

Access Pharmaceuticals, Inc.
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August 24, 2010

VIA EDGAR AND FEDERAL EXPRESS

Jeffrey Riedler
Assistant Director
U.S. Securities and Exchange Commission
100 F. Street, N.E.
Washington, DC 20549-0404

**Re: Access Pharmaceuticals, Inc.
Registration Statement on Form S-1
Filed May 3, 2010
File No. 333-166453**

Dear Mr. Riedler:

Access Pharmaceuticals, Inc., a Delaware corporation (the "Company"), submitted herewith please find Amendment No. 2 to the Registration Statement on Form S-1, File No. 333-166453, of the Company (as amended, the "Registration Statement"). The Registration Statement has been revised to include second quarter financial statements and update various other dates and corresponding amounts and discussions in the Registration Statement. The Registration Statement has not been revised at this time to respond to the comments of the Staff (the "Staff") of the Securities and Exchange Commission (the "Commission") that were contained in your letter dated May 6, 2010 (the "Comment Letter"). However, set forth below are the Company's responses to the Comment Letter and its plans for filing a subsequent amendment to the Registration Statement to revise for the Staff's comments.

Set forth below are the responses of the Company to the comments in the Comment Letter. For ease of reference our responses are numbered to correspond to the comment numbers in the Comment Letter and each comment contained in the Comment Letter is printed below in italics and is followed by the response of the Company.

Comment:

1. *We note that you have omitted certain information from the prospectus in relation to the terms of your offering. Please revise your prospectus to include the following information:*

· *The number of units to be sold in the offering;*

The Company will amend the Registration Statement by way of a subsequent amendment to include either (i) the number of units to be sold in the offering or (ii) the maximum number of units to be sold in the offering on a "best efforts" basis.

· *The number of shares of common stock and warrants per unit;*

The Company will amend the Registration Statement by way of a subsequent amendment to include the number of shares of common and warrants per unit or a formula to determine such amounts.

· *The exercise price of the warrants in each unit;*

The Company will amend the Registration Statement by way of a subsequent amendment to include the exercise price of the warrants in each unit or the formula to be used to determine the exercise price.

· *The date the offering expires;*

The Company will amend the Registration Statement by way of a subsequent amendment to include the expiration date of the offering.

· *The number of placement agent warrants;*

The Company will amend the Registration Statement by way of a subsequent amendment to include the number of placement agent warrants or formula to be used to calculate the number of placement agent warrants.

- *The exercise price of the placement agent warrants as a percentage of the public offering price per share of the shares sold at closing;*

The Company will amend the Registration Statement by way of a subsequent amendment to include the exercise price of the placement agent warrants as a percentage of the public offering price per share of the shares sold at closing.

- *The placement agent fee; and*

The Company will amend the Registration Statement by way of a subsequent amendment to include the placement agent fee or formula for calculating the placement agent fee.

- *The identity of the placement agent.*

The Company will amend the Registration Statement by way of a subsequent amendment to include the identity of the placement agent. The Company hereby acknowledges the following:

- the Company is responsible for the adequacy and accuracy of the disclosure in the Proxy Statement;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the Proxy Statement; and
- the Company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

We would appreciate the opportunity to discuss any remaining questions or concerns with you at your convenience. If you have any questions or would like to discuss any of the responses in this letter, please feel free to contact me at 214.905.5100 x208 or John Concannon at 617.951.8874 or David Mason at 617.951.8051.

Sincerely,

/s/ Stephen B. Thompson

Stephen B. Thompson

cc: Suzanne Hayes, Esq., *U.S. Securities and Exchange Commission*
Stephen B. Thompson, *Access Pharmaceuticals, Inc.*
John J. Concannon, Esq., *Bingham McCutchen LLP*
David W. Mason, Esq., *Bingham McCutchen LLP*