

May 2, 2019

William Hinshaw  
Chief Executive Officer  
Axcella Health Inc.  
840 Memorial Drive  
Cambridge, MA 02139

Re: Axcella Health Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
Filed April 30, 2019  
File No. 333-230822

Dear Mr. Hinshaw:

We have reviewed your amended registration statement and have the following comment.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comment applies to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to this comment, we may have additional comments.

Amendment No. 1 to Registration Statement on Form S-1

Risk Factors

Our amended and restated bylaws will designate ..., page 85

1. We note the disclosure regarding your exclusive forum provision on page 85 of your registration statement, which states that "the Court of Chancery of the State of Delaware (or, if the Chancery Court does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) will be the sole and exclusive forum" for certain state law claims. We also note your disclosure that "[t]his exclusive forum provision will not apply to any [causes] of action arising under the Securities Act or the Exchange Act." However, we note that Section 8 of your amended and restated bylaws identifies the Court of Chancery of the State of Delaware as the exclusive forum for certain litigation, including any "derivative action," but is not limited to state law claims and does not provide for alternate jurisdiction in the federal district

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court for the District of Delaware if the Chancery Court does not have jurisdiction. Please clarify whether this provision applies to actions arising under the Exchange Act. In that regard, we note that Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. We also note that Section 8 of your amended and restated bylaws provides that "the United States District Court for the District of Massachusetts shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act of 1933, as amended." Please revise your disclosure to address this provision, including any impact on shareholders, and state that there is uncertainty as to whether a court would enforce such provision. In that regard, we note that Section 22 of the Securities Act creates concurrent

jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. However, if Section 8 of your amended and restated bylaws does not apply to actions arising under the Securities Act or Exchange Act, please ensure that the exclusive forum provision in your amended and restated bylaws states this clearly.

You may contact Li Xiao at 202-551-4391 or Jeffrey Lewis at 202-551-6216 if you have questions regarding comments on the financial statements and related matters. Please contact David Plattner at 202-551-8094 or Christopher Edwards at 202-551-6761 with any other questions.

FirstName LastNameWilliam Hinshaw  
Corporation Finance  
Comapany NameAxcella Health Inc.  
Healthcare & Insurance  
May 2, 2019 Page 2  
cc: Laurie A. Burlingame, Esq.  
FirstName LastName

Sincerely,  
Division of  
Office of