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

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**FORM 8-A**

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

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**Pacific Biosciences of California, Inc.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State of incorporation or organization)

**16-1590339**  
(I.R.S. Employer Identification No.)

**1380 Willow Road  
Menlo Park, CA 94025  
(650) 521-8000**  
(Address of principal executive offices including zip code)

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

Title of each class  
to be so registered  
**Common Stock, par value \$0.001 per share**

Name of each exchange on which  
each class is to be registered  
**The NASDAQ Stock Market LLC**

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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), 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), check the following box.

Securities Act registration statement file number to which this form relates: **333-168858**

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

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

For a description of the securities being registered hereunder, reference is made to the information set forth under the heading "Description Of Capital Stock" contained in the Registrant's registration statement on Form S-1 (File No.: 333-168858), as originally filed with the Securities and Exchange Commission (the "Commission") on August 16, 2010, as amended (the "Registration Statement"), and in the prospectus included in the Registration Statement to be filed separately by the Registrant with the Commission pursuant to Rule 424(b) under the Securities Act of 1933, as amended, which prospectus shall be deemed to be incorporated by reference herein.

**Item 2. Exhibits**

Under the "Instructions as to Exhibits" section of Form 8-A, no exhibits are required to be filed because no other securities of the Registrant are to be registered on The NASDAQ Stock Market LLC and the securities to be 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.

Date: October 6, 2010

Pacific Biosciences of California, Inc.

By: /s/ Hugh C. Martin  
Hugh C. Martin  
President and Chief Executive Officer