

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>Flagship Ventures Fund IV General Partner LLC</u>  (Last) (First) (Middle) 55 CAMBRIDGE PARKWAY, SUITE 800E  (Street) CAMBRIDGE MA 02142  (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 05/08/2019	3. Issuer Name and Ticker or Trading Symbol <u>Axcella Health Inc. [ AXLA ]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year)  6. Individual or Joint/Group Filing (Check Applicable Line) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Beneficially Owned**

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
Common Stock	678,610	I	See Footnote <sup>(1)</sup>
Common Stock	2,035,830	I	See Footnote <sup>(2)</sup>

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			
Series A Preferred Stock	(3)	(3)	Common Stock	751,691	(3)	I	See Footnote <sup>(1)</sup>
Series A Preferred Stock	(3)	(3)	Common Stock	2,255,074	(3)	I	See Footnote <sup>(4)</sup>
Series B Preferred Stock	(5)	(5)	Common Stock	209,933	(5)	I	See Footnote <sup>(1)</sup>
Series B Preferred Stock	(5)	(5)	Common Stock	503,840	(5)	I	See Footnote <sup>(4)</sup>
Series B Preferred Stock	(5)	(5)	Common Stock	545,826	(5)	I	See Footnote <sup>(6)</sup>
Series C Preferred Stock	(7)	(7)	Common Stock	120,795	(7)	I	See Footnote <sup>(1)</sup>
Series C Preferred Stock	(7)	(7)	Common Stock	335,457	(7)	I	See Footnote <sup>(4)</sup>
Series C Preferred Stock	(7)	(7)	Common Stock	82,324	(7)	I	See Footnote <sup>(6)</sup>
Series E Preferred Stock	(8)	(8)	Common Stock	194,409	(8)	I	See Footnote <sup>(4)</sup>
Series E Preferred Stock	(8)	(8)	Common Stock	48,602	(8)	I	See Footnote <sup>(6)</sup>
Series E Preferred Stock	(8)	(8)	Common Stock	486,023	(8)	I	See Footnote <sup>(9)</sup>

1. Name and Address of Reporting Person* <u>Flagship Ventures Fund IV General Partner LLC</u>  (Last) (First) (Middle) 55 CAMBRIDGE PARKWAY, SUITE 800E  (Street) CAMBRIDGE MA 02142  (City) (State) (Zip)
---

1. Name and Address of Reporting Person* <u>Flagship Ventures Fund IV, L.P.</u>  (Last) (First) (Middle) 55 CAMBRIDGE PARKWAY, SUITE 800E
---

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship Ventures Fund IV-Rx, L.P.](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship VentureLabs IV, LLC](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship Ventures 2007 General Partner LLC](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship Ventures Fund 2007, L.P.](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship Ventures Opportunities Fund I General Partner LLC](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)  
CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

[Flagship Ventures Opportunities Fund I, L.P.](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)

CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person \*

[AFEYAN NOUBAR](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)

CAMBRIDGE MA 02142

(City) (State) (Zip)

1. Name and Address of Reporting Person \*

[KANIA EDWIN M JR](#)

(Last) (First) (Middle)

55 CAMBRIDGE PARKWAY, SUITE 800E

(Street)

CAMBRIDGE MA 02142

(City) (State) (Zip)

**Explanation of Responses:**

- Shares held by Flagship Ventures Fund 2007, L.P. ("Flagship Fund 2007"). Flagship Ventures 2007 General Partner LLC ("Fund 2007 GP") is the general partner of Flagship Fund 2007. Noubar B. Afeyan, Ph.D. and Edwin M. Kania, Jr. are the managers of Fund 2007 GP. While Mr. Kania is retired from Flagship Pioneering, Inc., he continues to serve as a manager of Flagship 2007 GP. Each of these individuals and entities may be deemed to share voting and investment power with respect to all shares held by Flagship Fund 2007. Each of the reporting persons disclaims beneficial ownership of the shares except to the extent of his or its pecuniary interest therein.
- Shares held by Flagship VentureLabs IV, LLC ("VentureLabs IV"). Flagship Ventures Fund IV, L.P. ("Flagship Fund IV") is a member of VentureLabs IV and also serves as its manager. Flagship Ventures Fund IV General Partner LLC ("Flagship Fund IV GP") is the general partner of Flagship Fund IV. Noubar B. Afeyan, Ph.D. and Edwin M. Kania, Jr. are the managers of Flagship Fund IV GP. While Mr. Kania is retired from Flagship Pioneering, Inc., he continues to serve as a manager of Flagship Fund IV GP. Each of these individuals and entities may be deemed to share voting and investment power with respect to all shares held by VentureLabs IV. Each of the filing persons disclaims beneficial ownership of the shares except to the extent of his or its pecuniary interest therein.
- Each share of Series A Preferred Stock is convertible into shares of the Issuer's common stock, par value \$0.0001 per share ("Common Stock") on a one-for-1.842 basis. Upon the closing of the Issuer's initial public offering, all shares of Series A Preferred Stock will convert into shares of Common Stock of the Issuer. The Series A Preferred Stock has no expiration date.
- Shares held by Flagship Fund IV. Flagship Fund IV GP is the general partner of Flagship Fund IV. Noubar B. Afeyan, Ph.D. and Edwin M. Kania, Jr. are the managers of Flagship Fund IV GP. While Mr. Kania is retired from Flagship Pioneering, Inc., he continues to serve as a manager of Flagship Fund IV GP. Each of these individuals and entities may be deemed to share voting and investment power with respect to all shares held by Flagship Fund IV. Each of the reporting persons disclaims beneficial ownership of such shares except to the extent of his or its pecuniary interest therein.
- Each share of Series B Preferred Stock is convertible into shares of the Issuer's Common Stock on a one-for-1.842 basis. Upon the closing of the Issuer's initial public offering, all shares of Series B Preferred Stock will convert into shares of Common Stock of the Issuer. The Series B Preferred Stock has no expiration date.
- Shares held by Flagship Ventures Fund IV-Rx, L.P. ("Flagship Fund IV-Rx"). Flagship Fund IV GP is the general partner of Flagship Fund IV-Rx. Noubar B. Afeyan, Ph.D. and Edwin M. Kania, Jr. are the managers of Flagship Fund IV GP. While Mr. Kania is retired from Flagship Pioneering, Inc., he continues to serve as a manager of Flagship Fund IV GP. Each of these individuals and entities may be deemed to share voting and investment power with respect to all shares held by Flagship Fund IV-Rx. Each of the reporting persons disclaims beneficial ownership of such shares except to the extent of his or its pecuniary interest therein.
- Each share of Series C Preferred Stock is convertible into shares of the Issuer's Common Stock on a one-for-1.842 basis. Upon the closing of the Issuer's initial public offering, all shares of Series C Preferred Stock will convert into shares of Common Stock of the Issuer. The Series C Preferred Stock has no expiration date.
- Each share of Series E Preferred Stock is convertible into shares of the Issuer's Common Stock on a one-for-1.842 basis. Upon the closing of the Issuer's initial public offering, all shares of Series E Preferred Stock will convert into shares of Common Stock of the Issuer. The Series E Preferred Stock has no expiration date.
- Shares held by Flagship Ventures Opportunities Fund I, L.P. ("Flagship Opportunities I"). Flagship Ventures Opportunities Fund I General Partner LLC ("Flagship Opportunities GP") is the general partner of Flagship Opportunities I. Noubar B. Afeyan, Ph.D. serves as sole manager of Flagship Opportunities GP and may be deemed to possess sole voting and investment power with respect to all shares held by Flagship Opportunities I. Each of the reporting persons disclaims beneficial ownership of the shares except to the extent of his or its pecuniary interest therein.

[Flagship Ventures Fund IV  
General Partner LLC, By: /s/  
Noubar B. Afeyan, Ph.D.,](#) 05/08/2019

[Name: Noubar B. Afeyan,  
Ph.D., Title: Manager](#)

[Flagship Ventures Fund IV,  
L.P., By: Flagship Ventures  
Fund IV General Partner LLC,  
its general partner, By: /s/](#) 05/08/2019

[Noubar B. Afeyan, Ph.D.,  
Name: Noubar B. Afeyan,  
Ph.D., Title: Manager](#)

[Flagship Ventures Fund IV-Rx,  
L.P., By: Flagship Ventures  
Fund IV General Partner LLC,  
its general partner, By: /s/](#) 05/08/2019

[Noubar B. Afeyan, Ph.D.,  
Name: Noubar B. Afeyan,  
Ph.D., Title: Manager](#)

[Flagship VentureLabs IV LLC, 05/08/2019  
By: Flagship Ventures Fund IV,  
L.P., its manager, By: Flagship  
Ventures Fund IV General  
Partner LLC, its general  
partner, 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., 05/08/2019  
Name: Noubar B. Afeyan,  
Ph.D., Title: Manager  
Flagship Ventures Fund 2007,  
L.P., By: Flagship Ventures  
2007 General Partner LLC, its  
general partner, By: /s/ Noubar 05/08/2019  
B. Afeyan, Ph.D., Name:  
Noubar B. Afeyan, Ph.D.,  
Title: Manager  
Flagship Ventures  
Opportunities Fund I General  
Partner LLC, By: /s/ Noubar B. 05/08/2019  
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, its general 05/08/2019  
partner, By: /s/ Noubar B.  
Afeyan, Ph.D., Name: Noubar  
B. Afeyan, Ph.D., Title:  
Manager  
Noubar B. Afeyan, Ph.D. By: 05/08/2019  
/s/ Noubar B. Afeyan, Ph.D.  
Edwin M. Kania, Jr. By: /s/ 05/08/2019  
Edwin M. Kania, Jr.

\*\* Signature of Reporting Person      Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.