

PROSPECTUS SUPPLEMENT

(To Prospectus Dated July 19, 2016)

CATABASIS PHARMACEUTICALS, INC.

Up to \$25,000,000

Common Stock

This prospectus supplement amends and supplements the information in the prospectus, dated July 19, 2016, filed as a part of our registration statement on Form S-3 (File No. 333-212382), as previously supplemented by our prospectus supplement dated November 13, 2018, or the Prior Prospectus. This prospectus supplement should be read in conjunction with the Prior Prospectus, and is qualified by reference thereto, except to the extent that the information herein amends or supersedes the information contained in the Prior Prospectus. This prospectus supplement is not complete without, and may only be delivered or utilized in connection with, the Prior Prospectus, and any future amendments or supplements thereto.

Under the Prior Prospectus, we initially registered up to \$50,000,000 of our common stock, \$0.001 par value per share, for offer and sale pursuant to a Sales Agreement, dated November 13, 2018, or the Sales Agreement, between us and Cowen and Company, LLC, or Cowen, subject to a maximum of 3,156,422 shares of our common stock that we were able to offer and sell under the Sales Agreement and the Prior Prospectus. From November 13, 2018 through the date of this prospectus supplement, we sold an aggregate of 391,916 shares of our common stock for an aggregate purchase price of \$2,355,180 under the Prior Prospectus. As of the date of this prospectus supplement, we are decreasing the amount of common stock that we are offering pursuant to the Sales Agreement, such that we are offering an additional \$25,000,000 of common stock for sale under the Sales Agreement from and after the date hereof; provided, that in no event may we offer and sell more than 3,156,422 shares of our common stock under the Sales Agreement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

Cowen

The date of this prospectus supplement is February 5, 2019.
