

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

FORM 8-A

**FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES
PURSUANT TO SECTION 12(b) OR 12(g) OF THE
SECURITIES EXCHANGE ACT OF 1934**

Aileron Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State of incorporation or organization)

13-4196017
(I.R.S. Employer Identification No.)

281 Albany Street
Cambridge, MA
(Address of principal executive offices)

02139
(Zip Code)

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

**Title of each class
to be so registered**

**Name of each exchange on which
each class is to be registered**

Common Stock, \$0.001 par value per share

The NASDAQ Stock Market LLC

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A. (c) or (e), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A. (d) or (e), check the following box.

If this form relates to the registration of a class of securities concurrently with a Regulation A offering, check the following box.

Securities Act registration statement or Regulation A offering statement file number to which this form relates: 333-218474

Securities to be registered pursuant to Section 12(g) of the Act: None.

Item 1. Description of Registrant's Securities to be Registered.

The description under the heading "Description of Capital Stock" relating to the Registrant's Common Stock, \$0.001 par value per share, in the prospectus included in the Registrant's Registration Statement on Form S-1 (File No. 333-218474), as amended (the "Registration Statement"), filed under the Securities Act of 1933, as amended (the "Securities Act"), with the Securities and Exchange Commission (the "Commission") is incorporated herein by reference. Any form of prospectus subsequently filed by the Registrant with the Commission pursuant to Rule 424(b) under the Securities Act that constitutes part of the Registration Statement shall be deemed to be incorporated herein by reference.

Item 2. Exhibits.

Pursuant to the Instructions as to Exhibits for Form 8-A, no exhibits are required to be filed because no other securities of the Registrant are registered on The Nasdaq Stock Market LLC and the securities registered hereby are not being registered pursuant to Section 12(g) of the Securities Exchange Act of 1934, as amended.

SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

AILERON THERAPEUTICS, INC.

By: /s/ Joseph A. Yanchik III

Name: Joseph A. Yanchik III

Title: President and Chief Executive Officer

Dated: June 23, 2017