

October 22, 2010

**VIA EDGAR AND OVERNIGHT DELIVERY**

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549-3720

Attention: Russell Mancuso, Branch Chief  
David Burton, Staff Accountant  
Kevin Vaughn, Accounting Branch Chief  
Celia Soehner, Attorney  
Tim Buchmiller, Senior Attorney

**Re: Pacific Biosciences of California, Inc.  
Registration Statement on Form S-1 (File No. 333-168858)  
Form 8-A (File No. 001-34899)**

**Acceleration Request**

**Requested Date: October 26, 2010**

**Requested Time: 4:05 P.M. Eastern Daylight Time**

Ladies and Gentlemen:

Pursuant to Rule 461 under the Securities Act of 1933, as amended, and Rule 12d1-2 of the Securities Exchange Act of 1934, as amended, Pacific Biosciences of California, Inc. (the "**Company**") hereby requests that the above-referenced Registration Statement on Form S-1 (File No. 333-168858) (the "**Registration Statement**") be declared effective at the "Requested Date" and "Requested Time" set forth above or at such later time as the Company or its counsel may orally request via telephone call to the staff (the "**Staff**") of the Division of Corporation Finance of the Securities and Exchange Commission (the "**Commission**") (the "**Registration Statement Acceleration Request**"). In connection with the Registration Statement Acceleration Request, the Company hereby requests that the above referenced Form 8-A (File No. 001-34899) also be declared effective at the "Requested Date" and "Requested Time" set forth above or at such later time as the Company or its counsel may orally request via telephone call to the Staff. Once the Registration Statement has been declared effective, please orally confirm that event with our counsel, Wilson Sonsini Goodrich & Rosati, P.C., by calling Glenn Luinenburg at (650) 493-9300.

In connection with the acceleration request, the Company hereby acknowledges that:

- should the Commission or the Staff, acting pursuant to delegated authority, declare the Registration Statement on Form S-1 effective, it does not foreclose the Commission from taking any action with respect to the Registration Statement on Form S-1;
- the action of the Commission or the Staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the Company from its full responsibility for the adequacy and accuracy of the disclosure in the Registration Statement on Form S-1; and
- the Company may not assert Staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

*[Signature page follows]*

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Sincerely,

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

/s/ Susan K. Barnes  
Susan K. Barnes  
Chief Financial Officer

cc:

Hugh C. Martin  
Matthew B. Murphy  
**Pacific Biosciences of California, Inc.**

Larry W. Sonsini, Esq.  
Donna M. Petkanics, Esq.  
Glenn J. Luinenburg, Esq.  
**Wilson Sonsini Goodrich & Rosati, P.C.**

Alan F. Denenberg, Esq.  
**Davis Polk & Wardwell LLP**

Tracy Lefteroff  
Jeff Womer  
**PricewaterhouseCoopers LLP**

**J.P. Morgan Securities LLC**  
383 Madison Avenue  
New York, New York 10179

**Morgan Stanley & Co. Incorporated**  
1585 Broadway  
New York, New York 10036

October 22, 2010

Securities and Exchange Commission  
100 F Street, N.E.  
Washington, D.C. 20549

Re: PACIFIC BIOSCIENCES OF CALIFORNIA, INC.  
Common Stock  
Registration Statement No. 333-168858

Ladies and Gentlemen:

Pursuant to Rule 461 under the Securities Act of 1933, we hereby join the company in requesting that the effective date for the registration statement referred to above be accelerated so that it will be declared effective at 4:05 p.m. Eastern Daylight Time on October 26, 2010, or as soon thereafter as possible.

In connection with the Preliminary Prospectus distribution for the above-referenced issue, the prospective underwriters have confirmed that they are complying with the provisions of SEC Release No. 33-4968 of the Securities Act of 1933 and Rule 15c2-8 under the Securities Act of 1934. Copies of the preliminary prospectus have been or will be made available in sufficient time for distribution to all prospective purchasers no less than 48 hours prior to the time it is expected confirmations will be mailed.

In connection with the foregoing and pursuant to Rule 460, please be advised that the undersigned have effected approximately the following distribution of copies of the Preliminary Prospectus dated October 4, 2010.

Institutions	1240
Underwriters	3907
Other	21
Total	5168 Copies

Very truly yours,

J.P. MORGAN SECURITIES LLC  
MORGAN STANLEY & CO. INCORPORATED  
Acting severally on behalf of themselves and the several underwriters

BY: J.P. MORGAN SECURITIES LLC

By: /s/ John Bertone  
John Bertone, V.P.  
Authorized Signatory

BY: MORGAN STANLEY & CO. INCORPORATED

By: /s/ Dominick Ruscitti  
Dominick Ruscitti  
Authorized Signatory