500,000
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,500,000	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  8.4%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Flagship Pioneering, Inc.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,500,000
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,500,000
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,500,000	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  8.4%	
14.	Type of Reporting Person (See Instructions)  CO	

1.	Names of Reporting Persons. Flagship Ventures Fund V, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,560,096
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,560,096
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,560,096	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  8.6%	
14.	Type of Reporting Person (See Instructions)  PN	



1.	Names of Reporting Persons. Nutritional Health Side Fund, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  639,360
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  639,360
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  639,360	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  2.2%	
14.	Type of Reporting Person (See Instructions)  PN	

1.	Names of Reporting Persons. Nutritional Health Disruptive Innovation Fund, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  6,560,523
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  6,560,523
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  6,560,523	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  22.1%	
14.	Type of Reporting Person (See Instructions)  PN	

1.	Names of Reporting Persons. Flagship Ventures Fund V General Partner LLC	
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.	Source of Funds (See Instructions)  AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  9,759,979
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  9,759,979
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  9,759,979	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  32.9%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Flagship Ventures Opportunities Fund I, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,244,305
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,244,305
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,244,305	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  7.6%	
14.	Type of Reporting Person (See Instructions)  PN	

1.	Names of Reporting Persons. Flagship Ventures Opportunities Fund I General Partner LLC	
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.	Source of Funds (See Instructions)  AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  2,244,305
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  2,244,305
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  2,244,305	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  7.6%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Flagship Ventures Fund 2007, L.P.	
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.	Source of Funds (See Instructions)  WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  216,451
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  216,451
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  216,451	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  .7%	
14.	Type of Reporting Person (See Instructions)  PN	

1.	Names of Reporting Persons. Flagship Ventures 2007 General Partner LLC	
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.	Source of Funds (See Instructions)  AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)  <input type="checkbox"/>	
6.	Citizenship or Place of Organization  Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  0
	8.	Shared Voting Power  216,451
	9.	Sole Dispositive Power  0
	10.	Shared Dispositive Power  216,451
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  216,451	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)  <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  .7%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Cadena LLC	
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.	Source of Funds (See Instructions) WC	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 0
	8.	Shared Voting Power 1,649,999
	9.	Sole Dispositive Power 0
	10.	Shared Dispositive Power 1,649,999
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 1,649,999	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 5.6%	
14.	Type of Reporting Person (See Instructions) OO	



1.	Names of Reporting Persons. Noubar B. Afeyan, Ph.D.	
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.	Source of Funds (See Instructions) AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization United States of America	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 0
	8.	Shared Voting Power 17,360,710
	9.	Sole Dispositive Power 0
	10.	Shared Dispositive Power 17,360,710
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 17,360,710	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 58.6%	
14.	Type of Reporting Person (See Instructions) IN	

1.	Names of Reporting Persons. Edwin M. Kania, Jr.	
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.	Source of Funds (See Instructions) AF	
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization United States of America	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 0
	8.	Shared Voting Power 1,206,427
	9.	Sole Dispositive Power 0
	10.	Shared Dispositive Power 1,206,427
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 1,206,427	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 4.1%	
14.	Type of Reporting Person (See Instructions) IN	

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**Item 1. Security and Issuer**

This Schedule 13D relates to the shares of common stock, \$0.001 par value per share ("Common Stock"), of Kaleido Biosciences, Inc. (the "Issuer"). The address of the principal executive offices of the Issuer is 65 Hayden Avenue, Lexington, Massachusetts 02421.

**Item 2. Identity and Background**

This Schedule 13D is being filed by the following persons (each a "Reporting Person"):

- i. Flagship VentureLabs IV, LLC, a Delaware limited liability company ("VentureLabs IV"). The manager of VentureLabs IV is Flagship Ventures Fund IV, L.P., a Delaware limited partnership ("Flagship Fund IV" and together with VentureLabs IV, the "Flagship Fund IV Funds").
- ii. Flagship Fund IV. The general partner of Flagship Fund IV is Flagship Ventures Fund IV General Partner LLC ("Flagship Fund IV GP").
- iii. Flagship Fund IV GP. Noubar B. Afeyan, Ph.D. ("Dr. Afeyan") and Edwin M. Kania, Jr. ("Mr. Kania") are the managers of Flagship IV GP.
- iv. Flagship VentureLabs V, LLC, a Delaware limited liability company ("VentureLabs V"). The manager of VentureLabs V is Flagship VentureLabs V Manager LLC, a Delaware limited liability company. ("VentureLabs V Manager").
- v. VentureLabs V Manager. The manager of VentureLabs V Manager is Flagship Pioneering, Inc., a Delaware company.
- vi. Flagship Pioneering, Inc. Dr. Afeyan is the sole director of Flagship Pioneering, Inc.
- vii. Flagship Ventures Fund V, L.P., a Delaware limited partnership ("Flagship Fund V"). The general partner of Flagship Fund V is Flagship Ventures Fund V General Partner LLC, a Delaware limited liability company ("Flagship Fund V GP").
- viii. Nutritional Health Side Fund, L.P., a Delaware limited partnership ("Nutritional Health Side Fund"). Flagship Fund V GP is the general partner of Nutritional Health Side Fund.
- ix. Nutritional Health Disruptive Innovation Fund, L.P., a Delaware limited partnership ("Nutritional Innovation Fund" and together with Flagship Fund V and Nutritional Health Side Fund, the "Flagship Fund V Funds"). Flagship Fund V GP is the general partner of Nutritional Innovation Fund.
- x. Flagship Fund V GP. Dr. Afeyan is the sole manager of Flagship Fund V GP.
- xi. Flagship Ventures Opportunities Fund I, L.P., a Delaware limited partnership ("Flagship Opportunities I"). The general partner of Flagship Opportunities I is Flagship Ventures Opportunities Fund I General Partner LLC, a Delaware limited liability company ("Flagship Opportunities GP").
- xii. Flagship Opportunities GP. Dr. Afeyan is the sole manager of Flagship Opportunities GP.
- xiii. Flagship Ventures Fund 2007, L.P., a Delaware limited partnership ("Flagship Fund 2007"). The general partner of Flagship Fund 2007 is Flagship Ventures 2007 General Partner LLC ("Flagship Fund 2007 GP").
- xiv. Flagship Fund 2007 GP. Dr. Afeyan and Mr. Kania are the managers of Flagship Fund 2007 GP.
- xv. Cadena LLC, a Delaware limited liability company ("Cadena" and together with the Flagship IV Funds, VentureLabs V, the Flagship V Funds, Flagship Opportunities I and Flagship Fund 2007, the "Flagship Funds"). Dr. Afeyan is the sole manager of Cadena LLC.

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xvi. Dr. Afeyan, a citizen of the United States of America.

xvii. Mr. Kania, a citizen of the United States of America.

The principal business of each Reporting Person is the venture capital investment business. The principal business address of each Reporting Person is 55 Cambridge Parkway, Suite 800E, Cambridge, Massachusetts 02142.

During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

During the last five years, none of the Reporting Persons has been party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding were or are subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

**Item 3. Source and Amount of Funds or Other Consideration**

The Flagship Funds purchased the shares set forth in Item 5 using funds from working capital.

**Item 4. Purpose of Transaction**

The Reporting Persons acquired the shares of Common Stock set forth in Item 5 and hold their shares of Common Stock for investment purposes. Subject to a number of factors, including market conditions and their general investment and trading policies, the Reporting Persons may, in the ordinary course of their business, dispose of the shares of Common Stock that they beneficially own. These dispositions may occur in open market transactions, privately negotiated transactions or through other methods. Additionally, the Flagship Funds may distribute the shares of Common Stock that they directly hold to their respective limited partners.

Dr. Geoffrey von Maltzahn, who is a Partner at Flagship Pioneering, an affiliate of the Reporting Persons, is co-founder and director of the Issuer, and Dr. Afeyan is co-founder and director of the Issuer. The Reporting Persons, either directly or indirectly through Dr. von Maltzahn and Dr. Afeyan, may engage in discussions from time to time with the Issuer's board of directors, the Issuer's management or the Issuer's other stockholders. These discussions may be with respect to (i) acquiring or disposing shares of Common Stock or other securities of the Issuer (collectively, the "Securities"); (ii) maintaining or changing the Issuer's business, operations, governance, management, strategy or capitalization; or (iii) implementing transactions that may relate to or may result in any matter set forth in paragraphs (a) through (j) of Item 4 of Schedule 13D. Additionally, the Reporting Persons may acquire additional Securities through open market transactions, privately negotiated transactions or other methods.

The information set forth in Item 6 below is incorporated by reference in its entirety into this Item 4.

**Item 5. Interest in Securities of the Issuer**

(a)-(b) The information set forth in rows 7 through 13 of the cover pages to this Schedule 13D is incorporated by reference. The percentage set forth in row 13 is based on 29,632,921 outstanding shares of Common Stock immediately following the Issuer's initial public offering, as reported in the Issuer's prospectus filed on March 1, 2019.

VentureLabs IV and Flagship Fund IV directly hold 42,865 shares and 947,111 shares of Common Stock, respectively. Flagship Fund IV, as the manager of VentureLabs IV, may be deemed to beneficially own the shares directly held by VentureLabs IV. Flagship Fund IV GP, as the general partner of the Flagship Fund IV Funds, may be deemed to beneficially own the shares directly held by the Flagship Fund IV Funds.

VentureLabs V, Flagship Fund V, Nutritional Health Side Fund and Nutritional Innovation Fund directly hold 2,500,000 shares, 2,560,096 shares, 639,360 shares and 6,560,523 shares of Common Stock, respectively. VentureLabs V Manager, as the manager of VentureLabs V, and Flagship Pioneering, Inc., as the manager of VentureLabs V Manager, may be deemed to beneficially own the shares directly held by VentureLabs V. Flagship Fund V GP, as the general partner of the Flagship Fund V Funds, may be deemed to beneficially own the shares directly held by the Flagship Fund V Funds.

Flagship Opportunities I directly holds 2,244,305 shares of Common Stock. Flagship Opportunities GP, as the general partner of Flagship Opportunities I, may be deemed to beneficially own the shares directly held by Flagship Opportunities I.

Flagship Fund 2007 directly holds 216,451 shares of Common Stock. Flagship Fund 2007 GP, as the general partner of Flagship Fund 2007, may be deemed to beneficially own the shares directly held by Flagship Fund 2007.

Cadena LLC directly holds 1,649,999 shares of Common Stock.

Dr. Afeyan and Mr. Kania, as the managers of Flagship Fund IV GP and Flagship Fund 2007 GP, may be deemed to beneficially own the shares directly held by the Flagship Fund IV Funds and Flagship Fund 2007. While Mr. Kania is retired from Flagship Pioneering, he continues to serve as a manager of Flagship Fund IV GP and Flagship Fund 2007 GP. Dr. Afeyan, as the sole manager of Flagship Fund V GP, Flagship Opportunities GP and Cadena LLC and the sole director of Flagship Pioneering, Inc., may be deemed to beneficially own the shares directly held by the Flagship Fund V Funds, VentureLabs V, Flagship Opportunities I and Cadena LLC.

(c) On March 4, 2019, Flagship Fund V, Nutritional Innovation Fund and Flagship Opportunities I purchased 266,667 shares, 333,333 shares, and 333,333 shares, respectively, for an aggregate of 933,333 shares of Common Stock in connection with the Issuer's initial public offering. The purchase price was \$15.00 per share. Also on March 4, 2019, each share of the Issuer's preferred stock held by the Flagship Funds was automatically converted into the Issuer's Common Stock on a one-for-two basis upon the closing of the Issuer's initial public offering, resulting in the Flagship Funds receiving the following shares: 42,865 shares by VentureLabs IV, 947,111 shares by Flagship Fund IV, 2,500,000 shares by VentureLabs V, 2,293,429 shares by Flagship Fund V, 639,360 shares by Nutritional Health Side Fund, 6,227,190 shares by Nutritional Innovation Fund, 1,910,972 shares by Flagship Opportunities I, 216,451 shares by Flagship Fund 2007 and 1,649,999 shares by Cadena.

(d) Except as described herein, no other person has the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, securities covered by this statement.

(e) Not applicable

## **Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer**

### **Registration rights**

On February 21, 2018, the Flagship Funds (other than Cadena LLC) entered into a second amended and restated investors' rights agreement with the Issuer (the "Investors' Rights Agreement"). The Investors Rights Agreement provides for certain rights relating to the registration of the Common Stock held by the Flagship Funds and certain other holders (the "Registrable Securities") pursuant to the Securities Act of 1933, as amended (the "Securities Act").

### ***Demand registration rights***

Any time after August 26, 2019, the holders of the Registrable Securities are entitled to demand registration rights under certain conditions. Under the terms of the Investors' Rights Agreement, the Issuer will be required, upon the written request of holders of at least 50% of these Registrable Securities that would result in an aggregate offering price of at least \$10.0 million, to file a registration statement and use best efforts to effect the registration of all or a portion of these Registrable Securities for public resale. The Issuer is required to effect only two registrations pursuant to this provision of the Investors' Rights Agreement.

### ***Short-form registration rights***

Pursuant to the Investors' Rights Agreement, if the Issuer is eligible to file a registration statement on Form S-3, upon the written request of holders of at least 30% of the Registrable Securities that would result in an aggregate offering price of at least \$5.0 million, the Issuer will be required to effect a registration of such Registrable Securities. The Issuer is required to effect only two registrations in any twelve month period pursuant to this provision of the Investors' Rights Agreement. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

### ***Piggyback registration rights***

Pursuant to the Investors' Rights Agreement, if the Issuer registers any of its securities either for its own account or for the account of other security holders, subject to certain exceptions, the holders of the Registrable Securities are entitled to include their shares in the registration. Subject to certain exceptions contained in the Investors' Rights Agreement, the Issuer and the underwriters may limit the number of shares included in the underwritten offering to the number of shares which the Issuer and the underwriters determine in their sole discretion will not jeopardize the success of the offering.

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### ***Indemnification***

The Investors' Rights Agreement contains customary cross-indemnification provisions, under which the Issuer is obligated to indemnify holders of Registrable Securities in the event of material misstatements or omissions in the registration statement attributable to the Issuer, and the holders of Registrable Securities are obligated to indemnify the Issuer for material misstatements or omissions attributable to such holders.

### ***Expiration of registration rights***

The demand registration rights and short form registration rights granted to any holder of Registrable Securities under the Investors' Rights Agreement will terminate upon the earliest to occur of (i) a deemed liquidation event (as defined in the Issuer's certificate of incorporation), (ii) the fifth anniversary of the completion of the initial public offering or (iii) such time after the initial public offering when the holders' shares may be sold without restriction pursuant to Rule 144 within a three month period.

The foregoing description of the Investors' Rights Agreement is qualified in its entirety by reference to the full text of the Investors' Rights Agreement, a copy of which is filed as Exhibit 2 hereto, and is incorporated by reference into this Item 6.

### **Lock-Up Agreement**

In connection with the Issuer's initial public offering, the Flagship Funds entered into a lock-up agreement (the "Lock-Up Agreement") with Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC and Morgan Stanley & Co., LLC. Pursuant to the terms of the Lock-Up Agreement, the Flagship Funds have agreed, with certain exceptions, during the period ending 180 days after February 27, 2019, not to

- offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of the Issuer's Common Stock or any securities convertible into or exercisable or exchangeable for the Issuer's Common Stock; or
- enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock or such other securities.

The foregoing description of the Lock-Up Agreement is qualified in its entirety by reference to the full text of the Form of the Lock-Up Agreement, a copy of which is filed as Exhibit 3 hereto, and is incorporated by reference into this Item 6.

## **Item 7. Material to be Filed as Exhibits**

- |           |  |
|-----------|--|
| Exhibit 1 | Joint Filing Agreement (filed herewith).   |
| Exhibit 2 | Second Amended and Restated Investors' Rights Agreement among the Issuer, certain of the Flagship Funds, and certain other investors named therein, dated February 21, 2018 (incorporated by reference to Exhibit 4.1 to the Issuer's Form S-1 filed on January 11, 2019). |
| Exhibit 3 | Lock-Up Agreement (incorporated by reference to Exhibit D-1 to Exhibit 1.1 to the Issuer's Form S-1 filed on January 11, 2019).  |

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**SIGNATURES**

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: March 6, 2019

FLAGSHIP VENTURELABS IV, LLC

By: Flagship Ventures Fund IV, L.P.

By: Flagship Ventures Fund IV General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES FUND IV, L.P.

By: Flagship Ventures Fund IV General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES FUND IV GENERAL PARTNER  
LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURELABS V, LLC

By: Flagship VentureLabs V Manager LLC

By: Flagship Pioneering, Inc.

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Director

---

FLAGSHIP VENTURELABS V MANAGER LLC

By: Flagship Pioneering, Inc.

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Director

FLAGSHIP PIONEERING, INC.

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Director

FLAGSHIP VENTURES FUND V, L.P.

By: Flagship Ventures Fund V General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

NUTRITIONAL HEALTH SIDE FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

NUTRITIONAL HEALTH DISRUPTIVE INNOVATION  
FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES FUND V GENERAL PARTNER  
LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES OPPORTUNITIES FUND I, L.P.

By: Flagship Ventures Opportunities Fund I General  
Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager



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FLAGSHIP VENTURES OPPORTUNITIES FUND I  
GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES FUND 2007, L.P.

By: Flagship Ventures 2007 General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES 2007 GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

CADENA LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

/s/ Noubar B. Afeyan, Ph.D.

NOUBAR B. AFEYAN, PH.D.

/s/ Edwin M. Kania, Jr.

EDWIN M. KANIA, JR.

**JOINT FILING AGREEMENT**

The persons below hereby agree that the Schedule 13D to which this agreement is attached as an exhibit, as well as all future amendments to such Schedule 13D, shall be filed jointly on behalf of each of them. This agreement is intended to satisfy the requirements of Rule 13d-1(k)(1)(iii) under the Securities Exchange Act of 1934.

Dated: March 6, 2019

FLAGSHIP VENTURELABS IV, LLC

By: Flagship Ventures Fund IV, L.P.

By: Flagship Ventures Fund IV General Partner LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

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Name: Noubar B. Afeyan, Ph.D.

Title: Manager

FLAGSHIP VENTURES FUND IV GENERAL PARTNER  
LLC

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Title: Director

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Name: Noubar B. Afeyan, Ph.D.

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Name: Noubar B. Afeyan, Ph.D.

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FLAGSHIP VENTURES FUND V, L.P.

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NUTRITIONAL HEALTH SIDE FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC

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NUTRITIONAL HEALTH DISRUPTIVE INNOVATION  
FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC

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Name: Noubar B. Afeyan, Ph.D.

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Name: Noubar B. Afeyan, Ph.D.

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Name: Noubar B. Afeyan, Ph.D.

Title: Manager

CADENA LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Name: Noubar B. Afeyan, Ph.D.

Title: Manager

/s/ Noubar B. Afeyan, Ph.D.

NOUBAR B. AFEYAN, PH.D.

/s/ Edwin M. Kania, Jr.

EDWIN M. KANIA, JR.