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

Form 10-Q

(Mark One)

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended September 30, 2013

Or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number 001-34899

Pacific Biosciences of California, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

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

1380 Willow Road
Menlo Park, CA 94025
(Address of principal executive offices)

94025
(Zip Code)

(650) 521-8000

(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

Number of shares outstanding of the issuer's common stock as of October 31, 2013: 66,152,099

TABLE OF CONTENTS

	<u>PAGE NO.</u>
<u>PART I. FINANCIAL INFORMATION</u>	3
<u>Item 1. Financial Statements (unaudited):</u>	
<u>Condensed Consolidated Balance Sheets as of September 30, 2013 and December 31, 2012</u>	3
<u>Condensed Consolidated Statements of Operations and Comprehensive Loss for the Three- and Nine-Month Periods Ended September 30, 2013 and 2012</u>	4
<u>Condensed Consolidated Statements of Cash Flows for the Nine-Month Periods Ended September 30, 2013 and 2012</u>	5
<u>Notes to Condensed Consolidated Financial Statements</u>	6
<u>Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	14
<u>Item 3. Quantitative and Qualitative Disclosures About Market Risk</u>	21
<u>Item 4. Controls and Procedures</u>	21
<u>PART II. OTHER INFORMATION</u>	21
<u>Item 1. Legal Proceedings</u>	21
<u>Item 1A. Risk Factors</u>	21
<u>Item 2. Unregistered Sales of Equity Securities and Use of Proceeds</u>	35
<u>Item 4. Mine Safety Disclosures</u>	35
<u>Item 6. Exhibits</u>	35
<u>EXHIBIT INDEX</u>	37

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

Condensed Consolidated Balance Sheets
(Unaudited)

<u>(in thousands except par value amounts)</u>	September 30, 2013	December 31, 2012
Assets		
Current assets		
Cash and cash equivalents	\$ 64,767	\$ 46,540
Investments	62,169	54,040
Accounts receivable	3,814	2,822
Inventory, net	9,819	9,592
Prepaid expenses and other current assets	1,194	2,006
Total current assets	141,763	115,000
Property and equipment, net	10,544	14,329
Other long-term assets	493	354
Total assets	<u>\$ 152,800</u>	<u>\$ 129,683</u>
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	\$ 3,413	\$ 2,988
Accrued expenses and other current liabilities	8,506	8,204
Deferred revenue, current	10,359	3,378
Facility financing obligation, current	201	173
Total current liabilities	22,479	14,743
Deferred revenue, non-current	28,875	800
Deferred rent and other long-term liabilities	1,378	2,145
Notes payable	13,173	—
Financing derivative	894	—
Facility financing obligation, non-current	2,458	2,613
Total liabilities	69,257	20,301
Commitments and contingencies (Note 6)		
Stockholders' equity		
Convertible Preferred Stock, \$0.001 par value:		
Authorized 50,000 shares; No shares issued or outstanding	—	—
Common Stock and additional paid-in-capital, \$0.001 par value:		
Authorized 1,000,000 shares; Issued and outstanding 66,143 shares at September 30, 2013 and 56,170 shares at December 31, 2012	681,614	645,372
Accumulated other comprehensive income	11	30
Accumulated deficit	(598,082)	(536,020)
Total stockholders' equity	83,543	109,382
Total liabilities and stockholders' equity	<u>\$ 152,800</u>	<u>\$ 129,683</u>

See accompanying notes to the condensed consolidated financial statements.

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

Condensed Consolidated Statements of Operations and Comprehensive Loss
(Unaudited)

(in thousands, except per share amounts)	Three-Month Periods Ended		Nine-Month Periods Ended	
	September 30,	September 30,	September 30,	September 30,
	2013	2012	2013	2012
Revenue:				
Product revenue	\$ 5,814	\$ 1,268	\$ 14,248	\$ 15,810
Service and other revenue	1,607	1,283	4,528	3,620
Grant revenue	—	225	272	675
Total revenue	7,421	2,776	19,048	20,105
Cost of Revenue:				
Cost of product revenue	4,616	960	11,138	14,949
Cost of service and other revenue	1,564	1,626	4,680	4,843
Total cost of revenue	6,180	2,586	15,818	19,792
Gross profit	1,241	190	3,230	313
Operating Expense:				
Research and development	10,419	12,626	34,084	35,971
Sales, general and administrative	10,757	10,143	29,685	36,986
Total operating expense	21,176	22,769	63,769	72,957
Operating loss	(19,935)	(22,579)	(60,539)	(72,644)
Interest expense	(686)	(68)	(1,785)	(207)
Other income (expense), net	134	(82)	262	55
Net loss	(20,487)	(22,729)	(62,062)	(72,796)
Other comprehensive income (loss):				
Unrealized gain (loss) on investments	13	(9)	(19)	9
Comprehensive loss	\$ (20,474)	\$ (22,738)	\$ (62,081)	\$ (72,787)
Net loss per share:				
Basic and diluted net loss per share	\$ (0.31)	\$ (0.41)	\$ (1.01)	\$ (1.31)
Shares used in computing basic and diluted net loss per share	65,523	55,877	61,636	55,582

See accompanying notes to the condensed consolidated financial statements.

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

Condensed Consolidated Statements of Cash Flows
(Unaudited)

(in thousands)	Nine-Month Periods Ended	
	September 30,	
	2013	2012
Cash flows from operating activities		
Net loss	\$ (62,062)	\$ (72,796)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation	4,238	5,041
Amortization of debt discount and financing costs	418	—
Stock-based compensation	7,361	7,158
Other items	(73)	270
Changes in assets and liabilities		
Accounts receivable	(992)	4,025
Inventory	171	4,151
Prepaid expenses and other assets	791	734
Accounts payable	425	(1,845)
Accrued expenses and other current liabilities	302	(3,249)
Deferred revenue	35,056	(1,297)
Other long-term liabilities	(894)	(791)
Net cash used in operating activities	(15,259)	(58,599)
Cash flows from investing activities		
Purchase of property and equipment	(807)	(1,263)
Purchase of investments	(141,549)	(69,436)
Sales of investments	—	7,896
Maturities of investments	133,391	92,392
Net cash provided by (used in) investing activities	(8,965)	29,589
Cash flows from financing activities		
Proceeds from issuance of common stock, net of issuance costs	22,685	2,703
Proceeds from issuance of debt facility, net of issuance costs	19,766	—
Net cash provided by financing activities	42,451	2,703
Net increase (decrease) in cash and cash equivalents	18,227	(26,307)
Cash and cash equivalents at beginning of period	46,540	58,865
Cash and cash equivalents at end of period	\$ 64,767	\$ 32,558

See accompanying notes to the condensed consolidated financial statements.

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.
Notes to Condensed Consolidated Financial Statements
(Unaudited)

NOTE 1. OVERVIEW

Pacific Biosciences of California, Inc., (“Pacific Biosciences”, the “Company”, “we”, “us”) has commercialized the PacBio RS High Resolution Genetic Analyzer and the PacBio RS II Sequencing System to help scientists solve genetically complex problems. Based on our novel Single Molecule, Real-Time (SMRT) technology, our products enable scientists to increase their understanding of biological systems through targeted sequencing and insight into genetic variations.

The names “Pacific Biosciences,” “PacBio,” “SMRT,” “SMRTbell” and our logo are our trademarks.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

In the opinion of management, the accompanying unaudited Condensed Consolidated Financial Statements (“financial statements”) of Pacific Biosciences of California, Inc. and its wholly-owned subsidiaries have been prepared on a consistent basis with the December 31, 2012 audited Consolidated Financial Statements and include all adjustments, consisting of only normal recurring adjustments, necessary to fairly state the information set forth herein. Certain prior year amounts in the financial statements and notes thereto have been reclassified to conform to the current year’s presentation. The financial statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission (“SEC”) and, therefore, omit certain information and footnote disclosures necessary to present the statements in accordance with U.S. generally accepted accounting principles (“GAAP”). These financial statements should be read in conjunction with the audited Consolidated Financial Statements and Notes thereto included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2012, which was filed with the SEC on March 15, 2013. The results of operations for the first nine months of fiscal 2013 are not necessarily indicative of the results to be expected for the entire fiscal year or any future periods.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expense during the reporting periods. Our estimates include, but are not limited to, useful lives assigned to long-lived assets, assumptions used to compute stock-based compensation expense and valuing warrants, value the financing derivative and long-term notes, value and recognize revenue elements, determine delivery periods for revenue recognition, and to compute provisions for income taxes, inventory, and contingencies. Actual results could differ from our estimates, and such differences could be material to our financial position and results of operations.

Fair Value of Financial Instruments

Assets and liabilities measured at fair value on a recurring basis

The following table sets forth the fair value of our financial assets and liabilities that were measured on a recurring basis as of September 30, 2013 and December 31, 2012, respectively:

(in thousands)	September 30, 2013				December 31, 2012			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets								
<u>Cash and cash equivalents:</u>								
Cash and money market funds	\$ 45,571	\$ —	\$ —	\$ 45,571	\$ 11,847	\$ —	\$ —	\$ 11,847
Commercial paper	—	19,196	—	19,196	—	34,693	—	34,693
Total cash and cash equivalents	45,571	19,196	—	64,767	11,847	34,693	—	46,540
<u>Investments:</u>								
Commercial paper	—	53,697	—	53,697	—	28,866	—	28,866
Corporate debt securities	—	1,638	—	1,638	—	13,203	—	13,203
Asset backed securities	—	6,834	—	6,834	—	955	—	955
Certificates of deposits	—	—	—	—	—	2,008	—	2,008
U.S. government and agency securities	—	—	—	—	—	9,008	—	9,008
Total investments	—	62,169	—	62,169	—	54,040	—	54,040
Total assets measured at fair value	\$ 45,571	\$ 81,365	\$ —	\$ 126,936	\$ 11,847	\$ 88,733	\$ —	\$ 100,580
Liabilities								
Financing derivative	\$ —	\$ —	\$ 894	\$ 894	\$ —	\$ —	\$ —	\$ —
Total liabilities measured at fair value	\$ —	\$ —	\$ 894	\$ 894	\$ —	\$ —	\$ —	\$ —

All of our cash deposits and money market funds are classified within Level 1 of the fair value hierarchy because they are valued using bank balances or quoted market prices. Our investments are classified as Level 2 instruments based on market pricing and other observable inputs. None of our investments are classified within Level 3 of the fair value hierarchy.

During the nine-month periods ended September 30, 2013 and 2012, realized gains and losses on the sale of investments were immaterial and there were no material impairments of our investments.

The fair value of the Financing Derivative (as defined in Note 7. *Debt Facility*) liability resulting from the debt facility we entered into during the first quarter of 2013 was determined using Level 3 inputs, or significant unobservable inputs. Refer to Note 7. *Debt Facility* for a detailed description and valuation approach. The following table provides the changes in the fair value of the Financial Derivative during the nine-month period ended September 30, 2013 (in thousands):

<u>Financial Derivative</u>	Amount
Balance as of December 31, 2012	\$ —
Value at issuance	967
Gain on change in fair value of Financing Derivative	(73)
Balance as of September 30, 2013	\$ 894

For the nine-month period ended September 30, 2013 there were no transfers between Level 1, Level 2, or Level 3 assets or liabilities reported at fair value on a recurring basis and valuation techniques did not change compared to the prior quarter.

Financial assets and liabilities not measured at fair value on a recurring basis

The carrying amount of our accounts receivable, prepaid expenses, other current assets, accounts payable, accrued expenses and other current liabilities, are determined to approximate fair value due to their short maturities. The carrying value of our facility financing obligation approximates fair value due to the time to maturity and prevailing market rates.

We determined the fair value of the Notes (as defined in Note 7. *Debt Facility*) from the debt facility we entered into during the first quarter of 2013 using Level 3 inputs, or significant unobservable inputs. The value of the Notes was determined by comparing the difference between the fair value of the Notes with and without the Financing Derivative by calculating the respective present values from future cash flows using a 20.8% weighted average market yield. Refer to Note 7. *Debt Facility* for additional details regarding the Notes. The estimated fair value and carrying value of the Notes are as follows (in thousands):

	September 30, 2013		December 31, 2012	
	Fair Value	Carrying Value	Fair Value	Carrying Value
Long-term notes payable	\$ 13,686	\$ 13,173	\$ —	\$ —

Net Loss per Share

The following table presents the computation of our basic and diluted net loss per share (in thousands, except per share amounts):

	Three-Months Ended		Nine-Months Ended	
	September 30,		September 30,	
	2013	2012	2013	2012
Net loss per share				
Numerator:				
Net loss	\$ (20,487)	\$ (22,729)	\$ (62,062)	\$ (72,796)
Denominator:				
Weighted average shares used in computation of basic and diluted net loss per share	65,523	55,877	61,636	55,582
Basic and diluted net loss per share	\$ (0.31)	\$ (0.41)	\$ (1.01)	\$ (1.31)

The following were excluded from the computation of our diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect:

(in thousands)	As of September 30,	
	2013	2012
Options outstanding	13,351	10,973
Warrants to purchase common stock	5,504	10

NOTE 3. AGREEMENT WITH ROCHE

On September 24, 2013, we entered into a Development, Commercialization and License Agreement (the “Roche Agreement”) with F. Hoffman-La Roche Ltd (“Roche”), pursuant to which we: (i) will develop diagnostic products for clinical use including sequencing systems and consumables based on our proprietary SMRT technology; (ii) granted to Roche an exclusive right to commercialize, and an exclusive license to sell, the developed diagnostic products for clinical use; and (iii) will manufacture and supply certain products intended for clinical use as the exclusive supplier to Roche. We received a non-refundable up-front payment of \$35.0 million and may receive up to an additional \$40.0 million based upon the achievement of development milestones. The Roche Agreement has an initial term of thirteen years and provisions allowing Roche 5-year renewals.

The Roche Agreement contains multiple elements, and the deliverables under the Roche Agreement consist of intellectual property licenses, research and development services, and participation on the joint steering committee (as defined in the Roche Agreement) with Roche. These deliverables are non-contingent in nature. We evaluated whether there is standalone value for each of the non-contingent deliverables and allocated the upfront payment of \$35.0 million to each unit of accounting based on our best estimates of selling prices pursuant to Accounting Standard Codification (ASC) Topic 605-25, *Revenue Recognition — Multiple Element Arrangements* (ASC 605-25). We consider the intellectual property licenses and research and development services to be a combined unit of accounting. The intellectual property licenses do not have standalone value since the diagnostic products to which the license relates are in a very early stage of development. In addition, we believe that the joint steering committee obligation has standalone value and thus, is a separate unit of accounting.

The amount allocated to the intellectual property licenses and research and development services will be recognized as revenue based on the proportional performance method over the expected development period, and the amount allocated to the deliverable of our participation on the joint steering committee will be recognized as revenue based on the proportional performance method over the term of the Roche Agreement, which represents the estimated obligation period of the joint steering committee. Revenue will be recognized on a straight-line basis over the delivery period to the extent that the pattern of performance is not expected to significantly differ from recognition using a proportional performance model. As of September 30, 2013, revenue relating to the \$35.0 million upfront cash payment was deferred with \$6.8 million and \$28.2 million allocated to current and long-term deferred revenue, respectively.

Our process for determining estimates of selling prices involves management’s judgment. Our process considers multiple factors such as estimated headcount, annual research and development budget, estimated length of the research and development period and estimated transfer price on cost, which may vary over time, depending upon the circumstances, and relate to each deliverable. If the estimated obligation period of one or more deliverables should change, the future amortization of the revenue would also change.

In addition to the non-contingent deliverables above, the Roche Agreement includes contingent deliverables relating to the receipt of additional payments totaling \$40.0 million upon the achievement of certain development milestones. Based on ASC Topic 605-28, *Revenue Recognition — Milestone Method*, we evaluate contingent milestones at inception of the agreement, and recognize consideration that is contingent upon the achievement of a milestone in its entirety as revenue in the period in which the milestone is

achieved only if the milestone is considered substantive in its entirety. Milestones are considered substantive if the consideration earned from the achievement of the milestone (i) is consistent with performance required to achieve the milestone or the increase in value to the delivered item, (ii) relates solely to past performance and (iii) is reasonable relative to all of the other deliverables and payments within the arrangement. The milestone payments of \$40.0 million will be recognized as revenue in their entirety upon our achievement of each substantive milestone.

NOTE 4. CASH, CASH EQUIVALENTS AND INVESTMENTS

The following table summarizes our investments as of September 30, 2013 and December 31, 2012 (in thousands):

	As of September 30, 2013			
	Amortized	Gross	Gross	Fair
	Cost	unrealized gains	unrealized losses	Value
Cash and cash equivalents:				
Cash and money market funds	\$ 45,571	\$ —	\$ —	\$ 45,571
Commercial paper	19,194	2	—	19,196
Total cash and cash equivalents	64,765	2	—	64,767
Investments:				
Commercial paper	53,689	9	(1)	53,697
Corporate debt securities	1,637	1	—	1,638
Asset backed securities	6,834	2	(2)	6,834
Total investments	62,160	12	(3)	62,169
Total cash, cash equivalents and investments	\$ 126,925	\$ 14	\$ (3)	\$ 126,936

	As of December 31, 2012			
	Amortized	Gross	Gross	Fair
	Cost	unrealized gains	unrealized losses	Value
Cash and cash equivalents:				
Cash and money market funds	\$ 11,847	\$ —	\$ —	\$ 11,847
Commercial paper	34,690	3	—	34,693
Total cash and cash equivalents	46,537	3	—	46,540
Investments:				
Commercial paper	28,859	7	—	28,866
Corporate debt securities	13,190	13	—	13,203
Asset backed securities	954	1	—	955
Certificates of deposit	2,005	3	—	2,008
U.S. government and agency securities	9,005	3	—	9,008
Total investments	54,013	27	—	54,040
Total cash, cash equivalents and investments	\$ 100,550	\$ 30	\$ —	\$ 100,580

The estimated fair value of marketable debt securities (commercial paper, corporate debt securities, asset backed securities and U.S. government and agency securities) as of September 30, 2013, by contractual maturity, are as follows:

(in thousands)	Fair Value
Due in one year or less	\$ 74,530
Due after one year through 5 years	6,835
Total investments in debt securities	\$ 81,365

Actual maturities may differ from contractual maturities because issuers may have the right to call or prepay obligations without call or prepayment penalties.

NOTE 5. BALANCE SHEET COMPONENTS

As of September 30, 2013 and December 31, 2012 our inventory, net, consisted of the following components:

(in thousands)	September 30, 2013	December 31, 2012
Purchased materials, net	\$ 3,152	\$ 3,823
Work in process, net	4,217	3,494
Finished goods, net	2,450	2,275
Inventory, net	\$ 9,819	\$ 9,592

NOTE 6. CONTINGENCIES

We become subject to claims and assessments from time to time in the ordinary course of business. We accrue liabilities for such matters when it is probable that future expenditures will be made and such expenditures can be reasonably estimated.

During October 2013 the Superior Court of the State of California, County of San Mateo granted final approval of a settlement of four class action lawsuits that had been consolidated as *In re Pacific Biosciences of California Inc. S'holder Litig.* In addition, the company has reached an agreement in principle to settle the claims of the single individual who opted out of the state court settlement. Upon its becoming final, the settlement of the state court action will have preclusive effect on claims previously asserted in the lawsuit filed in December 2011 in United States District Court for the Northern District of California, captioned *Primo v. Pacific Biosciences of California, Inc., et al.*, Case No. 4:11-CV-06599. All amounts payable to the plaintiffs and plaintiffs' counsel had been previously accrued; therefore, no additional amounts were expensed during the period.

Indemnification

Pursuant to Delaware law and agreements entered into with each of our directors and officers, we may have obligations, under certain circumstances, to hold harmless and indemnify each of our directors and officers against losses suffered or incurred by the indemnified party in connection with their service to the Company, and judgments, fines, settlements and expenses related to claims arising against such directors and officers to the fullest extent permitted under Delaware law, our bylaws and certificate of incorporation. We also enter and have entered into indemnification agreements with our directors and officers that may require us to indemnify them against liabilities that arise by reason of their status or service as directors or officers, except as prohibited by applicable law. In addition, we may have obligations to hold harmless and indemnify third parties involved with our fund raising efforts and their respective affiliates, directors, officers, employees, agents or other representatives against any and all losses, claims, damages and liabilities related to claims arising against such parties pursuant to the terms of agreements entered into between such third parties and the Company in connection with such fund raising efforts. To the extent that any such indemnification obligations apply to the lawsuits described above, any associated expenses incurred are included within the related accrued litigation expense amounts. No additional liability associated with such indemnification obligations has been recorded at September 30, 2013.

NOTE 7. DEBT FACILITY

On February 5, 2013, we entered into a Facility Agreement (the "Facility Agreement") with entities affiliated with Deerfield Management Company, L.P. (collectively, "Deerfield"), pursuant to which Deerfield agreed to provide \$20.5 million in funding to us (the "Facility"). Under the terms of the Facility Agreement, we issued to Deerfield promissory notes in the aggregate principal amount of \$20.5 million (the "Notes"). The Notes bear simple interest at a rate of 8.75% per annum, payable quarterly in arrears commencing on April 1, 2013 and on the first business day of each January, April, July and October thereafter. We received net proceeds of \$20.0 million, representing \$20.5 million of gross proceeds, less a \$500,000 facility fee, before deducting other expenses of the transaction.

The Facility Agreement has a maximum term of seven years from inception; however it provides for the early repayment of principal in the event we have net sales (as defined in the Facility Agreement) of less than \$41.0 million for the twelve-month period from the beginning of the second calendar quarter of 2014 through the first calendar quarter of 2015 (the "Milestone"). If the Milestone is not achieved, at Deerfield's option, one-third of the original principal balance of the Facility will become due, on each of the third, fourth and fifth anniversaries of the date of the Facility Agreement.

From and after the date of the Facility Agreement, at the election of the holders of Notes representing a majority of the aggregate principal amount of the outstanding Notes, we shall apply 25% of the net proceeds from any financing that includes an equity component, including without limitation, the sale or issuance of our common stock, options, warrants or other securities convertible or exchangeable for shares of our common stock, to the payment of the Notes. This right is subject to certain exceptions set forth in the Facility Agreement, including that the right will not apply until we have issued 15.0 million shares (as adjusted for any stock split or reverse stock split) of our common stock or rights to acquire our capital stock following the date of the Facility Agreement.

Deerfield has the option to require us to repay the Notes if we complete a Major Transaction (as defined in the Facility Agreement), including a change of control or a sale of all or substantially all of our assets. Additionally, the principal balance of the Facility may become immediately due and payable upon an Event of Default (as defined in the Facility Agreement), in which case Deerfield would have the right to require us to repay 100% of the principal amount of the loan, plus any accrued and unpaid interest thereon. The Facility Agreement does not provide for a prepayment of the Notes at our option.

The Facility Agreement also contains various representations and warranties, and affirmative and negative covenants, customary for financings of this type, including restrictions on the ability of the Company and its subsidiaries to incur additional indebtedness or liens on its assets, except as permitted under the Facility Agreement. In addition, we are required to maintain consolidated cash and cash equivalents on the last day of each calendar quarter of not less than \$2.0 million. As security for our repayment of our obligations under the Facility Agreement, we granted to Deerfield a security interest in substantially all of our property and interests in property.

Financing Derivative

A number of features embedded in the Notes to the Facility Agreement required accounting for as a derivative, including the indemnification of certain withholding taxes and the acceleration of debt upon (a) a qualified financing, (b) an Event of Default, (c) a Major Transaction, and (d) the exercise of the Warrant via offset to debt principal. These features represent a single derivative (the “Financing Derivative”) that was bifurcated from the debt instrument and accounted for as a liability at fair value, with changes in fair value between reporting periods recorded in other income (expense), net. The fair value of the Financing Derivative as of February 5, 2013 and September 30, 2013, was \$1.0 million and \$0.9 million, respectively.

The value of the Financing Derivative as of February 5, 2013 and September 30, 2013 was determined by comparing the difference between the fair value of the Notes with and without the Financing Derivative by calculating the respective present values from future cash flows using a 20.8% weighted average market yield.

Warrants

In connection with the execution of the Facility Agreement, on February 5, 2013, we issued to Deerfield warrants to purchase an aggregate of 5,500,000 shares of common stock immediately exercisable at an exercise price per share initially equal to \$2.63 (the “Warrants”). The number of shares of common stock into which the Warrants are exercisable and the exercise price will be adjusted to reflect any stock splits, payment of stock dividends, recapitalizations, reclassifications or other similar adjustments in the number of outstanding shares of common stock. The exercise price may also be adjusted to reflect certain dividends or other distributions, including distributions of stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or similar transaction.

The Warrants are classified within additional paid-in capital and reported at their grant date fair value on February 5, 2013 of \$6.4 million. We estimated the fair value of the Warrants using the Black-Scholes option pricing model using the following assumptions:

Expected term	7 years
Expected volatility	50%
Risk-free interest rate	1.4%
Dividend yield	—

Notes

The Notes and Warrants were initially recorded at a value of \$14.1 million and \$6.4 million, respectively, based upon the relative fair value allocation of the \$20.5 million of proceeds. Additionally, facility fees and other issuance costs were allocated based on the relative fair value of the Facility and the Warrants. The amount allocated to the Notes was then reduced by the \$1.0 million fair value of the Financing Derivative, such that the Financing Derivative was recorded at its absolute fair value. As a result, the carrying value of the Notes at the inception of the debt was \$12.8 million, resulting in an original issue discount of \$7.7 million. The discount is being accreted to the \$20.5 million face value of the Notes over the expected maturity period of seven years using the effective interest method, with an effective interest rate of 20.6%.

NOTE 8. STOCKHOLDERS’ EQUITY

Stock Offering

During April 2012, we filed a shelf registration statement on Form S-3 with the SEC pursuant to which we may, from time to time, sell up to an aggregate of \$150.0 million of our common stock, warrants or debt securities. On May 1, 2012, the registration statement was declared effective by the SEC. On October 5, 2012, we entered into a Controlled Equity Offering Sales Agreement (the “Sales Agreement”) with Cantor Fitzgerald & Co. (“Cantor”), pursuant to which we may offer and sell, from time to time, through Cantor, shares of our common stock having an aggregate offering price of up to \$30.0 million through an “at-the-market” offering. We are not obligated to make any sales of shares under the Sales Agreement. We pay Cantor a commission equal to 3.0% of the gross proceeds from the sale of shares of our common stock under the Sales Agreement and reimburse up to \$50,000 of legal expenses incurred by Cantor. During the quarter ended September 30, 2013, no shares were sold through our “at-the-market” offering. As of September 30, 2013, we have sold a total of 8.3 million shares of our common stock at an average price of \$2.51 through our “at-the-market” offering.

NOTE 9. STOCK OPTION PLANS

As of September 30, 2013, we had three active equity compensation plans, the 2010 Equity Incentive Plan, or 2010 Plan, the 2010 Outside Director Equity Incentive Plan, or 2010 Director Plan, and the 2010 Employee Stock Purchase Plan, or “ESPP”.

As of September 30, 2013, no shares of our common stock remain available for issuance under our ESPP. The Employee Stock Purchase Plan provides for an annual increase to the shares available for issuance at the beginning of each calendar year equal to two percent of the common shares then outstanding. Our ESPP permits eligible employees to purchase common stock at a discount through payroll deductions during defined offering periods. Each offering period generally consists of four purchase periods, each purchase period being six months. The price at which the stock is purchased is equal to the lower of 85% of the fair market value of the common stock at the beginning of an offering period or at the end of a purchase period. Shares issued under the ESPP totaled 1,519,366 and 832,878 shares during the nine-month periods ended September 30, 2013 and 2012, respectively. We estimate the value of the employee stock purchase rights on the grant date using the Black-Scholes option pricing model.

The following table summarizes stock option activity for all stock option plans (in thousands, except per share amounts):

	Stock Options Outstanding				Weighted average exercise price	
	Shares available	Number	Exercise price			
	for grant	of shares				
Balances, December 31, 2012	2,872	12,016	\$	0.20 – 16.00	\$	5.37
Additional shares reserved	3,370					
Options granted	(2,122)	2,122		2.11 – 3.65		2.29
Options exercised	—	(144)		0.20 – 3.30		1.15
Options canceled	643	(643)		1.16 – 16.00		6.19
Balances, September 30, 2013	4,763	13,351	\$	0.20 – 16.00	\$	4.88

Stock-based Compensation

Total stock-based compensation expense for employee stock options and stock purchases under the ESPP consists of the following (in thousands):

	Three-Month Periods Ended		Nine-Month Periods Ended	
	September 30,		September 30,	
	2013	2012	2013	2012
Cost of revenue	\$ 107	\$ 84	\$ 343	\$ 393
Research and development	835	1,181	3,077	3,384
Sales, general and administrative	1,229	1,123	3,941	3,381
Total stock-based compensation expense	\$ 2,171	\$ 2,388	\$ 7,361	\$ 7,158

We estimated the fair value of employee stock options using the Black-Scholes option pricing model. The fair value of employee stock options is being amortized on a straight-line basis over the requisite service period of the awards.

The fair value of employee stock options was estimated using the following weighted average assumptions:

Stock Option	Three-Month Periods		Nine-Month Periods	
	Ended September 30,		Ended September 30,	
	2013	2012	2013	2012
Expected term in years	6.1	6.1	6.1	6.1
Expected volatility	65%	60%	65%	65%
Risk-free interest rate	1.8%	0.9%	1.1%	1.1%
Dividend yield	—	—	—	—

The fair value of ESPP was estimated using the following assumptions:

ESPP	Three-Month Periods Ended September 30,		Nine-Month Periods Ended September 30,	
	2013	2012	2013	2012
Expected term in years	0.5-2.0	0.5-2.0	0.5-2.0	0.5-2.0
Expected volatility	70%	90%	70%	90%
Risk-free interest rate	0.1%-0.4%	0.1%-0.2%	0.1%-0.4%	0.1%-0.3%
Dividend yield	—	—	—	—

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This Quarterly Report on Form 10-Q contains forward-looking statements that involve risks and uncertainties. Forward-looking statements are based on our management's beliefs and assumptions and on information currently available to them. Such forward looking statements include, but are not limited to, statements related to: our expectations regarding our future losses, our expectations regarding our future sources of revenue and regarding our development, commercialization and license agreement, the timing of the conversion of our backlog, our expectations regarding our operating expenses; our expectations regarding our interest expense, our financial outlook; our expected revenues, gross margin, research and development expenses, and sales, general and administrative expenses, revenue recognition; our ability to fulfill customer orders; our investments and financing obligations; the effect of global market fluctuations; our expected expenses, including research and development expenses and administrative expenses; our beliefs about our ability to finance our operations; the development and marketability of our products; the potential dilution of current stockholders; our use of any funds raised through the sale of securities; as well as statements of belief and statements of assumptions underlying any of the foregoing. In some cases you can identify forward-looking statements by words such as "may," "will," "should," "could," "would," "expect," "plans," "anticipates," "believes," "estimates," "projects," "predicts," "potential" and similar expressions intended to identify forward-looking statements. Our actual results could differ materially from those anticipated in these forward-looking statements for many reasons, including the risks faced by us and described under the heading "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q and our other filings with the SEC. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this Quarterly Report on Form 10-Q. You should read this Quarterly Report on Form 10-Q completely and with the understanding that our actual future results may be materially different from those we expect. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

Overview

We develop, manufacture and market an integrated platform for high resolution genetic analysis. Combining advances in nanofabrication, biochemistry, molecular biology, surface chemistry and optics, we created a technology platform called single molecule, real-time, or SMRT, technology. Our initial focus is to offer our SMRT technology to the DNA sequencing market where we have developed the PacBio RS High Resolution Genetic Analyzer and the PacBio RS II Sequencing System. The PacBio RS and the PacBio RS II consist of instrument platforms that use our proprietary consumables, including our SMRT Cells and reagent kits.

We have financed our operations primarily through the issuance of common and convertible preferred stock resulting in \$609.8 million in net proceeds, in addition to debt financing. Since our inception, we have incurred significant net losses and we expect to continue to experience significant losses as we invest in developing and taking advantage of market opportunities for our products, servicing and supporting customers, development of enhancements and updates to existing products, development of future products, and sales and administrative infrastructure. As of September 30, 2013, we had an accumulated deficit of \$598.1 million.

Agreement with Roche

On September 24, 2013 we entered into the Roche Agreement, pursuant to which we: (i) will develop diagnostic products for clinical use including sequencing systems and consumables based on our proprietary SMRT technology; (ii) granted to Roche an exclusive right to commercialize, and an exclusive license to sell, the developed diagnostic products for clinical use; and (iii) will manufacture and supply certain products intended for clinical use as the exclusive supplier to Roche. We received a non-refundable up-front payment of \$35.0 million and may receive up to an additional \$40.0 million based upon the achievement of development milestones. The Roche Agreement has an initial term of thirteen years and provisions allowing Roche 5-year renewals.

As of September 30, 2013, revenue relating to the \$35.0 million upfront cash payment was deferred with \$6.8 million and \$28.2 million allocated to current and long-term deferred revenue, respectively.

Basis of Presentation

While the trends below are important to understanding and evaluating our financial results, the other transactions, events and trends discussed in "Risk Factors" in this report may also materially impact our business operations and financial results.

Revenue

During the three- and nine-month periods ended September 30, 2012, the majority of our revenue related to the sale of PacBio RS instruments and associated consumables and services, and during the three- and nine-month periods ended September 30, 2013, the majority of our revenue related to the sale of PacBio RS and PacBio RS II instruments and associated consumables and services. Service and other revenue primarily consists of product maintenance agreements, while grant revenue represents amounts earned under research agreements with government entities which are recognized in the period during which the related costs are incurred. In

addition to existing revenue sources, during future periods we expect to recognize revenue from development and services relating to the Roche Agreement.

As of September 30, 2013, our backlog was comprised of nine instruments. We define backlog as purchase orders or signed contracts for systems from customers which we believe are firm and for which we have not yet recognized revenue.

Cost of Revenue

Cost of revenue reflects the direct cost of product components, third party manufacturing services and our internal manufacturing overhead and customer service infrastructure costs incurred to produce, deliver, maintain and support our instruments, consumables, and services.

Product costs include the direct costs incurred to manufacture products and install instruments combined with allocated manufacturing overhead. Manufacturing overhead is determined and capitalized into inventory based on management's estimate of normal manufacturing capacity. Normal capacity is the production level expected to be achieved over a number of periods under normal circumstances with available resources. Our current manufacturing volumes are below expected normal capacities, therefore manufacturing overhead incurred exceeds the amounts absorbed into inventory and included in cost of revenue. During the nine-month periods ended September 30, 2013 and 2012, \$5.4 million and \$6.5 million, respectively, of manufacturing overhead were capitalized into inventory. As we engage excess manufacturing resources in product research and development, production of product used internally for research and development, and other research and development support activities, manufacturing costs in excess of amounts reflected in inventory and cost of revenue are expensed as a component of research and development expense during the period in which the expenses are incurred.

Service costs include the direct costs of components used in support, repair and maintenance of customer instruments as well as the cost of personnel and support infrastructure necessary to support the installed customer base. As we have been in the early stages of the commercial launch of our products, the capacity of our service infrastructure has exceeded the demand for installing and servicing customer instruments. Management has estimated the capacity of the existing service infrastructure and has recognized service related cost of revenue based on the installed base. From our initial commercial launch, total service infrastructure costs have generally exceeded the costs associated with the support of customer instruments and such excess costs have been included as a component of sales, general and administrative expense.

Operating Expense

Research and Development Expense. Research and development expense consists primarily of expenses for personnel engaged in the development of our SMRT technology, the design and development of our products, including the PacBio RS and PacBio RS II, SMRT Cells and reagent kits and the scientific research necessary to produce commercially viable applications of our technology. These expenses also include prototype-related expenditures, development equipment, supplies, facilities costs and other related overhead.

Sales, General and Administrative Expense. Sales, general and administrative expense consists primarily of personnel-related expense related to our executive, legal, finance, sales, marketing, field service, customer support, and human resource functions, as well as fees for professional services and facility costs. Professional services consist principally of external legal, accounting and other consulting services.

Interest Expense

Interest expense is primarily related to the debt facility entered into during the first quarter of 2013 and includes the amortization of debt discount and other related costs. To a lesser extent, amounts also include interest expense relating to our facility financing obligations resulting from a lease agreement entered into in 2010. We expect interest expense to increase during future periods as a result of the debt issued during the first quarter of 2013 and subsequently as a result of the accounting treatment of the debt as the recorded value accretes to the amount due at maturity.

Other Income (Expense), Net

Other income (expense), net consists primarily of interest income earned on cash and investments, accretion of discounts and amortization of premiums related to investments, net gains or losses on foreign currency transactions, net gains or losses from disposal of fixed assets, net gains or losses resulting from changes in fair value of the Financing Derivative, and foreign income taxes.

Income Taxes

Since inception, we have incurred net losses and have not recorded any U.S. federal or state income tax benefits for such losses as they have been offset by valuation allowances.

Critical Accounting Policies and Estimates

Management's Discussion and Analysis of Financial Condition and Results of Operations is based upon our Condensed Consolidated Financial Statements, which we have prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, cost of revenue, and operating expenses, and related disclosure of contingent assets and liabilities. Management bases its estimates on historical experience and on various other assumptions that it believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, if different estimates reasonably could have been used, or if changes in the estimate that are reasonably likely to occur could materially impact the financial statements.

In conjunction with the Facility Agreement with Deerfield various assumptions were used to value the Notes, Warrant and Financing Derivative. These assumptions are described above in "Part I, Item 1. Financial Statements - Note 7. *Debt Facility*" of the condensed consolidated financial statements.

The Roche Agreement includes contingent event-based payments relating to the achievement of certain milestones and were evaluated based on Accounting Standard Codification (ASC) Topic 605-28, *Revenue Recognition — Milestone Method* (ASC 605-28). We evaluated the contingent event-based payments, including milestones, at inception of the Roche Agreement and determined that we should recognize consideration that is contingent upon the achievement of substantive milestones as revenue in the period in which the milestone is achieved. Milestones are considered substantive if the consideration earned from the achievement of the milestone (i) is consistent with performance required to achieve the milestone or the increase in value to the delivered item, (ii) relates solely to past performance and (iii) is reasonable relative to all of the other deliverables and payments within the arrangement. The Roche Agreement included contingent deliverables relating to the receipt of additional payments totaling \$40.0 million upon the achievement of certain development milestones. The milestone payments will be recognized as revenue in their entirety upon our achievement of each substantive milestone. Please refer to "Part I, Item 1. Financial Statements - Note 3. *Agreement with Roche*" for additional details.

During the three-month period ended September 30, 2013, there have been no other significant changes in our critical accounting policies and estimates during the nine months ended September 30, 2013, as compared to the disclosures in Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2012

Results of Operations

Comparison of the Three-month Periods Ended September 30, 2013 and 2012

(in thousands, except percentages)	Three Months Ended September 30,		Increase/ (Decrease)	% Increase/ (Decrease)
	2013	2012		
	(unaudited)			
Revenue:				
Product revenue	\$ 5,814	\$ 1,268	\$ 4,546	359%
Service and other revenue	1,607	1,283	324	25%
Grant revenue	—	225	(225)	(100%)
Total revenue	7,421	2,776	4,645	167%
Cost of Revenue:				
Cost of product revenue	4,616	960	3,656	381%
Cost of service and other revenue	1,564	1,626	(62)	(4%)
Total cost of revenue	6,180	2,586	3,594	139%
Gross profit	1,241	190	1,051	553%
Operating Expense:				
Research and development	10,419	12,626	(2,207)	(17%)
Sales, general and administrative	10,757	10,143	614	6%
Total operating expense	21,176	22,769	(1,593)	(7%)
Operating loss	(19,935)	(22,579)	2,644	12%
Interest expense	(686)	(68)	(618)	(909%)
Other income (expense), net	134	(82)	216	263%
Net loss	\$ (20,487)	\$ (22,729)	\$ 2,242	10%

Revenue

Our total revenue for the third quarter of 2013 was \$7.4 million compared to \$2.8 million during the third quarter of 2012. Product revenue in the third quarter of 2013 consisted of \$3.7 million from sales of our PacBio RS II instruments and instrument upgrades and \$2.1 million from sales of consumables compared to no sales of our PacBio RS instruments and \$1.3 million from sales of consumables during the third quarter of 2012. Instrument revenue in the third quarter of 2013 reflects revenue from six PacBio RS II instruments as compared to no PacBio RS instruments during the third quarter of 2012. Service and other revenue of \$1.6 million and \$1.3 million for the third quarters of 2013 and 2012, respectively, was primarily derived from product maintenance agreements sold on our installed instruments.

Gross Profit

Gross profit for the third quarter of 2013 increased to \$1.2 million compared to \$0.2 million for the third quarter of 2012. The higher third quarter 2013 gross profit was driven by higher revenue. Cost of product revenue of \$4.6 million for the third quarter of 2013 reflects the costs relating to the sale of six instruments, instrument upgrades installed, and consumables shipped during the period while cost of product revenue of \$1.0 million for the third quarter of 2012 reflects the costs relating to the consumables shipped during the period. Cost of service and other revenue of \$1.6 million for the third quarter of both 2013 and 2012, reflect the costs of personnel, materials and support infrastructure necessary to support the installed base of our instruments.

Research and Development Expense

During the third quarter of 2013, research and development expense decreased \$2.2 million, or 17%, compared to the third quarter of 2012. The decrease in research and development expense was primarily attributed to a decrease of \$0.6 million in personnel related expense, including stock-based compensation, a decrease of \$0.5 million in manufacturing resources allocated to research and development as a result of increased commercial production volumes, a decrease of \$0.5 million in equipment and supplies, and a decrease of \$0.6 million in other net expenses. Research and development expense included stock-based compensation expense of \$0.8 million and \$1.2 million during the third quarters of 2013 and 2012, respectively.

Sales, General and Administrative Expense

For the third quarter of 2013, selling, general and administrative expense increased \$0.6 million, or 6%, compared to the third quarter of 2012. The increase was largely due to \$2.0 million of expenses incurred in relation to the Roche Agreement, partially offset by a decrease of \$0.4 million in marketing and travel related costs and a decrease of \$1.0 million in other net expense. Sales, general and administrative expense included stock-based compensation expense of \$1.2 million and \$1.1 million during the third quarters of 2013 and 2012, respectively.

Interest Expense

Interest expense increased \$0.6 million from \$0.1 million in the third quarter of 2012 to \$0.7 million in the third quarter of 2013, primarily as a result of the debt facility entered into during the first quarter of 2013.

Comparison of the Nine-month Periods Ended September 30, 2013 and 2012

(in thousands, except percentages)	Nine Months Ended September 30,		Increase/ (Decrease)	% Increase/ (Decrease)
	2013	2012		
	(unaudited)			
Revenue:				
Product revenue	\$ 14,248	\$ 15,810	\$ (1,562)	(10%)
Service and other revenue	4,528	3,620	908	25%
Grant revenue	272	675	(403)	(60%)
Total revenue	19,048	20,105	(1,057)	(5%)
Cost of Revenue:				
Cost of product revenue	11,138	14,949	(3,811)	(25%)
Cost of service and other revenue	4,680	4,843	(163)	(3%)
Total cost of revenue	15,818	19,792	(3,974)	(20%)
Gross profit	3,230	313	2,917	932%
Operating Expense:				
Research and development	34,084	35,971	(1,887)	(5%)
Sales, general and administrative	29,685	36,986	(7,301)	(20%)
Total operating expense	63,769	72,957	(9,188)	(13%)
Operating loss	(60,539)	(72,644)	12,105	17%
Interest expense	(1,785)	(207)	(1,578)	(762%)
Other income (expense), net	262	55	207	376%
Net loss	\$ (62,062)	\$ (72,796)	\$ 10,734	15%

Revenue

Our total revenue for the nine-month period ended September 30, 2013 was \$19.0 million compared to \$20.1 million in the nine-month period ended September 30, 2012. Product revenue in the nine-month period ended September 30, 2013 consisted of \$8.3 million from sales of our instruments and instrument upgrades and \$5.9 million from sales of consumables compared to \$12.5 million from sales of our instruments and \$3.3 million from sales of consumables in the nine-month period ended September 30, 2012. Instrument revenue in the nine-month periods ended September 30, 2013 and 2012 reflects revenue from 12 and 18 instruments during the periods, respectively, and upgrades during the third quarter of 2013. Service and other revenue of \$4.5 million and \$3.6 million, for the nine-month periods ended September 30, 2013 and 2012, respectively, was derived from product maintenance agreements sold on our installed instruments.

Gross Profit

Gross profit for the nine-month period ended September 30, 2013 increased to \$3.2 million compared to \$0.3 million for the nine-month period ended September 30, 2012. The higher year-to-date 2013 gross profit resulted from lower product and service costs. Cost of product revenue of \$11.1 million for the nine-month period ended September 30, 2013 reflects the costs relating to the sale of 12 instruments and consumables shipped during the period compared with \$14.9 million for the nine-month period ended September 30, 2012 relating to the sale of 18 instruments and consumables shipped during the period. Cost of revenue for the nine-month period ended September 30, 2012 also includes \$0.7 million of expense associated with a new product release in the first quarter of 2012 and a \$0.9 million charge associated with provision for excess and obsolete inventory based on a review of on hand inventory and future demand. Cost of service and other revenue of \$4.7 million and \$4.8 million for the nine-month periods ended September 30, 2013 and 2012, respectively, reflects the costs of personnel, materials and support infrastructure necessary to support the installed base of our instruments.

Research and Development Expense

During the nine-month period ended September 30, 2013, research and development expenses decreased \$1.9 million, or 5%, compared to the same period ended September 30, 2012. The decrease was driven primarily by a decrease of \$0.7 million in facility costs, a decrease of \$0.6 million in depreciation, a decrease of \$0.5 million in personnel related expense and a decrease of \$1.2 million in other net expenses, partially offset by an increase of \$1.1 million in amounts allocated to research and development as a result of decreased commercial production volumes. Research and development expense included stock-based compensation expense of \$3.1 million and \$3.4 million during the nine-month periods ended September 30, 2013 and 2012, respectively.

Sales, General and Administrative Expense

For the nine-month period ended September 30, 2013, selling, general and administrative expenses decreased \$7.3 million, or 20%, compared to the same period ended September 30, 2012. The decrease was driven primarily by a decrease of \$5.7 million decrease in legal, professional and consulting expenses primarily as a result of decreased class action litigation related expenses and other legal expenses, including settlement charges of \$1.8 million recorded in 2012 relating to the resolution of two intellectual property matters, a decrease of \$1.9 million in marketing and travel related costs due partly to lower expenses incurred for trade show and conference expenses, a decrease of \$0.8 million in equipment and supplies and a decrease of \$0.9 million in other net expenses, partially offset by \$2.0 million of expenses relating to the agreement with Roche. Sales, general and administrative expense included stock-based compensation expense of \$3.9 million and \$3.4 million during the nine-month periods ended September 30, 2013 and 2012, respectively.

Interest Expense

Interest expense increased \$1.6 million from \$0.2 million in the nine months ended September 30, 2012 to \$1.8 million in the nine months ended September 30, 2013, primarily as a result of the debt facility entered into during the first quarter of 2013.

Liquidity and Capital Resources

Since our inception we have financed our operations primarily through the issuance of common stock and convertible preferred stock, in addition to the debt financing. Cash and investments at September 30, 2013 totaled \$126.9 million, compared to \$100.6 million at December 31, 2012. During the nine-month period ended September 30, 2013 we received a \$35.0 million upfront payment from Roche upon execution of the Roche Agreement, \$19.8 million through the debt facility entered into with Deerfield and \$20.0 million through the sale of common stock under our current "at-the-market" offering program. Excluding proceeds from these three transactions, cash and investments decreased by \$48.5 million compared to December 31, 2012, primarily reflecting \$50.3 million of cash used in operating activities and \$0.8 million of fixed asset purchases partially offset by \$2.7 million of proceeds received from equity sales through our employee stock plans.

We believe that existing cash, cash equivalents and investments will be sufficient to fund our projected operating requirements for at least 12 months; however, we plan to raise additional capital in the future including, but not limited to, the financing arrangements as detailed under "Financing Activities" below. These expectations are based on our current operating and financing plans, which are subject to change. Factors that may affect our capital needs include, but are not limited to, slower than expected adoption of our products resulting in lower sales of our products and services; future acquisitions; our ability to maintain new collaboration and customer arrangements; the progress of our research and development programs; initiation or expansion of research programs and collaborations; the costs involved in preparing, filing, prosecuting, defending and enforcing intellectual property rights; the purchase of patent licenses; and other factors.

To the extent we raise additional funds through the sale of equity or convertible debt securities, the issuance of such securities will result in dilution to our stockholders. There can be no assurance that such funds will be available on favorable terms, or at all. If adequate funds are not available, we may be required to curtail operations significantly or to obtain funds by entering into collaboration agreements on unattractive terms. Our inability to raise capital could have a material adverse effect on our business, financial condition and results of operations.

Operating Activities

Our primary uses of cash in operating activities are for the manufacturing and sale of PacBio RS and the PacBio RS II instruments and consumables, development of ongoing product enhancements and future product releases, and support functions related to our selling, general and administrative activities. The net cash used for the nine-month periods ended September 30, 2013 and 2012 primarily reflects the net loss for those periods, offset by non-cash operating expenses including depreciation, stock-based compensation, and changes in operating assets and liabilities.

Net cash used in operating activities was \$15.3 million for the nine-month period ended September 30, 2013, compared to \$58.6 million for the nine-month period ended September 30, 2012, due primarily to net losses of \$62.1 million and \$72.8 million, respectively, partially offset by \$35.1 million of deferred revenue associated with the Roche Agreement for the nine-month period ended September 30, 2013 and depreciation and stock-based compensation of \$11.6 million and \$12.2 million, for the nine-month periods ended September 30, 2013 and September 30, 2012, respectively.

Investing Activities

Our investing activities consist primarily of investment purchases, maturities and sales and capital expenditures. Net cash used in investing activities was \$9.0 million for the nine-month period ended September 30, 2013, comprised of net purchases and maturities of investments of \$8.2 million and purchases of property and equipment of \$0.8 million. Net cash provided by investing activities during the same period in 2012 was \$29.6 million, comprised of net maturities, sales and purchases of investments of \$30.9 million, partially offset by purchases of property and equipment of \$1.3million.

Financing Activities

For the nine-month period ended September 30, 2013, we received net proceeds of \$19.8 million from the debt facility, net proceeds of \$20.0 million from our common stock “at-the-market” offering, and \$2.7 million from the issuance of our common stock through the sale of shares under our ESPP and stock option exercises. Our “at-the-market” offering program allows us to offer and sell shares of our common stock having an aggregate offering price of up to \$30.0 million. As of September 30, 2013 we have sold shares with an aggregate offering price of \$20.8 million. Additional details relating to the debt facility and common stock “at-the-market” offering are described above in “Part I, Item 1. Financial Statements—Note 7. *Debt Facility* and Note 8. *Stockholders’ Equity*” to the consolidated financial statements. For the nine-month period ended September 30, 2012, we received \$2.7 million from the issuance of our common stock through the sale of shares under our ESPP and stock option exercises.

Off-Balance Sheet Arrangements

As of September 30, 2013 we did not have any off-balance sheet arrangements.

In the ordinary course of business, we enter into standard indemnification arrangements. Pursuant to these arrangements, we indemnify, hold harmless, and agree to reimburse the indemnified parties for losses suffered or incurred by the indemnified party in connection with any trade secret, copyright, patent or other intellectual property infringement claim by any third party with respect to its technology, or from claims relating to our performance or non-performance under a contract, any defective products supplied by us, or any negligent acts or omissions, or willful misconduct, committed by us or any of our employees, agents or representatives. The term of these indemnification agreements is generally perpetual after the execution of the agreement. The maximum potential amount of future payments we could be required to make under these agreements is not determinable because it involves claims that may be made against us in future periods, but have not yet been made. To date, we have not incurred costs to defend lawsuits or settle claims related to these indemnification agreements.

We also enter and have entered into indemnification agreements with our directors and officers that may require us to indemnify them against liabilities that arise by reason of their status or service as directors or officers, except as prohibited by applicable law. In addition, we may have obligations to hold harmless and indemnify third parties involved with our fund raising efforts and their respective affiliates, directors, officers, employees, agents or other representatives against any and all losses, claims, damages and liabilities related to claims arising against such parties pursuant to the terms of agreements entered into between such third parties and the Company in connection with such fund raising efforts. To the extent that such indemnification obligations apply to the lawsuits described above in “Part I, Item 1. Financial Statements—Note 6. *Contingencies*” to the condensed consolidated financial statements, any associated expenses incurred are included within the related accrued litigation expense amounts. No additional liability associated with such indemnification agreements has been recorded at September 30, 2013.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Interest rate and Market Risk

Our exposure to market risk is confined to our cash, cash equivalents and our investments, all of which have maturities of less than three years. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and fiduciary control of cash and investments. We also seek to maximize income from our investments without assuming significant risk. To achieve our goals, we maintain a portfolio of cash equivalents and investments in a variety of high credit quality securities. The securities in our investment portfolio are not leveraged, are classified as available-for-sale, and are, due to their relatively short-term nature, subject to minimal interest rate risk. We currently do not hedge interest rate exposure. Because of the short-term maturities of our investments, we do not believe that an increase in market rates would have any material negative impact on the value of our investment portfolio.

Foreign Exchange Risk

The majority of our expense, and capital purchasing activities are transacted in U.S. dollars. However, a portion of our operations consists of sales activities outside of the United States; therefore we have foreign exchange exposures relating to non-U.S. dollar revenues, operating expenses, accounts receivable, accounts payable, and currency balances. Our primary exposure is with the Euro. We designed a hedging policy to mitigate the impact of changes in currency exchange rates on our net cash flow from foreign currency denominated sales.

Our international operations are subject to risks typical of international operations, including, but not limited to, differing economic conditions, changes in political climate, differing tax structures, other regulations and restrictions and foreign exchange rate volatility.

Item 4. Controls and Procedures.

(a) Disclosure controls and procedures.

Our management, with the participation of our chief executive officer and our chief financial officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on this evaluation, our chief executive officer and our chief financial officer concluded that our disclosure controls and procedures are designed at a reasonable assurance level and are effective to provide reasonable assurance that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our chief executive officer and our chief financial officer, as appropriate, to allow timely decisions regarding required disclosure.

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

(b) Changes in internal control over financial reporting.

There were no changes in our internal control over financial reporting that occurred during the quarter ended September 30, 2013 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings.

Information pertaining to legal proceedings can be found in "Part I, Item 1. Financial Statements—Note 6. *Contingencies*" to the consolidated financial statements, and is incorporated by reference herein.

Item 1A. Risk Factors

You should consider carefully the risks and uncertainties described below, together with all of the other information in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K that was filed with the SEC on March 15, 2013, which could materially affect our business, financial condition, results of operations and prospects. The risks described below are not the only risks facing us. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially affect our business, financial condition, results of operations and prospects.

Risks Related to Our Business

We are an early stage commercial company.

Our first commercial product, the PacBio *RS*, was launched in 2011 and our new product, PacBio *RS II*, was launched in 2013 and, as such, we have limited historical financial data upon which to base our projected revenue, planned operating expense or upon which to evaluate us and our commercial prospects. Based on our limited experience in developing and marketing new products, we may not be able to effectively:

- drive adoption of our products;
- attract and retain customers for our products;
- provide appropriate levels of customer training and support for our products;
- implement an effective marketing strategy to promote awareness of our products;
- focus our research and development efforts in areas that generate returns on these efforts;
- comply with evolving regulatory requirements applicable to our products;
- anticipate and adapt to changes in our market;
- maintain and develop strategic relationships with vendors and manufacturers to acquire necessary materials for the production of our products;
- scale our manufacturing activities to meet potential demand at a reasonable cost;
- avoid infringement and misappropriation of third-party intellectual property;
- obtain licenses on commercially reasonable terms to third-party intellectual property;
- obtain valid and enforceable patents that give us a competitive advantage;
- protect our proprietary technology;
- protect our products from any equipment or software-related system failures; and
- attract, retain and motivate qualified personnel.

In addition, a high percentage of our expenses is and will continue to be fixed. Accordingly, if we do not generate revenue as and when anticipated, our losses may be greater than expected and our operating results will suffer.

We have incurred losses to date, and we expect to continue to incur significant losses as we develop our business and may never achieve profitability.

We have incurred net losses since inception and we cannot be certain if or when we will produce sufficient revenue from our operations to support our costs. Even if profitability is achieved, we may not be able to sustain profitability. We expect to incur substantial losses and negative cash flow for the foreseeable future.

If our products fail to achieve and sustain sufficient market acceptance, we will not generate expected revenue and our business may not succeed.

Although we have now commercialized the PacBio *RS* and launched the PacBio *RS II*, we cannot be sure that they will gain acceptance in the marketplace at levels sufficient to support our costs. Our success depends, in part, on our ability to expand the market for genetic analysis to include new applications that are not practical with other current technologies. To accomplish this, we must successfully commercialize, and continue development of, our SMRT technology for use in a variety of life science applications. There can be no assurance that we will be successful in securing additional customers for our products, in particular, our first product which is focused on DNA sequencing. Furthermore, we cannot guarantee that the design of our products, including the initial and subsequent specifications and any enhancements or improvements to those specifications, will be satisfactory to potential customers in the markets we seek to reach. These markets are dynamic, and there can be no assurance that they will develop as quickly as we expect or that they will reach their full potential. As a result, we may be required to refocus our marketing efforts, and we may have to make changes to the specifications of our products to enhance our ability to enter particular markets more quickly. Even if we are able to implement our technology successfully, we may fail to achieve or sustain market acceptance of our products by academic and government research laboratories and pharmaceutical, biotechnology and agriculture companies, among others, across the full range of our intended life science applications. If the market for our products grows more slowly than anticipated, if competitors develop better or more cost-effective products or if we are unable to develop a significant customer base, our future sales and revenue would be materially harmed and our business may not succeed. For example, in September 2011, we implemented a reduction in our workforce due in part to our infrastructure being staffed to support a faster adoption rate for our products. If the adoption rate for our products continues to be slow or does not grow, our business may be adversely affected.

Our development, commercialization and license arrangement with Roche may not result in the benefits we anticipate, and could have a material adverse effect on our business, financial condition and results of operations.

In September 2013, we entered into the Roche Agreement, pursuant to which we: (i) will develop diagnostic products for clinical use including sequencing systems and consumables based on our proprietary Single Molecule, Real-Time (SMRT®) technology; (ii) granted to Roche an exclusive right to commercialize, and an exclusive license to sell, the developed diagnostic products for clinical use, the exclusivity of which is contingent on achieving sales minimums to be established in the future and contingent on Roche not selling for clinical use any new sequencing instrument that competes with any diagnostic instrument system developed under the Roche Agreement; and (iii) will manufacture and supply certain products intended for clinical use as the exclusive supplier to Roche. Under the Roche Agreement, we received from Roche a non-refundable up-front payment of \$35 million and may receive up to an additional \$40 million based upon the achievement of development milestones. The Roche Agreement has an initial term of thirteen years and provisions allowing Roche 5-year renewals, contingent on Roche meeting sales minimums. There can be no assurance that we will be able to develop and manufacture products as provided by the terms of the Roche Agreement or that Roche will be able to commercialize and sell the developed diagnostic products. We may also be unable to meet the development milestones required for the payment of the additional \$40 million from Roche. We could also be involved in disputes with Roche, which could lead to delays in or termination of our development and manufacture of diagnostic products and result in time consuming and expensive litigation or arbitration. In addition, any such dispute could diminish Roche's commitment to us and reduce the resources they devote to commercializing the developed diagnostic products. If Roche terminates or breaches the Roche Agreement, the successful commercialization of diagnostic products for clinical use would be materially and adversely affected. If we are not able to realize the expected benefits from the Roche Agreement, it could have a material adverse effect on our business, financial condition and results of operations.

Furthermore, the Roche Agreement could make an acquisition of us, which may be beneficial to our stockholders, less likely, whether or not we realize the expected benefits from the Roche Agreement. For example, the exclusive rights and licenses granted to Roche pursuant to the Roche Agreement, or our development, manufacturing and supply obligations pursuant to the Roche Agreement, may make an acquisition of us less appealing to third parties that compete with Roche.

If Roche pursues diagnostic products for clinical use that compete with products we develop, there could be a conflict of interest and we may not receive expected milestone or other payments.

Roche is developing a variety of products, some with other partners. Roche may pursue existing or alternative technologies to develop and commercialize diagnostic products for clinical use instead of using products developed in collaboration with us. If Roche pursues these other products instead of products we develop, we may not receive milestone or other payments, which could have a material adverse effect on our business, financial condition and results of operations.

Our indebtedness could adversely affect our financial condition and prevent us from fulfilling our obligations.

On February 5, 2013, we entered into the Facility Agreement with Deerfield, pursuant to which Deerfield provided \$20.0 million in funding to us net of the facility fee. Our net losses since inception and our expectation of incurring substantial losses and negative cash flow for the foreseeable future, combined with indebtedness under our Facility Agreement could:

- make it more difficult for us to satisfy our obligations, including under the Facility Agreement;
- increase our vulnerability to general adverse economic and industry conditions;
- limit our ability to fund future working capital, capital expenditures, research and development and other business opportunities;
- require us to dedicate a substantial portion of our cash flow from operations to service payments on our indebtedness;
- increase the volatility of the price of our common stock;
- limit our flexibility to react to changes in our business and the industry in which we operate;
- place us at a competitive disadvantage to any of our competitors that have less or no indebtedness; and
- limit, along with the financial and other restrictive covenants in our indebtedness, among other things, our ability to borrow additional funds.

Our Facility Agreement contains covenants which may adversely impact our business and the failure to comply with such covenants could cause our outstanding indebtedness to become immediately payable.

Our Facility Agreement contains various affirmative and negative covenants, including restrictions on the ability of us and our subsidiaries to incur additional indebtedness or liens on our assets, except as permitted under the Facility Agreement, that impose significant operating and financial restrictions on us, including restrictions on our ability to take actions that may be in our best interests. In addition, we are required to maintain consolidated cash and cash equivalents on the last day of each calendar quarter of not less than \$2.0 million. The Facility Agreement provides for an early repayment of principal in the event we have net sales (as defined in the Facility Agreement) of less than \$41.0 million for the twelve-month period from the beginning of the second calendar

quarter of 2014 through the first calendar quarter of 2015, or the “Milestone,” which may be affected by events beyond our control. If the Milestone is not achieved, at Deerfield’s option, one-third of the original principal balance of the Facility will become due, on each of the third, fourth and fifth anniversaries of the date of the Facility Agreement. Deerfield has the option to require us to repay the Notes if we complete a Major Transaction (as defined in the Facility Agreement), including a change of control of us or a sale of all or substantially all of our assets. Additionally, the principal balance of the Facility may become immediately due and payable upon an “Event of Default” (as defined in the Facility Agreement), in which case Deerfield would have the right to require us to repay 100% of the principal amount of the loan, plus any accrued and unpaid interest thereon.

A breach of any of the covenants contained in our Facility Agreement could result in a default under such agreement. If an event of default exists, Deerfield could elect to declare all amounts outstanding under the Facility Agreement to be immediately due and payable. If we were unable to repay amounts payable under our Facility Agreement when due and payable, Deerfield could proceed against the collateral granted to them to secure such indebtedness. We have pledged substantially all of our property and interests in property, including intellectual property, as collateral under the Facility Agreement. If Deerfield accelerates the repayment of borrowings, we may not have sufficient funds to repay our existing indebtedness, which could have a material adverse effect on our liquidity and ability to conduct our business.

Our products are highly complex, with significant support requirements.

In light of the highly complex technology involved in our products, there can be no assurance that we will be able to successfully provide adequate support for our products. Our customers have experienced reliability issues with our PacBio RS instruments that we believe are consistent with the introduction of similar new, highly complex products. While we believe that our customers, particularly those who were early adopters of other new DNA sequencing technologies in the past, understand that such issues can be common with novel, highly complex products like the PacBio RS, if our products continue to have reliability or other quality issues or require unexpected levels of support, or if our newly introduced PacBio RS II has similar issues, the market acceptance and utilization of our products may not grow to levels sufficient to support our costs and our reputation and business could be harmed. We deliver our PacBio RS and PacBio RS II instruments with one year of service included in the purchase price with an option to purchase one or more additional years of service. Since launching our PacBio RS instrument during 2011, we have incurred significant service and support costs. If service and support costs increase our business and operations may be adversely affected.

We may not be able to produce instruments that consistently achieve the specifications and quality that our customers expect.

We have established performance standards for our commercial products that we may not consistently achieve using our current design and manufacturing processes. If we do not consistently achieve the specifications and quality that our customers expect, including pursuant to the Roche Agreement, customer demand may be negatively affected. Customers may refuse to accept our products in a timely manner or at all, which would adversely affect our revenue. Any inability to meet performance standards may materially impact the commercial viability of our products and harm our business.

We may be unable to consistently manufacture our consumable kits, including SMRT Cells, to the specifications required by our customers or in quantities necessary to meet demand at an acceptable cost.

In order to successfully derive revenue from our products, we need to supply our customers with consumable kits to be used with our instruments and we have limited experience manufacturing these consumable kits. Our customers have experienced variability in the performance of our SMRT Cells. There is no assurance that we will be able to manufacture our consumable kits or SMRT Cells so that they consistently achieve the product specifications and quality that our customers expect, including pursuant to the Roche Agreement. There is also no assurance that we will be able to increase manufacturing yields and decrease costs. Furthermore, we may not be able to increase manufacturing capacity for our consumable kits or SMRT Cells to meet anticipated demand. An inability to manufacture consumable kits and SMRT Cells that consistently meet specifications, in necessary quantities and at commercially acceptable costs, will have a negative material impact on our business.

We may not be able to convert our orders in backlog into revenue.

Our backlog represents product orders from our customers that we have confirmed and for which we have not yet recognized revenue. We may not receive revenue from these orders, and the order backlog we report may not be indicative of our future revenue.

Many events can cause an order to be delayed or not completed at all, some of which may be out of our control. If we delay fulfilling customer orders, those customers may seek to cancel their orders with us. In addition, customers may otherwise seek to cancel or delay their orders even if we are prepared to fulfill them. If our orders in backlog do not result in sales, our operating results may suffer.

Rapidly changing technology in life sciences could make the products we are developing obsolete unless we continue to develop and manufacture new and improved products and pursue new market opportunities.

Our industry is characterized by rapid and significant technological changes, frequent new product introductions and enhancements and evolving industry standards. Our future success will depend on our ability to continually improve our products, to

develop and introduce new products that address the evolving needs of our customers on a timely and cost-effective basis and to pursue new market opportunities. These new market opportunities may be outside the scope of our proven expertise or in areas which have unproven market demand, and new products and services developed by us, including products we develop pursuant to the Roche Agreement, may not gain market acceptance. Our inability to gain market acceptance of new products could harm our future operating results. Our future success also depends on our ability to manufacture new and improved products to meet customer demand in a timely and cost-effective manner, including our ability to resolve manufacturing issues that may arise as we commence production of these complex products. Unanticipated difficulties or delays in replacing existing products with new products or in manufacturing improved or new products in sufficient quantities to meet customer demand could diminish future demand for our products and harm our future operating results.

We may be unable to develop our future commercial applications.

Our future business depends on our ability to execute on our plans to develop and market additional commercial applications of our SMRT technology. Future commercial applications will require significant investments of cash and resources and we may experience unexpected delays or difficulties that could postpone our ability to commercially launch these future applications, which could have a material adverse effect on our business, prospects, operating results and financial condition.

A significant portion of our potential sales depends on customers' capital spending budgets that may be subject to significant and unexpected variation which could have a negative effect on the demand for our products.

We have based our business model on our belief that the market for sequencing products is large and expected to grow significantly. The market is still developing and we cannot quantify the size of the market with certainty. Growth in the market is dependent on increases in the demand for sequencing products from both research institutions and commercial companies. A substantial portion of our potential product sales represent significant capital purchases by customers. Our potential customers include academic and government institutions, genome centers, medical research institutions, pharmaceutical, agricultural, biotechnology and chemical companies. Their capital spending budgets can have a significant effect on the demand for our products. These budgets are based on a wide variety of factors, including the allocation of available resources to make purchases, funding from government sources which is highly uncertain, particularly in light of concerns regarding the federal government budget sequestration and potential future shutdown, the spending priorities among various types of research equipment and policies regarding capital expenditures during economically uncertain periods. Any decrease in capital spending or change in spending priorities of our potential customers could significantly reduce the demand for our products. Moreover, we have no control over the timing and amount of purchases by these potential customers, and as a result, revenue from these sources may vary significantly due to factors that can be difficult to forecast. We may also have to write off excess or obsolete inventory if sales of our products are not consistent with our expectations or the market requirements for our products change due to technical innovations in the marketplace. Any delay or reduction in purchases by potential customers or our inability to forecast fluctuations in demand could harm our future operating results. In addition, if the market for our products is not as large as we expected and if the market does not grow as rapidly as we expected, demand for our products could be adversely affected.

We may be unable to successfully increase sales of our products.

We have limited experience in sales and marketing of our products. Our ability to achieve profitability depends on our ability to attract customers for our products. We may be unable to effectively market our products. To perform sales, marketing, distribution and customer support successfully, we face a number of risks, including:

- our ability to attract, retain and manage the sales, marketing and service personnel necessary to expand market acceptance for our technology;
- the time and cost of maintaining and growing a specialized sales, marketing and service force for a particular application, which may be difficult to justify in light of the revenue generated; and
- our sales, marketing and service force may be unable to execute successful commercial activities.

We may enlist and have enlisted third parties to assist with sales, distribution and customer support globally or in certain regions of the world. There is no guarantee, when we enter into such arrangements, that we will be successful in attracting desirable sales and distribution partners; there is also no guarantee that we will be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales and distribution partners, are not successful, our technologies and products may not gain market acceptance, which could materially impact our business operations.

If we are unable to manufacture sufficient quantities of our products with sufficient quality by ourselves or with partners in a timely manner, our ability to sell our products may be harmed.

In order to manufacture our products in volume, we need to maintain sufficient internal manufacturing capacity or contract with manufacturing partners, or both. Our technology and the manufacturing process for our products are highly complex, involving a large number of unique parts, and we may encounter difficulties in manufacturing our products. There is no assurance that we will be able

to consistently meet the volume and quality requirements necessary to be successful in the market or pursuant to our obligations under the Roche Agreement. Manufacturing and product quality issues may arise as we adjust the scale of our production. If our products do not consistently meet our customers' performance expectations, our reputation may be harmed, and we may be unable to generate sufficient revenue to become profitable. Any delay or inability in maintaining or expanding our manufacturing capacity to meet customer demand could diminish our ability to sell our products, which could result in lost revenue and seriously harm our business, financial condition and results of operations.

We rely on other companies for the manufacture of certain components and sub-assemblies and intend to outsource additional sub-assemblies in the future. We may not be able to successfully scale the manufacturing process necessary to build and test multiple products on a full commercial basis, in which event our business would be materially harmed.

Our products are complex and involve a large number of unique components, many of which require precision manufacturing. The nature of the products requires customized components that are currently available only from a limited number of sources, and in some cases, single sources. We have chosen to source certain critical components from a single source, including suppliers for our SMRT Cells, reagents and instruments. If we were required to purchase these components from an alternative source, it could take several months or longer to qualify the alternative sources. If we are unable to secure a sufficient supply of these product components, we will be unable to manufacture and sell our products in a timely fashion or in sufficient quantities or under acceptable terms. Additionally, for some of those components that are currently purchased from a sole or single source supplier, we have not yet arranged for alternative suppliers.

The operations of our third-party manufacturing partners and suppliers could be disrupted by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or supplier. Certain of our suppliers and logistics centers are located in regions that have been or may be affected by earthquake and tsunami activity, which could disrupt the flow of components and sub-assemblies. A significant natural disaster, such as an earthquake, a hurricane, volcano, or a flood, could have a material adverse impact on our business, operating results, and financial condition. If our manufacturing partners or suppliers are unable or fail to fulfill their obligations to us, we might not be able to manufacture our products and satisfy customer demand or our obligations under the Roche Agreement in a timely manner, and our business could be harmed as a result. Our current manufacturing process is characterized by long lead times between the ordering and delivery of our products. We will need to take steps to scale the manufacturing process, including lowering the manufacturing costs of our products as well as improvements to our manufacturing yields and cycle times, manufacturing documentation, and quality assurance and quality control procedures. If we are unable to reduce our manufacturing costs and establish and maintain reliable high volume manufacturing as we scale our operations, our business could be materially harmed.

Delivery of our products could be delayed or disrupted by factors beyond our control, and we could lose customers as a result.

We rely on third-party carriers for the timely delivery of our products. As a result, we are subject to carrier disruptions and increased costs that are beyond our control, including worker strikes, inclement weather and increased fuel costs. Any failure to deliver products to our customers in a timely and accurate manner may damage our reputation and brand and could cause us to lose customers. If our relationship with any of these third-party carriers is terminated or impaired or if any of these third parties is unable to deliver our products, the delivery and acceptance of our products by our customers may be delayed which could harm our business and financial results. In addition, some of our consumable products need to be kept at a constant temperature. If our third-party carriers are not able to maintain those temperatures during shipment, our products may be rendered unusable by our customers. The failure to deliver our products in a timely manner may harm our relationship with our customers, increase our costs and otherwise disrupt our operations.

We may encounter difficulties in managing future growth, and these difficulties could impair our profitability.

We expect to experience growth in the future, which may place a strain on our human and capital resources. If we are unable to manage future growth effectively, our business and operating results could suffer. Our ability to manage our operations and costs, including research and development, costs of components, manufacturing, sales and marketing, requires us to continue to enhance our operational, financial and management controls, reporting systems and procedures and to attract and retain sufficient numbers of talented employees. If we are unable to scale up and implement improvements to our manufacturing process, develop reliable third-party manufacturers of sub-assemblies and control systems in an efficient or timely manner, or if we encounter deficiencies in existing systems and controls, we will not be able to make available the products required to meet future customer demand for our products. Failure to attract and retain sufficient numbers of talented employees will further strain our human resources and could impede our growth.

We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel or are unable to successfully retain, recruit and train qualified scientists, engineering and other personnel, our ability to develop our products could be harmed, and we may be unable to achieve our goals.

Our future success depends upon the continuing services of members of our senior management team and scientific and engineering personnel. In particular, our scientists and engineers are critical to our future technological and product innovations, and

we will need to hire additional qualified personnel. Our industry, particularly in the San Francisco Bay Area, is characterized by high demand and intense competition for talent, and the turnover rate can be high. We compete for qualified management and scientific personnel with other life science companies, academic institutions and research institutions, particularly those focusing on genomics. These employees could leave our company with little or no prior notice and would be free to work for a competitor. If one or more of our senior executives or other key personnel were unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. In addition, we do not have “key person” life insurance policies covering any member of our management team or other key personnel. The loss of any of these individuals or our ability to attract or retain qualified personnel, including scientists, engineers and others, could prevent us from pursuing collaborations and adversely affect our product development and introductions, business growth prospects, results of operations and financial condition.

Adverse conditions in the global economy and disruption of financial markets may significantly harm our revenue, profitability and results of operations.

The global economy and credit and capital markets have experienced volatility and disruption. Volatility and disruption of financial markets could limit our customers’ ability to obtain adequate financing or credit to purchase and pay for our products in a timely manner or to maintain operations, which could result in a decrease in sales volume that could harm our results of operations. General concerns about the fundamental soundness of domestic and international economies may also cause our customers to reduce their purchases. Changes in governmental banking, monetary and fiscal policies to address liquidity and increase credit availability may not be effective. We may experience changes in other income as a result of volatility in the global economy, including interest rates and expenses. Significant government investment and allocation of resources to assist the economic recovery of sectors which do not include our customers may reduce the resources available for government grants and related funding for life sciences research and development. Continuation or further deterioration of these financial and macroeconomic conditions could significantly harm our sales, profitability and results of operations.

We have raised, and intend to raise, additional financing to fund our existing operations. Equity securities we issue to fund our operations will dilute your ownership and debt securities will have rights senior to common stockholders.

We have raised, and intend to raise, additional funds through public or private debt or equity financing. Additional funds may not be available on terms acceptable to us or at all, particularly in light of restrictions under our Facility Agreement. We have incurred and may further incur additional debt. Debtholders have rights senior to common stockholders to make claims on our assets and the terms of our existing debt restrict our operations, including our ability to pay dividends on our common stock. Equity securities issued in financings have diluted and will dilute stockholders’ ownership in the Company and new equity securities may have priority rights over current investors. For example, shares of common stock issued pursuant to our “at-the-market” offering, that commenced during the first quarter of 2013, have resulted in dilution to our stockholders. Additionally, Warrants to purchase 5,500,000 shares of our common stock issued to Deerfield in connection with the Facility Agreement could result in additional dilution to our stockholders, and the Facility Agreement contains covenants that restrict our business. We intend to raise additional funds beyond the transactions completed to date, which will result in additional dilution to our stockholders.

We operate in a highly competitive industry and if we are not able to compete effectively, our business and operating results will likely be harmed.

Some of our current competitors, as well as many of our potential competitors, have greater name recognition, more substantial intellectual property portfolios, longer operating histories, significantly greater resources to invest in new technologies, more substantial experience in new product development and manufacturing capabilities and more established distribution channels to deliver products to customers than we do. These competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In light of these advantages, even if our technology is more effective than the products or service offerings of our competitors, current or potential customers might accept competitive products and services in lieu of purchasing our technology. Increased competition may result in pricing pressures, which could harm our sales, profitability or market share. Our failure to compete effectively could materially and adversely affect our business, financial condition or results of operations.

Our sales cycle is lengthy and unpredictable, which makes it difficult to forecast revenue and may increase the magnitude of quarterly fluctuations in our operating results.

Our PacBio RS and RS II instruments have a lengthy sales and purchase order cycle because they are major capital items and generally require the approval of our customers’ senior management. This may contribute to substantial fluctuations in our quarterly operating results, particularly during the periods in which our sales volume is low. Because of these fluctuations, it is likely that in some future quarters our operating results will fall below the expectations of securities analysts or investors. If that happens, the market price of our stock would likely decrease. Past fluctuations in our quarterly operating results have resulted in decreases in our stock price. Such fluctuations also mean that investors may not be able to rely upon our operating results in any particular period as an indication of future performance.

Our products could have unknown defects or errors, which may give rise to claims against us or divert application of our resources from other purposes.

Any product using our SMRT technology will be complex and may develop or contain undetected defects or errors. We cannot provide assurance that material performance problems will not arise. Despite testing, defects or errors may arise in our products, which could result in a failure to achieve increased market acceptance, diversion of development resources, injury to our reputation and increased warranty, service and maintenance costs. We ship our PacBio RS and PacBio RS II instruments with one year of service included in the purchase price with an option to purchase one or more additional years of service. We provide a twelve-month warranty period for the PacBio RS and PacBio RS II. The warranty is limited to replacing, repairing or giving credit for, at our option, any instrument for which a warranty claim is provided to us within the warranty period. We also provide a warranty for our consumables, but claims must be made within 30 days from the shelf life date or “use by” date. The warranty is limited to replacing, or at our option, giving credit for, any consumable with defects in material or workmanship. Defects or errors in our products might also discourage customers from purchasing our products. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins. In addition, such defects or errors could lead to the filing of product liability claims against us or against third parties who we may have an obligation to indemnify against such claims, including pursuant to the Roche Agreement, which could be costly and time-consuming to defend and result in substantial damages. Although we have product liability insurance, any product liability insurance that we have or procure in the future may not protect our assets from the financial impact of a product liability claim. Moreover, we may not be able to obtain adequate insurance coverage on acceptable terms. Any insurance that we have or obtain will be subject to deductibles and coverage limits. A product liability claim could have a serious adverse effect on our business, financial condition and results of operations.

Increased market adoption of our products by customers may depend on the availability of sample preparation and informatics tools, some of which may be developed by third parties.

Our commercial success may depend in part upon the development of sample preparation and software and informatics tools by third parties for use with our products. We cannot guarantee that third parties will develop tools that will be useful with our products or be viewed as useful by our customers or potential customers. A lack of additional available complementary sample preparation and informatics tools may impede the adoption of our products and may adversely impact our business.

Doing business internationally creates operational and financial risks for our business.

Conducting and launching operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones and consumes significant management resources. If we fail to coordinate and manage these activities effectively, our business, financial condition or results of operations could be adversely affected. International sales entail a variety of risks, including longer payment cycles and difficulties in collecting accounts receivable outside of the United States, currency exchange fluctuations, challenges in staffing and managing foreign operations, tariffs and other trade barriers, unexpected changes in legislative or regulatory requirements of foreign countries into which we sell our products, difficulties in obtaining export licenses or in overcoming other trade barriers and restrictions resulting in delivery delays and significant taxes or other burdens of complying with a variety of foreign laws. In conducting our international operations, we will be subject to U.S. laws relating to our international activities, as well as foreign laws relating to our activities in other countries. Failure to comply with these laws may subject us to financial and other penalties in the U.S. and foreign countries that could impact our operations or financial condition.

Changes in the value of the relevant currencies may affect the cost of certain items required in our operations. Changes in currency exchange rates may also affect the relative prices at which we are able to sell products in the same market. Our revenue from international customers may be negatively impacted as increases in the U.S. dollar relative to our international customers' local currency could make our products more expensive, impacting our ability to compete. Our costs of materials from international suppliers may increase if in order to continue doing business with us they raise their prices as the value of the U.S. dollar decreases relative to their local currency. Foreign policies and actions regarding currency valuation could result in actions by the United States and other countries to offset the effects of such fluctuations. The recent global financial downturn has led to a high level of volatility in foreign currency exchange rates and that level of volatility may continue, which could adversely affect our business, financial condition or results of operations.

Ethical, legal, privacy and social concerns surrounding the use of genetic information could reduce demand for our technology.

Our products may be used to provide genetic information about humans, agricultural crops and other living organisms. The information obtained from our products could be used in a variety of applications which may have underlying ethical, legal, privacy and social concerns, including the genetic engineering or modification of agricultural products or testing for genetic predisposition for certain medical conditions. Governmental authorities could, for safety, social or other purposes, call for limits on or regulation of the use of genetic testing. Such concerns or governmental restrictions could limit the use of our products, which could have a material adverse effect on our business, financial condition and results of operations.

Our products could in the future be subject to regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our costs and delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.

Our products are not currently subject to U.S. Food and Drug Administration, or FDA, clearance or approval since they are not intended for use in the diagnosis or treatment of disease. However, in the future, certain of our products or related applications, including products we develop or supply pursuant to the Roche Agreement, could be subject to FDA regulation, or the FDA's regulatory jurisdiction could be expanded to include our products. Even where a product is exempted from FDA clearance or approval, the FDA may impose restrictions as to the types of customers to which we can market and sell our products or to which Roche can market and sell products we develop or supply pursuant to the Roche Agreement. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations.

Many countries have laws and regulations that could affect our products. The number and scope of these requirements are increasing. Unlike many of our competitors, this is an area where we do not have expertise. We, Roche or our other third-party sales and distribution partners, as applicable, may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining our foreign regulatory approvals. In addition, the export by us of certain of our products, including products we develop or supply pursuant to the Roche Agreement, which have not yet been cleared for domestic commercial distribution may be subject to FDA or other export restrictions.

Our operations involve the use of hazardous materials, and we must comply with environmental, health and safety laws, which can be expensive and may adversely affect our business, operating results and financial condition.

Our research and development and manufacturing activities involve the use of hazardous materials, including chemicals and biological materials, and some of our products include hazardous materials. Accordingly, we are subject to federal, state, local and foreign laws, regulations and permits relating to environmental, health and safety matters, including, among others, those governing the use, storage, handling, exposure to and disposal of hazardous materials and wastes, the health and safety of our employees, and the shipment, labeling, collection, recycling, treatment and disposal of products containing hazardous materials. Liability under environmental laws and regulations can be joint and several and without regard to fault or negligence. For example, under certain circumstances and under certain environmental laws, we could be held liable for costs relating to contamination at our or our predecessors' past or present facilities and at third-party waste disposal sites. We could also be held liable for damages arising out of human exposure to hazardous materials. There can be no assurance that violations of environmental, health and safety laws will not occur as a result of human error, accident, equipment failure or other causes. The failure to comply with past, present or future laws could result in the imposition of substantial fines and penalties, remediation costs, property damage and personal injury claims, investigations, the suspension of production or product sales, loss of permits or a cessation of operations. Any of these events could harm our business, operating results and financial condition. We also expect that our operations will be affected by new environmental, health and safety laws and regulations on an ongoing basis, or more stringent enforcement of existing laws and regulations. Although we cannot predict the ultimate impact of any such new laws and regulations, or such more stringent enforcement, they will likely result in additional costs and may increase penalties associated with violations or require us to change the content of our products or how we manufacture them, which could have a material adverse effect on our business, operating results and financial condition.

Our facilities in California are located near known earthquake faults, and the occurrence of an earthquake or other catastrophic disaster could cause damage to our facilities and equipment, which could require us to cease or curtail operations.

Our facilities in the San Francisco Bay Area are located near known earthquake fault zones and are vulnerable to damage from earthquakes. We are also vulnerable to damage from other types of disasters, including fire, floods, power loss, communications failures and similar events. If any disaster were to occur, our ability to operate our business at our facilities would be seriously, or potentially completely, impaired. In addition, the nature of our activities could cause significant delays in our research programs and commercial activities and make it difficult for us to recover from a disaster. The insurance we maintain may not be adequate to cover our losses resulting from disasters or other business interruptions. Accordingly, an earthquake or other disaster could materially and adversely harm our ability to conduct business.

We are subject to existing and potential additional governmental regulation that may impose burdens on our operations, and the markets for our products may be narrowed.

We are subject, both directly and indirectly, to the adverse impact of existing and potential future government regulation of our operations and markets. For example, export of our instruments may be subject to strict regulatory control in a number of jurisdictions. The failure to satisfy export control criteria or to obtain necessary clearances could delay or prevent shipment of products, which could adversely affect our revenue and profitability. Moreover, the life sciences industry, which is expected to be one of the primary markets for our technology, has historically been heavily regulated. There are, for example, laws in several jurisdictions restricting research in genetic engineering, which may narrow our markets. Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulation that adversely affects our market opportunities. Additionally, if ethical and other concerns surrounding the use of genetic information, diagnostics or therapies become widespread, there may be less demand for

our products. See also our risk factor above titled “Ethical, legal and social concerns surrounding the use of genetic information could reduce demand for our technology.” Our business is also directly affected by a wide variety of government regulations applicable to business enterprises generally and to companies operating in the life science industry in particular. See also our risk factors above titled “Our products could in the future be subject to regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our cost and delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations” and “Our operations involve the use of hazardous materials, and we must comply with environmental, health and safety laws, which can be expensive and may adversely affect our business, operating results and financial condition.” Failure to comply with these regulations or obtain or maintain necessary permits and licenses could result in a variety of fines or other censures or an interruption in our business operations which may have a negative impact on our ability to generate revenue and could increase the cost of operating our business.

Regulations related to conflict minerals may cause us to incur additional expenses and could limit the supply and increase the costs of certain materials used in the manufacture of our products.

We are subject to requirements under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, that require us to conduct diligence, disclose and report whether or not our products contain conflict minerals. The implementation of these new requirements could adversely affect the sourcing, availability and pricing of the materials used in the manufacture of components used in our products. Furthermore, the complex nature of our products requires components and materials that may be available only from a limited number of sources and, in some cases, from only a single source. We may incur additional costs to comply with the disclosure requirements, including costs related to conducting diligence procedures to determine the sources of conflict minerals that may be used or necessary to the production of our products and, if applicable, potential changes to components, processes or sources of supply as a consequence of such verification activities. We may need to enter into relationships with new suppliers for our products, and there can be no assurance that we will be able to do so on a timely basis, in sufficient quantities, or on commercially reasonable terms. As a result, the manufacture or shipment of our products may be delayed or interrupted. It is also possible that we may face reputational harm if we determine that certain of our instruments contain minerals not determined to be conflict free or if we are unable to alter our appliances, processes or sources of supply to avoid such materials. Any delays or interruptions to our manufacturing process or in shipping our products, as well as any reputational harm that we may face, could adversely affect our business, financial condition or results of operations.

If we fail to maintain proper and effective internal control, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our business and our stock price.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. We may in the future discover areas of our internal financial and accounting controls and procedures that need improvement. Operating as a public company requires sufficient resources within the accounting and finance functions in order to produce timely financial information, ensure the level of segregation of duties, and maintain adequate internal control over financial reporting customary for a U.S. public company.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

Pursuant to Section 404 of the Sarbanes-Oxley Act, we were required to perform an evaluation of our internal control over financial reporting. While we performed this evaluation and concluded that our internal control over financial reporting was operating effectively as of December 31, 2011 and December 31, 2012, there can be no assurance that in the future material weaknesses or significant deficiencies will not exist or otherwise be discovered. In addition, if we are unable to produce accurate financial statements on a timely basis, investors could lose confidence in the reliability of our financial statements, which could cause the market price of our common stock to decline and make it more difficult for us to finance our operations and growth.

Our ability to use net operating losses to offset future taxable income may be subject to substantial limitations.

Under Section 382 of the Internal Revenue Code, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change net operating losses, or NOLs, to offset future taxable income. We believe that we have had one or more ownership changes, as a result of which our existing NOLs are currently subject to limitation. Future changes in our stock ownership, including pursuant to any sales of equity securities we may make under our Form S-3 Registration Statement, could result in additional ownership changes under Section 382. We may not be able to utilize a material portion of our NOLs, even if we attain profitability.

Risks Related to Our Intellectual Property

Failure to secure patent or other intellectual property protection for our products and improvements to our products may reduce our ability to maintain any technological or competitive advantage over our competitors and potential competitors.

Our ability to protect and enforce our intellectual property rights is uncertain and depends on complex legal and factual questions. Our ability to establish or maintain a technological or competitive advantage over our competitors may be diminished because of these uncertainties. For example:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications or issued patents;
- we or our licensors might not have been the first to file patent applications for these inventions;
- it is possible that neither our pending patent applications nor the pending patent applications of our licensors will result in issued patents;
- our patents or the patents of our licensors may not be of sufficient scope to prevent others from practicing our technologies, developing competing products, designing around our patented technologies or independently developing similar or alternative technologies;
- our and our licensors' patent applications or patents have been, and may in the future be, subject to interference, opposition or similar administrative proceedings, which could result in those patent applications failing to issue as patents, those patents being held invalid or the scope of those patents being substantially reduced;
- we may not adequately protect our trade secrets;
- we may not develop additional proprietary technologies that are patentable; or
- the patents of others may limit our freedom to operate and prevent us from commercializing our technology in accordance with our plans.

The occurrence of any of these events could impair our ability to operate without infringing upon the proprietary rights of others or prevent us from establishing or maintaining a competitive advantage over our competitors.

Variability in intellectual property laws may adversely affect our intellectual property position.

Intellectual property laws, and patent laws and regulations in particular, have been subject to significant variability either through administrative or legislative changes to such laws or regulations or changes or differences in judicial interpretation, and it is expected that such variability will continue to occur. Additionally, intellectual property laws and regulations differ among countries. Variations in the patent laws and regulations or in interpretations of patent laws and regulations in the United States and other countries may diminish the value of our intellectual property and may change the impact of third-party intellectual property on us. Accordingly, we cannot predict the scope of patents that may be granted to us, the extent to which we will be able to enforce our patents against third parties or the extent to which third parties may be able to enforce their patents against us.

Some of the intellectual property that is important to our business is owned by other companies or institutions and licensed to us, and changes to the rights we have licensed may adversely impact our business.

We license from third parties some of the intellectual property that is important to our business, including patent licenses from Cornell Research Foundation, Indiana University Research and Technology Corporation and GE Healthcare Bio-Sciences Corp. If we fail to meet our obligations under these licenses, these third parties could terminate the licenses. If the third parties who license intellectual property to us fail to maintain the intellectual property that we have licensed, or lose rights to that intellectual property, the rights we have licensed may be reduced or eliminated, which could subject us to claims of intellectual property infringement. Termination of these licenses or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms, or could subject us to claims of intellectual property infringement in litigation or other administrative proceedings that could result in damage awards against us and injunctions that could prohibit us from selling our products. In addition, some of our licenses from third parties limit the field in which we can use the licensed technology. Therefore, in order for us to use such licensed technology in potential future applications that are outside the licensed field of use, we may be required to negotiate new licenses with our licensors or expand our rights under our existing licenses. We cannot assure you that we will be able to obtain such licenses or expanded rights on reasonable terms or at all. In addition, we have limited rights to participate in the prosecution and enforcement of the patents and patent applications that we have licensed. As a result, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. Further, because of the rapid pace of technological change in our industry, we may need to rely on key technologies developed or licensed by third parties, and we may not be able to obtain licenses and technologies from these third parties at all or on reasonable terms. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

The measures that we use to protect the security of our intellectual property and other proprietary rights may not be adequate, which could result in the loss of legal protection for, and thereby diminish the value of, such intellectual property and other rights.

In addition to patents, we also rely upon trademarks, trade secrets, copyrights and unfair competition laws, as well as license agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. Despite these measures, any of our intellectual property rights could be challenged, invalidated, circumvented or misappropriated. In addition, we attempt to protect our intellectual property and proprietary information by requiring our employees, consultants and certain academic collaborators to enter into confidentiality and assignment of inventions agreements, and by requiring our third-party manufacturing partners to enter into confidentiality agreements. There can be no assurance, however, that such measures will provide adequate protection for our intellectual property and proprietary information. These agreements may be breached, and we may not have adequate remedies for any such breach. In addition, our trade secrets and other proprietary information may be disclosed to others, or others may gain access to or disclose our trade secrets and other proprietary information. Enforcing a claim that a third party illegally obtained and is using our trade secrets is expensive and time consuming, and the outcome is unpredictable. Additionally, others may independently develop proprietary information and techniques that are substantially equivalent to ours. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

Our intellectual property may be subject to challenges in the United States or foreign jurisdictions that could adversely affect our intellectual property position.

Our pending, issued and granted U.S. and foreign patents and patent applications have been, and may in the future be, subject to challenges by third parties asserting prior invention by others or invalidity on various grounds, through proceedings, such as interferences, reexamination or opposition proceedings. Addressing these challenges to our intellectual property can be costly and distract management's attention and resources. For example, we incurred significant legal expenses in the first half of 2012 to litigate and settle a complaint filed by Life Technologies Corporation seeking review of a patent interference decision of the U.S. Patent and Trademark Office. Additionally, as a result of these challenges, our patents or pending patent applications may be determined to be unpatentable to us, invalid or unenforceable, in whole or in part. Accordingly, adverse rulings from the relevant patent offices in these proceedings may negatively impact the scope of our intellectual property protection for our products and technology and may adversely affect our business.

Some of our technology is subject to "march-in" rights by the U.S. government.

Some of our patented technology was developed with U.S. federal government funding. When new technologies are developed with U.S. government funding, the government obtains certain rights in any resulting patents, including a nonexclusive license authorizing the government to use the invention for non-commercial purposes. These rights may permit the government to disclose our confidential information to third parties and to exercise "march-in" rights to use or allow third parties to use our patented technology. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the U.S. government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, U.S. government-funded inventions must be reported to the government and U.S. government funding must be disclosed in any resulting patent applications. In addition, our rights in such inventions are subject to government license rights and foreign manufacturing restrictions.

We may become involved in legal proceedings to enforce our intellectual property rights.

Our intellectual property rights involve complex factual, scientific and legal questions. We operate in an industry characterized by significant intellectual property litigation. Even though we may believe that we have a valid patent on a particular technology, other companies may have from time to time taken, and may in the future take, actions that we believe violate our patent rights. Legal actions to enforce these patent rights can be expensive and may involve the diversion of significant management time and resources. Our enforcement actions may not be successful, could give rise to legal claims against us and could result in some of our intellectual property rights being determined to be invalid or not enforceable.

We could in the future be subject to legal proceedings with third parties who may claim that our products infringe or misappropriate their intellectual property rights.

Our products are based on complex, rapidly developing technologies. We may not be aware of issued or previously filed patent applications belonging to third parties that mature into issued patents that cover some aspect of our products or their use. In addition, because patent litigation is complex and the outcome inherently uncertain, our belief that our products do not infringe third-party patents of which we are aware or that such third-party patents are invalid and unenforceable may be determined to be incorrect. As a result, third parties may claim that we infringe their patent rights and may file lawsuits or engage in other proceedings against us to enforce their patent rights. For example, we incurred significant legal expenses in the first half of 2012 to litigate and settle a complaint filed by Helicos Biosciences Corporation alleging that our products infringe patents owned and in-licensed by Helicos. In addition, as we enter new markets, our competitors and other third parties may claim that our products infringe their intellectual property rights as part of a business strategy to impede our successful entry into those markets. Patent litigation between competitors in our industry is common. Additionally, we have certain obligations to many of our customers to indemnify and defend them against

claims by third parties that our products or their use infringe any intellectual property of these third parties. In defending ourselves against any of these claims, we could incur substantial costs, and the attention of our management and technical personnel could be diverted. Even if we have an agreement to indemnify us against such costs, the indemnifying party may be unable to uphold its contractual obligations. To avoid or settle legal claims, it may be necessary or desirable in the future to obtain licenses relating to one or more products or relating to current or future technologies, which could negatively affect our gross margins. We may not be able to obtain these licenses on commercially reasonable terms, or at all. We may be unable to modify our products so that they do not infringe the intellectual property rights of third parties. In some situations the results of litigation or settlement of claims may require that we cease allegedly infringing activities which could prevent us from selling some or all of our products. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

In addition, in the course of our business we may from time to time have access or be alleged to have access to confidential or proprietary information of others, which though not patented, may be protected as trade secrets. Others could bring claims against us asserting that we improperly used their confidential or proprietary information, or misappropriated their technologies and incorporated those technologies into our products. A determination that we illegally used the confidential or proprietary information or misappropriated technologies of others in our products could result in our having to pay substantial damage awards or be prevented from selling some or all of our products, which could adversely affect our business.

We have not yet registered some of our trademarks in all of our potential markets, and failure to secure those registrations could adversely affect our business.

Some of our trademark applications may not be allowed for registration, and our registered trademarks may not be maintained or enforced. In addition, in the U.S. Patent and Trademark Office and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings.

Our use of “open source” software could adversely affect our ability to sell our products and subject us to possible litigation.

A portion of our products or technologies developed and/or distributed by us incorporate “open source” software and we may incorporate open source software into other products or technologies in the future. Some open source software licenses require that we disclose the source code for any modifications to such open source software that we make and distribute to one or more third parties, and that we license the source code for such modifications to third parties, including our competitors, at no cost. We monitor the use of open source software in our products to avoid uses in a manner that would require us to disclose or grant licenses under our source code that we wish to maintain as proprietary, however there can be no assurance that such efforts have been or will be successful. In some circumstances, distribution of our software that includes or is linked with open source software could require that we disclose and license some or all of our proprietary source code in that software, which could include permitting the use of such software and source code at no cost to the user. Open source license terms are often ambiguous, and there is little legal precedent governing the interpretation of these licenses. Successful claims made by the licensors of open source software that we have violated the terms of these licenses could result in unanticipated obligations including being subject to significant damages, being enjoined from distributing products that incorporate open source software, and being required to make available our proprietary source code pursuant to an open source license, which could substantially help our competitors develop products that are similar to or better than ours and otherwise adversely affect our business.

Risks Related to Owning Our Common Stock

The price of our common stock has been, and may continue to be, highly volatile, and you may be unable to sell your shares at or above the price you paid to acquire it.

The market price of our common stock is highly volatile, and we expect it to continue to be volatile for the foreseeable future in response to many risk factors listed in this section, and others beyond our control, including:

- actual or anticipated fluctuations in our bookings, financial condition and operating results;
- announcements of technological innovations by us or our competitors;
- announcements by Roche relating directly or indirectly to the Roche Agreement;
- overall conditions in our industry and market;
- addition or loss of significant customers;
- changes in laws or regulations applicable to our products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;

- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- issuance of new or updated research or reports by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters and our ability to obtain intellectual property protection for our technologies;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us or our stockholders;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares; and
- general economic and market conditions.

Furthermore, in the past and recently, stock markets in general and the market for companies in our industry in particular have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. You may not realize any return on your investment in us and may lose some or all of your investment. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We are currently a party to this type of litigation (see “Part I, Item 1. Financial Statements—Note 6. *Contingencies*” to the consolidated financial statements) and may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management’s attention from other business concerns, which could seriously harm our business.

If securities or industry analysts publish negative reports about our business, our share price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Future sales of our common stock could cause our share price to fall.

In April 2012, we filed a shelf registration statement on Form S-3 with the SEC pursuant to which we may, from time to time, sell up to an aggregate of \$150 million of our common stock, warrants or debt securities. On May 1, 2012, the registration statement was declared effective by the SEC, which will allow us to access the capital markets for the three year period following this effective date. On October 5, 2012, we entered into the Sales Agreement with Cantor, pursuant to which we may offer and sell, from time to time, through Cantor shares of our common stock having an aggregate offering price of up to \$30.0 million through an “at-the-market” offering. We are not obligated to make or continue to make any sales of shares of our common stock under the Sales Agreement. The sale of securities under the Form S-3 registration statement, including pursuant to the Sales Agreement, has resulted and will result in dilution of our stockholders and could cause our share price to fall. In addition, the holders of a significant number of shares of our common stock are entitled to rights with respect to registration of such shares under the Securities Act pursuant to an investor rights agreement between such holders and us. If such holders, by exercising their registration rights, sell a large number of shares, they could adversely affect the market price for our common stock. If we file a registration statement for the purpose of selling additional shares to raise capital and are required to include shares held by these holders pursuant to the exercise of their registration rights, our ability to raise capital may be impaired. Such holders have waived their registration rights with respect to the sale of shares of our common stock pursuant to the Sales Agreement through December 2013. We have also filed a registration statement on Form S-8 under the Securities Act to register shares for issuance under our 2004 Equity Incentive Plan, 2005 Stock Plan, 2010 Equity Incentive Plan, ESPP and 2010 Outside Director Equity Incentive Plan. Each of our 2010 Equity Incentive Plan, ESPP and 2010 Outside Director Equity Incentive Plan provides for automatic increases in the shares reserved for issuance under the plan which could result in additional dilution to our stockholders. Additionally, the Warrants to purchase 5,500,000 shares of our common stock issued to Deerfield in connection with the Facility Agreement could result in additional dilution to our stockholders. Refer to “Part I, Item 1. Financial Statements—Note 7. *Debt Facility* and Note 8. *Stockholders’ Equity*” to the consolidated financial statements, for additional details regarding these financing transactions.

Concentration of ownership by our principal stockholders may result in control by such stockholders of the composition of our board of directors.

Our existing significant stockholders, executive officers, directors and their affiliates beneficially own a significant number of our outstanding shares of common stock. As a result, these stockholders will be able to exercise a significant level of control over all matters requiring stockholder approval, including the election of directors. This control could have the effect of delaying or preventing

a change of control of our company or changes in management and will make the approval of certain transactions difficult or impossible without the support of these stockholders.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management and limit the market price of our common stock.

Provisions in our certificate of incorporation and bylaws, as amended and restated, may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and bylaws include provisions that:

- authorize our board of directors to issue, without further action by the stockholders, up to 50,000,000 shares of undesignated preferred stock and up to approximately 1,000,000,000 shares of authorized but unissued shares of common stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, the Chairman of the Board, the Chief Executive Officer or the President;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- establish that our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered terms;
- provide that our directors may be removed only for cause; and
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

Our large number of authorized but unissued shares of common stock may potentially dilute your stockholdings.

We have a significant number of authorized but unissued shares of common stock. Our board of directors may issue shares of common stock from this authorized but unissued pool from time to time without stockholder approval, resulting in the dilution of our existing stockholders.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any cash dividends on our common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 6. Exhibits

The exhibits listed in the Exhibit Index immediately preceding the exhibits are filed (other than exhibits 32.1 and 32.2) as part of this Quarterly Report on Form 10-Q and such Exhibit Index is incorporated herein by reference.

Signatures

Pursuant to the requirements of the Securities Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

Date: November 8, 2013

By: /s/ SUSAN K. BARNES

**Susan K. Barnes
Executive Vice President
And
Chief Financial Officer**

Date: November 8, 2013

By: /s/ BRIAN B. DOW

**Brian B. Dow
Vice President
And
Principal Accounting Officer**

Exhibit Index

Exhibit Number	Exhibit Description
10.1*	Development, Commercialization and License Agreement by and between Pacific Biosciences of California, Inc. and F. Hoffman-La Roche Ltd. Dated September 24, 2013.
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).
32.2	Certification of the Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Confidential treatment has been requested for portions of this exhibit. These portions have been omitted from the exhibit filed herewith and have been provided separately to the Securities and Exchange Commission.

DEVELOPMENT, COMMERCIALIZATION AND LICENSE AGREEMENT

between

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

and

F. HOFFMANN-LA ROCHE LTD

dated

September 24, 2013

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

TABLE OF CONTENTS

	<u>Page</u>
ARTICLE	1
DEFINITIONS	1
ARTICLE	2
GRANT; LICENSE	10
2.1 Grant to Roche.	10
2.2 License to PacBio.	11
2.3 Limitations.	12
2.4 Distribution Outside the Field.	12
2.5 No Territoriality.	13
2.6 No Other Rights.	13
ARTICLE	3
GOVERNANCE	13
3.1 Joint Steering Committee.	13
3.2 Committee Membership.	14
3.3 Committee Meetings.	15
3.4 Decision-Making.	15
3.5 Alliance Managers.	15
3.6 Scope of Governance.	15
3.7 Day-to-Day Responsibilities.	15
ARTICLE	4
DEVELOPMENT AND REGULATORY ACTIVITIES	16
4.1 In General.	16
4.2 Development Plan.	16
4.3 Product Specifications.	17
4.4 Regulatory Filings.	18
4.5 Regulatory Matters.	18
4.6 Infeasibility.	19

ARTICLE	5
COMMERCIALIZATION AND DISTRIBUTION	19
5.1 Commercialization of the Products and Services	19
5.2 Commercialization Plan	19
5.3 Conduct	19
5.4 Sales Minimums	20
5.5 Commercially Reasonable Efforts	20
5.6 Marketing and Promotion	20
5.7 Trademarks	21
5.8 Label License; End User License Agreement	22
5.9 Services	23
5.10 Warranty; Instrumentation Installation, Support and Maintenance	23
5.11 Remote Access Software	24
5.12 Know-How and Software Transfer	24
5.13 Competing Products	24
ARTICLE	6
SUPPLY	24
6.1 Supply	24
6.2 Transfer Price	26
6.3 Shortage of Supply; Cooperation	26
ARTICLE	7
PAYMENTS	27
7.1 Payments	27
7.2 Reports	27
ARTICLE	8
PAYMENTS; BOOKS AND RECORDS	27
8.1 Payment Method	27
8.2 Withholding	27
8.3 Records; Inspection	28

ARTICLE	9
CONFIDENTIALITY	29
9.1 Confidential Information	29
9.2 Permitted Disclosures	29
9.3 Confidential Terms	30
9.4 Publication of Product Information	30
9.5 Publicity Review	30
9.6 Certain Principles	31
9.7 Prior Non-Disclosure Agreements	31
ARTICLE	10
INTELLECTUAL PROPERTY	31
10.1 Ownership of Intellectual Property	31
10.2 Patent Challenges	34
10.3 Enforcement of Roche Patents	35
10.4 Enforcement of PacBio Patents	35
10.5 Third Party Technologies	36
10.6 Non-Infringement of Third Party Intellectual Property Rights	38
10.7 Patent Marking	40
ARTICLE	11
TERM AND TERMINATION	40
11.1 Term	40
11.2 Termination for Breach	40
11.3 Termination by Roche	40
11.4 Termination for Cessation	40
ARTICLE	12
EFFECT OF TERMINATION	41
12.1 Accrued Obligations	41
12.2 Effect of Termination	41
12.3 No Renewal, Extension or Waiver	42

12.4 Survival	43
12.5 Non-exclusive Remedy	43
ARTICLE	13
REPRESENTATIONS AND WARRANTIES	43
13.1 General Representations	43
13.2 Representations and Warranties of PacBio	43
13.3 Representations and Warranties of Roche	44
13.4 DISCLAIMER	44
13.5 LIMITATION OF LIABILITY	44
ARTICLE	14
INDEMNIFICATION AND INSURANCE	45
14.1 Indemnification of PacBio	45
14.2 Indemnification of Roche	45
14.3 IP Infringement	45
14.4 Procedure	47
14.5 Insurance	47
ARTICLE	15
BANKRUPTCY LAW; FIRST RIGHT OF NEGOTIATION; ESCROW	47
15.1 Bankruptcy	47
15.2 Escrow	48
15.3 Roche Right of First Negotiation	50
ARTICLE	
DISPUTE RESOLUTION	50
16.1 Dispute Resolution	50
16.2 Pre-Arbitration Dispute Resolution	51
16.3 Disputes	51

ARTICLE	17
GENERAL PROVISIONS	52
17.1 Responsibilities	52
17.2 Force Majeure	52
17.3 Governing Law	52
17.4 Waiver of Breach	53
17.5 Modification	53
17.6 Severability	53
17.7 Entire Agreement	53
17.8 Notices	53
17.9 Assignment	54
17.1 No Partnership or Joint Venture	55
17.1 Third Party Subcontractors	55
17.1 Export Laws	55
17.1 Counterparts	55
17.1 Affiliates	55

DEVELOPMENT, COMMERCIALIZATION AND LICENSE AGREEMENT

THIS DEVELOPMENT, COMMERCIALIZATION AND LICENSE AGREEMENT ("Agreement") dated as of September 24, 2013 ("Effective Date"), is entered into between Pacific Biosciences of California, Inc., a Delaware corporation with its principal place of business at 1380 Willow Road, Menlo Park, CA 94025 ("PacBio") and F. Hoffmann-La Roche Ltd, Grenzacherstrasse 124 CH-4070 Basel, Switzerland ("Roche").

BACKGROUND

A. PacBio has developed its PacBio Technology Platform (as defined below) and owns or controls certain patents, know-how and other intellectual property rights and technology relating to the PacBio Technology Platform; and

B. Roche, on behalf of itself and its Affiliates (as defined below), desires to enter into with PacBio a development, commercialization and license agreement, pursuant to which PacBio will grant to Roche and its Affiliates certain exclusive rights for the development and distribution of products and performance of services based on, using or incorporating the PacBio Technology Platform (each defined below as the "Products" and "Services," respectively) for the Field (as defined below), including the development and distribution of products intended and labeled for *in vitro* diagnostic use, and PacBio will supply certain of such Products to Roche and its Affiliates, on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

ARTICLE 1

DEFINITIONS

1.1 "Affiliate" shall mean, with respect to a Person, any corporation or other business entity controlled by, controlling or under common control with such Person, for so long as such control exists, and for this purpose "control" means direct or indirect beneficial ownership of more than fifty percent (50%) of the voting interest in such corporation or other business entity or having otherwise the power to govern the financial and the operating policies or to appoint the management of an organization, provided, however, that with respect to Roche, the term "Affiliate" shall not include Chugai Pharmaceutical Co., Ltd, 1-1 Nihonbashi-Muromachi 2-Chome, Chuo-ku, Tokyo 103-8324, Japan, unless Roche opts for such inclusion of such entity by giving written notice to PacBio.

1.2 "Applicable Law(s)" shall mean, with respect to a Party's activities hereunder, individually and collectively, any and all applicable laws (including, without limitation, securities laws), ordinances, orders, rules, rulings, directives and regulations of any kind whatsoever of any governmental authority or Regulatory Authority, final, binding and

unappealable court orders and judgments, and rules of a stock exchange, in each case, including the then-current amendments thereto or any replacement thereof, and in each case, applicable to such Party's activities hereunder.

1.3 "Business Day" shall mean 9.00 a.m. to 5.00 p.m. local time on a day other than a Saturday, Sunday or other public or federal holiday in Switzerland or the State of California, United States.

1.4 "Clinical End Users" means clinical testing laboratories (including academic, not-for-profit, governmental and commercial clinical testing laboratories) and in vitro diagnostic companies, which in each case will predominantly use the Products, or the results of a Service, as applicable, for the Field.

1.5 "Commercially Reasonable Efforts" shall mean with respect to an objective, the diligent and good faith efforts of the type to accomplish such objective that a similarly situated company in the exercise of reasonable business discretion would normally use to accomplish a similar objective.

1.6 "Control" (including any variations thereof, such as "Controlled" and "Controlling") shall mean, with respect to any Know-How, Software or other Intellectual Property Rights, possession by the Party granting the applicable right, license or sublicense hereunder (or its Affiliate, as applicable) of the power and authority, whether arising by ownership, license, or other authorization, to disclose and deliver the particular Know-How or Software to the other Party as provided herein and to grant and authorize under such Know-How, Software or Intellectual Property Right the right, license or sublicense, as applicable, as provided herein without giving rise to a violation of the terms of any written agreement with any Third Party. Notwithstanding anything to the contrary in this Agreement, any Know-How, Software or Intellectual Property Right owned or licensed by any Acquiring Entity of a Party shall not be deemed Controlled by such Party except to the extent such Know-How, Software or other Intellectual Property Right (i) was licensed from such Acquiring Entity directly or indirectly to such Party or its Affiliates prior to the effective date of the relevant Acquisition, but only to the extent that such Know-How, Software or Intellectual Property Right was Controlled hereunder by such Party prior to such effective date or (ii) is used or generated in the course of the performance of activities under this Agreement, on or after the effective date of the relevant Acquisition, by the Acquired Party, by such Acquiring Entity or by an Affiliate of the Acquired Party or such Acquiring Entity. For purposes of this Section 1.6, "Acquiring Entity" shall mean a Third Party that merges or consolidates with or acquires a Party, or to which a Party transfers all or substantially all of its assets to which this Agreement pertains (such Party, the "Acquired Party" and such merger, consolidation, acquisition or transfer, an "Acquisition").

1.7 "Data" shall mean any and all research data, pharmacology data, preclinical data, clinical data or all regulatory documentation, information and submissions pertaining to, or made in association with an IDE, Marketing Approval Application, Marketing Approval or the like for

any Product, in each case that are Controlled by a Party or its Affiliates as of the Effective Date or during the term of this Agreement.

1.8 “Distributor” shall mean any Third Party whom Roche has appointed as a distributor or agent to market and promote a Product together with the right to sell or have sold such Products on its own behalf or on behalf of Roche or an Affiliate in accordance with Section 2.1(c).

1.9 “FDA” shall mean the United States Food and Drug Administration, or any successor entity thereto performing similar functions.

1.10 “Field” shall mean nucleic acid sequencing (including, without limitation, DNA, cDNA and RNA sequencing) for (a) medical management (including, without limitation, diagnosis or treatment of a human disease or condition) of a human being and (b) quality control or testing of human blood or tissue for transfusion or blood banking, human bone marrow transplantation or banking, or human tissue typing for transplantation, including the use of products intended and labeled for *in vitro* diagnostic use or the provision of services using such products, in each case, for the purposes described under subsection (a) or (b) above. The Field excludes, among other uses, sequencing for (i) basic and applied research, other than clinical studies for obtaining and maintaining Marketing Approvals for Products and Services intended for the purposes described under subsections (a) or (b) above or other clinical research, in each case linked to the medical management of a human being; (ii) biomarker research or other content discovery research, other than for purposes of validating (but not discovery of) Roche Content in connection with the development of Consumable Products or Kit Products intended for the purposes described under subsections (a) or (b) above that incorporate or will be used with such Roche Content; (iii) quality assurance and quality control (including, without limitation, testing to determine conformance with specifications, purity, and batch-to-batch consistency); (iv) testing of environmental samples, including, without limitation, the detection of organisms where the intent is to track or identify the nature and source of the organism; (v) identity testing applications for forensic purposes or determination of paternity, other than identity testing for the purposes described under subsection (a) above; and (vi) testing of non-human (*e.g.*, plant or animal) samples, including, without limitation, in connection with animal breeding, pedigree determination, or gender determination, or testing for agricultural or food industries, including, without limitation, the identification of genetically modified organisms (GMOs) for these industries.

1.11 “Field Generic Product” shall mean [***].

1.12 “Field Specific Product” shall mean [***].

1.13 “First Commercial Sale” shall mean, with respect to a Product or Service, the first *bona fide*, arm’s length sale of such Product or Service.

1.14 “Foreground Technology” shall mean all Inventions made, developed, conceived, authored, acquired or created (a) by or on behalf of a Party or its Affiliates, or the Parties (themselves or through their respective Affiliates) jointly, in the performance of activities under this Agreement or (b) by an individual (i) having access to Know-How that is Confidential Information Controlled by the other Party or its Affiliates and disclosed by such other Party or its Affiliates under and in accordance with this Agreement, and (ii) acting on behalf of a Party or its Affiliates, which Invention is based upon, using or incorporating such Know How..

1.15 “IDE” shall mean any Investigational Device Exemption (including any amendments thereto) filed with the FDA (as described at 21 CFR Part 812) before the commencement of clinical trials of a Product, or any comparable filings with any Regulatory Authority in any other jurisdiction.

1.16 “Intellectual Property Rights” shall mean any Patents, copyrights, design rights, rights in databases, moral rights, trademarks, service marks, trade and business names, rights in inventions and other intellectual property rights, in each case whether registered or unregistered, and including applications for the grant of the foregoing and all rights or forms of protection having equivalent or similar effect to any of the foregoing which may subsist anywhere in the world.

1.17 “Invention” shall mean any invention (whether or not patentable), data, results, ideas, discovery, development, method, process, know-how, works of authorship or other information that is made, developed, conceived, authored, acquired or created by or under the authority of a Party or the Parties (itself or themselves, or through its or their respective Affiliates), and in each case, including all Intellectual Property Rights therein and thereto.

1.18 “IP Infringement Claim” shall mean any Third Party Claim alleging that the development, manufacture, use or sale of a Product, in each case for the Field, infringes or misappropriates any Intellectual Property Rights of a Third Party.

1.19 “Know-How” shall mean all scientific, medical, technical, regulatory and other information and documentation relating to the Products and Services (including Data), but excluding any and all Software and Product Documentation

1.20 “Major Market” shall mean [***].

1.21 “Marketing Approval” shall mean, with respect to a Product or Service, those approvals, licenses, registrations, waivers or authorizations, in each case, from a Regulatory Authority in a jurisdiction that are necessary for the marketing and sale of such Product or Service in such jurisdiction.

1.22 “Marketing Approval Application” (or “MAA”) shall mean a Premarket Approval Application (PMA) (as described at 21 CFR Part 814) or 510(k) Premarket Notification Application (as described at 21 CFR Part 807), as applicable, submitted to the FDA in the United

States or a similar application that has been submitted to a Regulatory Authority in any other jurisdiction.

1.23 “New Technology” shall mean, collectively, New [***] Technology and New Field Specific Technology.

1.24 “PacBio Intellectual Property Rights” shall mean (a) the PacBio Patents and (b) any other Intellectual Property Rights Controlled by PacBio or its Affiliates.

1.25 “PacBio Know-How” shall mean all Know-How Controlled by PacBio or its Affiliates.

1.26 “PacBio Patents” shall mean (a) the Patents listed, as of the Effective Date, on Exhibit 1.26, and all patents and patent applications claiming priority to such patent applications or to the patent applications from which any such patents issued (any such Patents that are owned by a Third Party shall constitute “PacBio Patents” solely to the extent PacBio Controls such Patents pursuant to and in accordance with the terms of the applicable Existing In-Licenses), (b) any patent application filed on an Invention assigned to PacBio by Roche pursuant to Section 10.1(c)(i) (a “Roche-Assigned Improvement”), (c) any Foreground Technology owned by PacBio or its Affiliates pursuant to Section 10.1(b) (other than PacBio-Assigned Improvements), and (d) all other Patents Controlled by PacBio or its Affiliates.

1.27 “PacBio Products” shall mean [***].

1.28 “PacBio Product Documentation” shall mean, with respect to a PacBio Product, Product Documentation Controlled by PacBio or its Affiliates for such PacBio Product.

1.29 “PacBio Software” shall mean, with respect to a PacBio Product to be supplied to Roche hereunder that is an Instrumentation Product or Chip Product, Software Controlled by PacBio or its Affiliates and that is incorporated in or interoperates with such PacBio Product.

1.30 “PacBio Technology Platform” shall have the meaning set forth in Exhibit 1.30.

1.31 “Party” shall mean PacBio or Roche individually, and “Parties” shall mean PacBio and Roche collectively.

1.32 “Patent(s)” shall mean any patents and patent applications (including provisional applications), together with all patents and patent applications claiming priority to such patent applications or patent applications from which any such patents issued, including any continuations, continuations-in-part, divisional and provisional applications, any patents issued with respect to any such patent applications, any re-issues, re-examinations, renewals or extensions (including supplemental patent certificates) of any such patents, and any confirmation patents or registration patents or patents of addition based on any such patents and all foreign counterparts of any of the foregoing.

1.33 “Person” shall mean an individual, a corporation, a partnership, an association, a trust or other entity or organization, including a government or political subdivision or an agency thereof.

1.34 “Product(s)” shall mean instrumentation, software, kits and consumables, in each case, that is based on, uses or incorporates the relevant element(s) of the PacBio Technology Platform or is intended (as demonstrated by design or label) to be used or interoperate with the PacBio Technology Platform. Such Products include the following products as defined below:

(a) “Chip Products” shall mean those disposable sequencing chips further described in Exhibit 1.30.

(b) “Consumable Products” shall mean Chip Products and Other Consumable Products.

(c) “Instrumentation Products” shall mean those sequencing instruments further described in Exhibit 1.30.

(d) “Kit Products” shall mean [***].

(e) “Other Consumable Products” shall mean [***].

(f) “Software” shall mean any and all software (whether bundled or embedded, including, without limitation, any firmware) intended to be used or interoperate with a Chip Product or Instrumentation Product. “O/S and Primary Analysis Software” shall mean Software that is (i) the Instrumentation Product operating system software and firmware, including the Instrumentation Product control, data collection and touch screen user interface and (ii) primary analysis software, including signal processing, base calling and quality assessment functions. “Secondary Analysis Software” shall mean Software that is secondary analysis software, including open source software tools for the alignment of sequencing reads to a reference sequence or *de novo* assembly of sequencing reads into a genome.

For purposes of example only, Exhibit 1.34 sets forth a list of certain Products by category that are contemplated as of the Effective Date.

1.35 “Product Documentation” shall mean, with respect to a Product, functional specifications, user manuals, reference manuals, installation guides and other documentation for such Product.

1.36 “Product Specifications” shall mean, with respect to a particular Product, those designs and technical and functional specifications for such Product as established in accordance with Section 4.3.

1.37 “Regulatory Authority” shall mean the FDA, or a regulatory body with similar regulatory authority in any other jurisdiction.

1.38 “Roche Content” shall mean any biomarker or similar assay-specific content incorporated in or used with a Consumable Product or a Kit Product, where the use or application of such biomarker or similar-assay specific content (and associated Intellectual Property Rights) is owned by, or licensed to, Roche or any of its Affiliates or Distributors.

1.39 “Roche Intellectual Property Rights” shall mean the Roche Patents and any other Intellectual Property Rights Controlled by Roche or its Affiliates.

1.40 “Roche Know-How” shall mean all Know-How Controlled by Roche or its Affiliates.

1.41 “Roche Patents” shall mean (a) any patent application filed on an Invention assigned to Roche by PacBio pursuant to Section 10.1(c)(i) (a “PacBio-Assigned Improvement”), (b) any Foreground Technology owned by Roche or its Affiliates pursuant to Section 10.1(b) (other than Roche-Assigned Improvements), and (c) all Patents Controlled by Roche or its Affiliates.

1.42 “Service(s)” shall mean any service(s) provided to Third Parties involving the use of any Product.

1.43 “Supply Failure” [***].

1.44 “Third Party” shall mean any Person other than PacBio, Roche and their respective Affiliates.

1.45 “Trademarks” shall mean trademarks, marks and trade names.

1.46 Additional Definitions. Each of the following terms shall have the meaning described in the corresponding section of this Agreement indicated below:

Term	Section Defined
Acquired Party	1.6
Acquiring Entity	1.6
Acquisition	1.6
Agreement	Preamble
Alliance Manager	3.5
Assigned IP	10.1(c)(i)
Assignee	10.1(c)(i)
Assignor	10.1(c)(i)
Background Technology	10.1(a)
CDAs	9.7

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Term	Section Defined
Clinical Supplies	6.1(d)
CMO	6.3(c)(i)
CMO Supply Agreement	6.3(c)(i)
Commercialization Plan	5.2
Committee	3.2
Competing Product	5.13
Confidential Information	9.1
Cooperating Party	9.5
Development Plan	4.2(a)
Development Requirement	4.2(a)
Dispute	16.1
DMF	4.4(b)
Effective Date	Preamble
End User License Agreement	5.8(b)
Enforcement Action	10.4(b)
Escrow Agreement	15.2
Escrow Materials	15.2(a)
Escrow Triggering Event	15.2(e)
Existing In-Licenses	10.5(a)
External Factor	5.4
ICC	16.3(a)
Improvement	10.1(b)(ii)
Indemnitee	14.4
Indemnitee	14.4
Infringing Product	10.4(a)
Initial Term	11.1
[***]	15.3
IPR Agreements	10.6(a)
IRB	5.4
Joint Steering Committee	3.1
Joint Inventions	10.1(e)
JSC	3.1
Knowledge	10.6
Label License Agreement	5.8(a)
Listed Trademarks	5.7(b)
Losses	14.1
Made	10.1(b)(i)
Manufacturing Costs	Paragraph 3 of Exhibit 7.1
Milestone Payment	Paragraph 2 of Exhibit 7.1
New [***] Technology	10.5(b)
New Field Specific Technology	10.5(c)

- 8 -

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Term	Section Defined
O/S and Primary Analysis Software	1.34(f)
PacBio	Preamble
PacBio Indemnitees	14.1
PacBio Promotional Materials	5.6(b)
PacBio Technology Platform Capabilities	4.3(a)
PacBio Technology Platform	Exhibit 1.30
PacBio-Assigned Improvement	1.41
Patent Authority	10.2(a)
Patent Challenge	10.2(a), 10.2(b)
Permits	4.4(a)
Platform Patents	10.6(e)
Pre-existing Roche Product	5.13
Prosecuting Party	10.1(d)
Quality Systems Information	4.4(b)
Renewal Term	11.1
Requesting Party	9.5
Roche	Preamble
Roche Indemnitees	14.2
Roche-Assigned Improvement	1.26
ROFN Assignee	15.3
ROFN Notice	15.3
ROFN Response	15.3
ROFN Response Period	15.3
Sales Forecast	5.2
Sales Minimum Requirements	5.4
Secondary Analysis Software	1.34(f)
Secondary Analysis Software EULA	2.1(d)
Senior Executives	3.4
Sole Invention	10.1(c)(i)
Subcommittee	3.1
Supply Agreement	6.1(c)
Supports	10.2(a), 10.2(b)
Third Party Claim	14.1
Transfer Price	6.2
Wind-Down Period	12.2(a)(ii)

1.47 Interpretation. The captions to the several Articles, Sections, and Exhibits of this Agreement are not a part of this Agreement, but are included for convenience of reference and shall not affect its meaning or interpretation. Unless specified to the contrary, references to Articles, Sections or Exhibits shall mean the particular Articles, Sections or Exhibits to this

Agreement and references to this Agreement include all Exhibits hereto. Unless the context clearly requires otherwise, whenever used in this Agreement: (a) the word “or” shall have its inclusive meaning of “or” except when paired as “either/or”; (b) the word “day” or “quarter” or “year” means a calendar day or calendar quarter or calendar year unless otherwise specified; (c) the word “notice” shall require notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other communications contemplated under this Agreement; (d) the words “hereof,” “herein,” “hereunder,” “hereby” and derivative or similar words refer to this Agreement (including the Exhibits hereto); (e) provisions that require that a Party, the Parties or a committee hereunder “agree,” “consent” or “approve” or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter or otherwise, except to the extent that such agreement, consent or approval is with respect to purely administrative matters; (f) words of any gender include any other gender; (g) words using the singular or plural number also include the plural or singular number, respectively; (h) “\$” or “dollars” shall mean US Dollars; and (i) references to a Party’s “respective field” shall mean, with respect to Roche, for the Field and with respect to PacBio, for outside the Field.

ARTICLE 2

GRANT; LICENSE

2.1 Grant to Roche.

(a) Grant; License. Subject to the terms and conditions of this Agreement, (i) PacBio hereby grants to Roche and its Affiliates the exclusive, worldwide right to distribute the Products and provide the Services, in each case, solely for the Field, and (ii) PacBio hereby grants to Roche and its Affiliates, under the PacBio Intellectual Property Rights and the PacBio Know-How, the following exclusive and worldwide licenses, in each case, solely for the Field: (A) [***]; (B) [***]; (C) to assemble and have assembled the elements of the Kit Products; (D) to bundle and have bundled the Products with each other or in combination with or packaged with products not licensed hereunder; (E) to file, have filed, prosecute, and have prosecuted Marketing Approval Applications and to obtain and maintain Marketing Approvals for the Products and Services; (F) to offer and have offered for sale, sell, have sold, market, have marketed, import, have imported, distribute, have distributed, promote and have promoted, use, have used, maintain, have maintained, support and have supported the Products; and (G) to provide and have provided the Services. The grant of rights and licenses to Roche under this Section 2.1(a) above and elsewhere hereunder shall include a grant to the Affiliates of Roche; provided that Roche shall remain responsible to PacBio hereunder for all activities of its Affiliates to the same extent as if such activities had been undertaken by Roche itself. For clarity, the Parties understand that, [***], the Products or components thereof [***] may be identical or functionally equivalent to [***] or interoperate with sequencing system platforms other than the PacBio Technology Platform, and, accordingly, the scope of rights and licenses granted under this Section 2.1(a) (and any other rights and licenses granted under this Agreement) with respect to Products does not extend beyond the extent to which such Products

are developed and commercialized (including sold, marketed, and promoted) to be used or interoperate with the PacBio Technology Platform [***], and all rights with respect to products or components that are functionally equivalent to Products and intended to be used or interoperate with sequencing system platforms other than the PacBio Technology Platform are retained by PacBio.

(b) Sublicenses. The grant of rights and licenses under Section 2.1(a) above shall not include the right to sublicense; except that Roche or its Affiliate may grant sublicenses to Third Parties solely to perform activities on Roche's or its Affiliate's behalf under and within the scope of the licenses under Section 2.1(a) in accordance with this Agreement, and Roche shall remain responsible to PacBio hereunder for all activities of such Third Parties to the same extent as if such activities had been undertaken by Roche itself.

(c) Third Party Distributors. Roche may appoint Third Parties as distributors or agents for purposes of distributing, marketing, and promoting the Products solely for the Field in a particular country(ies). Roche shall ensure that each of its arrangements with distributors or agents is in material aspects not inconsistent with this Agreement, and Roche shall be responsible to PacBio for all activities of its distributors and agents to the same extent as if such activities had been undertaken by Roche itself.

(d) Secondary Analysis Software License. In connection with the grant of rights and licenses under Section 2.1(a) above, PacBio hereby grants to Roche and its Affiliates, under the PacBio Intellectual Property Rights and PacBio Know-How, a non-exclusive, non-transferable, worldwide license to use, reproduce, modify and create derivative works of the PacBio Software that is Secondary Analysis Software to develop, manufacture, offer for sale, sell, market, import, distribute, promote, use, maintain and support such Software solely for use in combination with Products for the Field in accordance with the licenses granted under Section 2.1(a). Such PacBio Software is made available for download on the PacBio DevNet website (currently located at <http://pacbiodevnet.com/>) and is subject to additional terms and conditions of use as provided in connection with the download (as may be updated from time to time in accordance with Sections 10.5(b) and 10.5(c)) (the "Secondary Analysis Software EULA"). Roche or its Affiliates are also entitled to provide such Software for download by its customers in accordance with, and subject to, the Secondary Analysis Software EULA.

(e) Additional grants of rights and licenses from PacBio to Roche are set out in the following Sections 4.3(b), 5.6(b), 5.7, 6.3(c), 15.2(f).

2.2 License to PacBio.

(a) License. Subject to the terms and conditions of this Agreement, Roche hereby grants to PacBio and its Affiliates, under the Roche Intellectual Property Rights and the Roche Know-How (except Roche Intellectual Property Rights and Roche Know-How comprising Roche Content) (i) the following non-exclusive and worldwide licenses, in each case,

solely for the Field: (A) to develop and have developed the PacBio Products for Roche; and (B) to manufacture and have manufactured the PacBio Products for supply to Roche for it and its Affiliates and Distributors; and (ii) the following non-exclusive and worldwide licenses, in each case, solely for outside the Field: to develop, have developed, manufacture, have manufactured, offer or have offered for sale, sell, have sold, market, have marketed, import, have imported, distribute, have distributed, promote, have promoted, use, have used, maintain, have maintained, support or have supported the PacBio Products, and to use such PacBio Products to provide and have provided the Services. The grant of rights and licenses under this Section 2.2(a) above shall include a grant to the Affiliates of PacBio; provided that PacBio shall remain responsible to Roche hereunder for all activities of such Affiliates to the same extent as if such activities had been undertaken by PacBio itself.

(b) Sublicenses. The grant of rights and licenses under Section 2.2(a) above shall not include the right to sublicense; except that PacBio or its Affiliate may grant sublicenses to Third Parties solely to perform activities on PacBio's or its Affiliate's behalf under and within the scope of the licenses under Section 2.2(a), and PacBio shall remain responsible to Roche hereunder for all activities of such Third Parties to the same extent as if such activities had been undertaken by PacBio itself.

(c) Third Party Distributors. Subject to Section 2.4 below, PacBio may appoint Third Parties as distributors or agents for purposes of distributing, marketing, and promoting the Products solely for outside the Field in a particular country(ies). PacBio shall ensure that each of its arrangements with distributors or agents is in material aspects not inconsistent with this Agreement, and PacBio shall be responsible to Roche for all activities of its distributors and agents to the same extent as if such activities had been undertaken by PacBio itself.

2.3 Limitations.

(a) Roche. Except as otherwise prohibited by Applicable Laws, Roche agrees, on behalf of itself and its Affiliates, and shall cause each of its Distributors to agree, as applicable, not to (and Roche and its Affiliates acknowledge that they are not authorized under this Agreement to) develop, use, offer for sale, sell, market, import, distribute or promote the Products or Services, or to use the Products to provide the Services, in each case, for any purposes other than for the Field, pursuant to and in accordance with this Agreement. [***]

(b) PacBio. Except as expressly permitted under Section 2.2(a) or as otherwise prohibited by Applicable Laws, PacBio agrees, on behalf of itself and its Affiliates, and shall cause each of its distributors to agree, as applicable, not to (and PacBio and its Affiliates acknowledge that they are not authorized under this Agreement to) develop, use, offer for sale, sell, market, import, distribute or promote the Products or Services, or to use the Products to provide the Services, in each case, for any purposes other than for outside the Field, in accordance with this Agreement. [***]

2.4 Distribution [***]. If PacBio intends to seek or authorize a Third Party (other than a Third Party with whom PacBio has a then-current distributor relationship pursuant to a written agreement in the relevant country(ies) with respect to products other than the Products) to sell, market, distribute and promote [***], then PacBio shall promptly notify Roche [***], the Parties shall enter into good faith negotiations [***] for Roche to become the exclusive distributor [***]; provided that neither Party shall have any obligation to accept or agree to any terms or conditions proposed by one Party to the other Party or any liability whatsoever in connection with such negotiations or any failure thereof.

2.5 No Territoriality.

(a) If a claim of a PacBio Patent would be exhausted with respect to a unit of a Product for the Field by an authorized sale of such unit for the Field in accordance with all terms and conditions of this Agreement (including Section 5.8) by Roche, its Affiliates or Distributors in the jurisdiction in which such PacBio Patent was issued, then the Parties acknowledge and agree that such claim shall also be deemed so exhausted with respect to such unit for the Field by the authorized sale of such unit for the Field by Roche, its Affiliates or Distributors in accordance with all terms and conditions of this Agreement (including Section 5.8) anywhere else in the world.

(b) If a claim of a Roche Patent would be exhausted with respect to a unit of a PacBio Product for outside the Field by an authorized sale of such unit for outside the Field in accordance with all terms and conditions of this Agreement (including appropriate label license terms (if any)) by PacBio, its Affiliates or distributors in the jurisdiction in which such Roche Patent was issued, then the Parties acknowledge and agree that such claim shall also be deemed so exhausted with respect to such unit for outside the Field by the authorized sale of such unit for outside the Field by PacBio, its Affiliates or distributors in accordance with all terms and conditions of this Agreement (including appropriate label license terms (if any)) anywhere else in the world.

2.6 No Other Rights. Each Party acknowledges that the rights and licenses granted under this ARTICLE 2 and elsewhere in this Agreement are limited to the scope expressly granted. Accordingly, except for the rights expressly granted under this Agreement, no right, title, or interest of any nature whatsoever is granted whether by implication, estoppel, reliance, or otherwise, by either Party to the other Party. All rights with respect to Intellectual Property Rights and other subject matter that are not specifically granted herein are reserved to the Party or its Affiliates owning or otherwise controlling the same. For the avoidance of doubt, Roche and its Affiliates shall not be limited in the exploitation and commercialization of their own Intellectual Property Rights by the terms and conditions of this Agreement.

ARTICLE 3

GOVERNANCE

3.1 Joint Steering Committee. The Parties shall establish a joint steering committee ("Joint Steering Committee" or "JSC") to oversee, review and coordinate the activities of the Parties under this Agreement, including progress made in the development and commercialization of Products and Services, subject to the provisions of this ARTICLE 3. The JSC may from time to time establish one or more subcommittees (each, a "Subcommittee"), to perform certain duties of the JSC as expressly delegated by the JSC to such Subcommittee (which may include Subcommittees for development or Intellectual Property Rights matters). The JSC shall act and have the following purpose:

(a) Review the Development Plan (including reviewing any revisions to the Development Plan and Product Specifications on a quarterly basis) and the Commercialization Plan (including establishing Sales Minimum Requirements) and modifications thereto in accordance with Sections 4.2 and 5.2, respectively;

(b) Review and oversee the progress and execution of the Development Plan and Commercialization Plan, taking into full consideration the requirements of the Field, including, without limitation, regulatory aspects thereof;

(c) Review and oversee the setting of, and changes to, the Transfer Prices relating to the supply of the PacBio Products in accordance with Exhibit 7.1, and review and oversee the [***] Transfer Prices, and review the [***] Transfer Prices;

(d) Oversee the supply of PacBio Products to Roche; [***];

(e) Provide a forum for the Parties to exchange information and coordinate their respective activities with respect to matters pertaining to the development and manufacture of the Products;

(f) Establish additional timelines and criteria for decision points;

(g) Provide a forum for resolving matters to be decided by the Parties under this Agreement; and

(h) Perform such other duties as are specifically assigned to the JSC in this Agreement.

3.2 Committee Membership. The JSC and any Subcommittee created by the JSC pursuant to Section 3.1 (each a "Committee") shall each be composed of an equal number of employee representatives from each of Roche and PacBio, selected by such Party. Unless the Parties otherwise agree, the exact number of representatives for each of Roche and PacBio shall be three (3) representatives, at least one of whom shall have decision-making authority on behalf

of and the ability to bind the appointing Party within the scope of such Committee's responsibilities. Either Party may replace its respective employee representatives serving on a Committee at any time by giving written notice to the other Party; provided that the criteria for composition of each Committee set forth in the preceding sentence continues to be satisfied following any such replacement of a Party's representative on any such Committee.

3.3 Committee Meetings. Each Committee shall meet at least once each calendar quarter, or more or less often as otherwise agreed to by the Parties. All Committee meetings may be conducted by telephone, video-conference or in person as determined by the applicable Committee. Unless otherwise agreed by the Parties, all in-person meetings for each Committee shall be held on an alternating basis between PacBio's facilities and Roche's or its Affiliates' facilities. Each Party shall bear its own personnel and travel costs and expenses relating to its representatives' participation on any Committee.

3.4 Decision-Making. Decisions of each Committee shall be made by unanimous vote, with at least one (1) representative from each Party participating in any vote; provided always that any change to the terms and conditions of this Agreement requires an agreement in writing by both Parties in accordance with each Party's own internal guidelines and delegations of authority. In the event a Subcommittee fails to reach unanimous agreement with respect to a particular matter within its purpose, then upon request by either Party such matter shall be referred to the JSC for resolution. In the event that the JSC fails to reach unanimous agreement with respect to a particular matter within its purpose, then either Party may, by written notice to the other Party, have such matter referred to the Chief Executive Officer of PacBio and the Head of Roche's Sequencing Unit ("Senior Executives"), or their respective designees, who shall meet promptly and negotiate in good faith to resolve such matter. If the Senior Executives fail to meet or, despite such good faith negotiations, the Senior Executives are unable to resolve such matter, the Parties shall resolve the matter in accordance with the provisions of Section 16.3 (Dispute Resolution).

3.5 Alliance Managers. Promptly following the Effective Date, each Party shall appoint an employee representative ("Alliance Manager") to facilitate communications between the Parties (including, subject to the oversight of the JSC, developing plans and mechanisms for each Party to provide the other Party with that Know-How licensed to the other Party hereunder which is reasonably necessary for the other Party to perform its obligations hereunder) and to act as a liaison between the Parties. Each Party may replace its Alliance Manager with an alternate employee representative at any time by giving written notice to the other Party. For clarity, the Alliance Managers may seek the advice and assistance of other personnel of either Party in fulfilling its purpose hereunder.

3.6 Scope of Governance. Notwithstanding the creation of the JSC and any Subcommittee, each Party shall retain the rights, powers and discretion granted to it hereunder, and no Committee shall be delegated or vested with rights, powers or discretion. No Committee shall have the power (a) to amend or modify this Agreement, (b) to determine whether or not a

Party has met its diligence or other obligations under the Agreement, or (c) to determine whether or not a breach of this Agreement has occurred, and no decision of any Committee shall be in contravention of any terms and conditions of this Agreement.

3.7 Day-to-Day Responsibilities. Each Party shall: (a) be responsible for day-to-day implementation and operations of the development, manufacture and commercialization activities for which it has or is otherwise assigned responsibility under the Development Plan or Commercialization Plan or this Agreement, and (b) keep the other Party reasonably informed through the JSC as to the progress of such activities, as designated by the applicable Committee or reasonably requested by the other Party.

ARTICLE 4

DEVELOPMENT AND REGULATORY ACTIVITIES

4.1 In General. PacBio shall have the right and responsibility to conduct all development activities for the development of the PacBio Technology Platform and the PacBio Products; except that Roche shall have the right and responsibility to conduct all clinical development activities as may be required to obtain and maintain Marketing Approvals for the PacBio Products [***] for the Field (including preparing, filing, and prosecuting any Marketing Approval Applications, and obtaining and maintaining any Marketing Approvals for such PacBio Products). In addition, Roche shall have the right and responsibility to conduct all development activities for the development of [***], including all clinical development activities for the development of such [***], in each case, for the Field. Each Party shall perform such development activities in accordance with the Development Plan (as defined under Section 4.2 below) and the provisions of this ARTICLE 4, and each Party shall bear its own costs and expenses incurred in connection therewith.

4.2 Development Plan.

(a) General; Initial Development Plan. The Parties through the JSC shall prepare and update a development plan for the development of the PacBio Technology Platform and the Products for the Field that sets out separately the activities to be conducted by each Party for which it has responsibility in accordance with Section 4.1 (collectively, the “Development Plan”), which shall include specific requirements and timelines (each, a “Development Requirement”) and for obtaining Marketing Approval for the Products for the Field (including, when applicable, scope and timelines for the conduct of clinical studies designed to support Marketing Approvals of the Products for the Field). The Parties through the JSC shall prepare an initial Development Plan consistent with the outline of development activities [***].

(b) Changes to the Development Plan. Each Party shall update the Development Plan on an ongoing basis (but not less often than once each calendar quarter at the JSC meetings) as to the progress of its development activities thereunder. PacBio shall be solely responsible for updating the Development Plan with respect to those development activities for

which it has responsibility in accordance with Section 4.1 and Roche shall be solely responsible for updating the Development Plan with respect to those development activities for which it has responsibility in accordance with Section 4.1. Each update shall include all material decisions and actions relating to the development of the PacBio Technology Platform and the Products (including filing or prosecution of any Marketing Approval Applications for the Field or obtaining or maintaining any Marketing Approvals for the Field). In addition, Roche shall provide, at JSC meetings, summaries of resulting data for all preclinical studies and all clinical trials conducted to obtain Marketing Approval [***] for the Field. It is understood that each Party shall be solely responsible for updating the Development Plan with respect to its activities as provided in this Section 4.2(b), and the other Party may advise but shall not have any right of approval with respect to changes to such Party's development activities set forth in the Development Plan in accordance with this Agreement. Notwithstanding the foregoing or anything else in this Agreement, PacBio may not modify the requirements of any Development Requirements without the prior written consent of Roche, not to be unreasonably withheld, conditioned or delayed. For clarity, however, PacBio may adjust the timelines for achieving the Development Requirements consistent with the use of Commercially Reasonable Efforts to accomplish the same.

(c) Conduct. Each Party shall use Commercially Reasonable Efforts to conduct those development activities for which it is responsible, as set forth in the then-current Development Plan, to achieve the goals of the then-current Development Plan in accordance with the timelines specified therein. Each Party shall conduct such activities in compliance with all Applicable Laws and in accordance with good scientific practice.

4.3 Product Specifications.

(a) Establishment. In furtherance of the development activities set forth in the Development Plan, PacBio shall establish and update the technical and functional capabilities of the PacBio Technology Platform ("PacBio Technology Platform Capabilities"). [***] Each Party shall provide to the other Party and its Affiliates all PacBio Know-How and Roche Know-How (as applicable) reasonably necessary for the other Party and its Affiliates to exercise its rights or perform its obligations under this Section 4.3.

(b) Changes. Each Party shall have the sole right to make changes to the Product Specifications for which it has responsibility in accordance with Section 4.3(a); [***]. Accordingly, PacBio hereby grants to Roche and its Affiliates under the PacBio Software and any PacBio Intellectual Property Rights and PacBio Know-How with respect to such PacBio Software a non-exclusive, non-transferable worldwide license to use, reproduce, modify and create derivative works of such PacBio Software to implement such modification to such PacBio Software for the Field in order to develop, manufacture, offer for sale, sell, market, import, distribute, promote, use, maintain and support such PacBio Software in accordance with the licenses granted under Section 2.1(a). Roche, on behalf of itself and its Affiliates, covenants not to exercise such license unless and until the Parties agree that Roche or its Affiliate shall

implement such modification. Roche's rights under the foregoing license shall be further subject to a separate software license agreement to be entered into by the Parties consistent with this Agreement, the terms and conditions of Third Party licensors of the PacBio Software, and other standard and customary terms and conditions for such license.

4.4 Regulatory Filings.

(a) Exclusive Right. Subject to Section 4.4(b) below, Roche shall have the exclusive right, at its expense, to file, obtain and maintain approvals for the clinical development and commercialization of each Product and Service for the Field, including any IDE, MAA or Marketing Approval, as well as permits, registrations, licenses, exemptions, waivers, exceptions and other permissions ("Permits"). Roche shall keep the JSC reasonably informed of such activities, including updating the Development Plan as to such activities in accordance with Section 4.2(b) above.

(b) DMF; QS Information. With respect to a PacBio Product that [***] PacBio is supplying (or having supplied) to Roche pursuant to Article 6 below and for which Roche files, or intends to file, a Marketing Approval Application for the Field in any country, at Roche's request, PacBio shall either, as PacBio determines (a) file a Device Master File ("DMF") with the applicable Regulatory Authority (and/or shall arrange for its contractor manufacturers to do so) and permit Roche and its Affiliates, and hereby grants Roche and its Affiliates the right to cross-reference any such DMF, or (b) provide to Roche and its Affiliates the relevant Quality Systems Information, in each case of (a) or (b), with respect to such PacBio Product for the purposes of, or use in, its regulatory filings to obtain and maintain Marketing Approval for such PacBio Product and use of such PacBio Product to provide Services. "Quality Systems Information" shall mean all data or information regarding a Party's quality systems filed or required to be filed to obtain Marketing Approval for a Product or Service, in each case, for the Field.

4.5 Regulatory Matters. Roche shall have the exclusive right to liaise with and manage all interactions with Regulatory Authorities to obtain and maintain Marketing Approvals for the Products and Services, as applicable, for the Field; provided that PacBio shall be entitled to participate in such interactions as provided in Section 4.5(a)(i). In addition to PacBio's obligations under Section 4.4(b), PacBio shall, at Roche's request, use Commercially Reasonable Efforts to assist Roche in participating in such interactions to obtain such Marketing Approvals for the Products and Services for the Field, including through execution and delivery of such documents (including any documentation to Regulatory Authorities to permit Roche and its Affiliates to cross-reference any DMF described in Section 4.4(b)), and provision of such information requested by Roche that Roche considers to be reasonably necessary in connection with obtaining such Marketing Approvals.

(a) Participation by PacBio. Without limiting PacBio's obligations under Section 4.5 above, to the extent relating to the Products or Services for the Field, Roche shall provide PacBio with:

(i) reasonable advanced notice (and in no event less than fourteen (14) days' advance notice whenever feasible) of substantive meetings with the FDA, or any other Regulatory Authority in a Major Market that are either scheduled with, or initiated by or under the authority of, Roche or its Affiliates, and an opportunity to (and PacBio shall, at Roche's request) have a reasonable number (but at least one (1)) representative participate in all substantive meetings with the FDA or any other Regulatory Authority in a Major Market, and in any case Roche shall keep PacBio reasonably informed as to all material interactions with any Regulatory Authorities; and

(ii) a copy of any material documents, information and correspondence submitted to, or received from, the FDA or any other Regulatory Authority in a Major Market as soon as reasonably practicable, together with English translations and summaries thereof, to the extent such translations and summaries exist.

4.6 Infeasibility. In the event that, with respect to a PacBio Product, PacBio reasonably believes, and provides written notice to Roche, that the applicable Product Specifications cannot be achieved despite using Commercially Reasonable Efforts (which may include acquiring New Technology in accordance with Sections 10.5(b) and 10.5(c) below) with respect to the development or manufacture of such PacBio Product, then the JSC shall convene within fifteen (15) Business Days upon notice thereof to establish appropriate measures and timelines to address the problem, [***].

ARTICLE 5

COMMERCIALIZATION AND DISTRIBUTION

5.1 Commercialization of the Products and Services. Roche, its Affiliates and Distributors shall have the exclusive right to commercialize and distribute the Products and Roche and its Affiliates shall have the right to provide Services, in each case, solely for the Field. Roche shall use Commercially Reasonable Efforts to carry out all such activities in accordance with the then-current Commercialization Plan (as defined under Section 5.2 below) and the provisions of this Agreement, and Roche or the relevant Affiliate shall bear its costs and expenses incurred in connection therewith.

5.2 Commercialization Plan. Reasonably in advance of the anticipated First Commercial Sale of a Product or Service by Roche, its Affiliates or Distributors for the Field, Roche shall prepare, in consultation with PacBio, a plan for the marketing, promotion, distribution and commercialization of such Product or Service by Roche, its Affiliates and Distributors, as applicable, in reasonable scope and detail (the "Commercialization Plan"), which shall be presented and updated on a calendar year basis by Roche to the JSC for its review. The

Commercialization Plan and each annual update shall include a [***] sales forecast [***] (the “Sales Forecast”), [***]. Such Sales Forecasts are non-binding (except to the extent of the Sales Minimum Requirements as described in Section 5.4 below).

5.3 Conduct. Roche shall use Commercially Reasonable Efforts to market, promote, distribute and sell each Product and Service, in each case, for the Field, and meet the Sales Minimum Requirements; provided, however that subject to Section 11.4 (Termination for Cessation), Roche may decide to discontinue a particular Product at any time if its sale or distribution is not profitable or otherwise commercially competitive according to Roche’s reasonable assessment. Roche shall conduct all such activities in compliance in all material respects with all Applicable Laws.

5.4 Sales Minimums. In connection with the review of the Commercialization Plan for a particular year, the JSC shall establish aggregate minimum requirements for revenue from the sales of all Products and Services, in each case, for the Field, which shall be, at a minimum, [***], the “Sales Minimum Requirements”), as illustrated by the examples in Exhibit 5.4, beginning with calendar year in which the First Commercial Sale of a Product or Service by Roche, its Affiliates or Distributors for the Field occurs. In the event Roche fails to meet the Sales Minimum Requirements [***], PacBio shall provide written notice to Roche [***], to convert the rights and licenses granted to Roche under Section 2.1(a) above (and any other rights and licenses granted hereunder) to non-exclusive. [***]

5.5 Commercially Reasonable Efforts. Each Party shall use Commercially Reasonable Efforts to maintain and enhance the reputation and acceptance of the Products and Services [***].

5.6 Marketing and Promotion.

(a) General. Roche and its Affiliates and Distributors shall use Commercially Reasonable Efforts to market and promote the Products and Services and to distribute Product and Service information and promotional materials, in each case, solely to Clinical End Users for the Field. Such marketing and promotion may include, without limitation, trade show displays, training workshops, educational seminars, advertising, sales sheets, Product information, and other activities related to promoting Products and Services.

(b) Materials. PacBio agrees to provide Roche with reasonable quantities of relevant and current marketing and promotional information relating to the PacBio Technology Platform and the Products in the form that such materials are used by PacBio in the United States market or the particular other market (collectively, “PacBio Promotional Materials”), at Roche’s request during the term of this Agreement, and Roche will reimburse PacBio for its incremental costs of providing such PacBio Promotional Materials to Roche. PacBio hereby grants Roche and its Affiliates a right and license to copy, translate, adapt, create derivative works of, publicly display and distribute the PacBio Promotional Materials and derivative works thereof for the

purposes of marketing and promoting the Products and Services solely for the Field in accordance with this Agreement (with the right to grant sublicenses to Third Parties acting on Roche's or its Affiliate's behalf). Roche may also develop and use its own marketing and promotional information relating to the Products and Services consistent with the PacBio Promotional Materials (including any translations or derivative works thereof).

(c) Packaging and Labeling. Roche shall have, in its sole discretion, the right to determine the trademarks, trade dress, final packaging, and labeling of the Products (including Kit Products) and Services, in each case, for the Field. For the avoidance of doubt, Roche may decide in its discretion to use or not use its own, its Affiliate's, a Third Party's or, subject to Section 5.7 below, PacBio's Listed Trademarks. Notwithstanding the foregoing, with respect to a PacBio Product, to the extent required under any Existing In-Licenses or as expressly agreed by the Parties in writing in accordance with Sections 10.5(b) and 10.5(c) before the first manufacture of such PacBio Product by or on behalf of PacBio to supply to Roche pursuant to Article 6, Roche shall not repackage any such PacBio Product, and Roche, its Affiliates and Distributors shall resell such PacBio Product for the Field [***]; provided, that, if the JSC or a Subcommittee for Intellectual Property Rights matters determines that such action is appropriate after taking into account the facts and circumstances related thereto, PacBio shall use Commercially Reasonable Efforts to seek an amendment of any such Existing In-Licenses in effect as of the Effective Date to allow the use of Roche Trademarks on such PacBio Products.

5.7 Trademarks.

(a) Grant. In connection with the exercise of rights and performance of obligations under Sections 2.1 and 5.6 above and in accordance with Section 5.7(b) below, PacBio hereby grants to Roche and its Affiliates an exclusive license to use PacBio's Listed Trademarks (except with respect to PacBio's trade name and trademarks used with respect to products or components that are functionally equivalent to Products intended to be used or interoperate with sequencing system platforms other than the PacBio Technology Platform (e.g., PacBio[®], SMRT[®] and SMRTbell[™]) under which such license to use is non-exclusive) for the packaging, labeling, marketing, promotion, distribution and sale of the Products and Services, and to otherwise exercise its rights and licenses hereunder with respect to the Products and Services, in each case, solely for the Field in accordance with this Agreement (with the right to grant sublicenses to Third Parties working on Roche's or its Affiliate's behalf). The extent of exclusivity of the license to PacBio's Listed Trademarks granted under this Section 5.7 shall be subject to the same clarification in Section 2.1(a), *mutatis mutandis*. PacBio shall own all right, title and interest in and to PacBio's Listed Trademarks and the registrations thereof and all goodwill from the use of PacBio's Listed Trademarks shall vest in and inure to the benefit of PacBio. Notwithstanding the foregoing, neither Roche nor its Affiliates shall use any of PacBio's Listed Trademarks except as mutually agreed by the Parties or as required by Applicable Laws, in each case, in accordance with Section 5.7(b) below.

(b) Guidelines. In the event Roche uses, as mutually agreed by the Parties or as required by Applicable Law, any of PacBio's Listed Trademarks for marketing and promotional materials, packaging or display of the Products or Services, or to otherwise exercise its rights and licenses hereunder with respect to the Products and Services, in each case, for the Field, PacBio shall provide to Roche a representative proof of each such Listed Trademark and reasonable guidelines on the use of such Listed Trademark, and Roche shall obtain PacBio's review and approval prior to the first use of such Listed Trademarks in such marketing and promotional materials, packaging or display, such approval not to be unreasonably withheld if such marketing and promotional materials, packaging or display of such Listed Trademarks are used in a manner that is consistent with such guidelines or is required by Applicable Law. Neither Party shall engage in any activity that would adversely affect the name, reputation, or goodwill of the other Party, the Trademarks of the other Party that such Party may adopt with respect to the Products or Services for its respective field as set forth in Exhibit 5.7(b) (the "Listed Trademarks") or the Products or Services. Neither Party shall challenge or assist others to challenge the Listed Trademarks of the other Party (except to the extent such restriction is expressly prohibited by Applicable Law) or the registration thereof or attempt to register any trademarks, marks or trade names confusingly similar to such Listed Trademarks. Exhibit 5.7(b) may be updated from time to time upon request by a Party with the written consent of the other Party, not to be unreasonably withheld. Except as set forth in this Section 5.7, nothing contained in this Agreement shall grant or shall be deemed to grant to either Party any right, title or interest in or to the other Party's Listed Trademarks.

5.8 Label License; End User License Agreement.

(a) Label License. With respect to a Product supplied by PacBio pursuant to ARTICLE 6 or otherwise licensed to Roche and its Affiliates hereunder, Roche and its Affiliates and Distributors, shall market, promote, distribute and sell such Product with, and subject to, label license agreements consistent with the terms and conditions of the label license agreement that PacBio uses [***], and other terms and conditions to the extent required by any Existing In-Licenses or as expressly agreed by the Parties in writing in accordance with Sections 10.5(b) and 10.5(c), as set forth in Exhibit 5.8(a) (as may be updated from time to time in accordance with Sections 10.5(b) and 10.5(c)) (each a "Label License Agreement"); provided, that, if the JSC or a Subcommittee for Intellectual Property Rights matters determines that such action is both reasonably necessary and likely to be successful (after taking into account the facts and circumstances related thereto), PacBio shall use Commercially Reasonable Efforts to seek an amendment of any such Existing In-Licenses in effect as of the Effective Date to waive the requirements to sell such Product with, and subject to, such other terms and conditions of the Label License Agreements. The Label License Agreements are intended to provide, among other things, a limited license that would prevent, to the extent provided under Applicable Law, the exhaustion of any PacBio Patents [***]. Notwithstanding anything to the contrary, no Label License Agreement or other labeling of the Products regarding its terms and conditions for use shall be construed to expand or limit the rights and licenses granted to Roche under Section 2.1 or elsewhere in this Agreement.

(b) End User License Agreements. With respect to an Instrumentation Product supplied by PacBio pursuant to ARTICLE 6 or otherwise licensed to Roche and its Affiliates hereunder, Roche and its Affiliates and Distributors, shall market, promote, distribute and sell such Product (including the associated Software) with, and subject to, the Product Documentation for such Product (including the associated Software) and an end user license agreement consistent with terms and conditions of the end user license agreement that PacBio uses for its own comparable product, and other terms and conditions to the extent required by any Existing In-Licenses or as expressly agreed by the Parties in writing in accordance with Sections 10.5(b) and 10.5(c), as set forth in Exhibit 5.8(b) (as may be updated from time to time in accordance with Sections 10.5(b) and 10.5(c)) (each an “End User License Agreement”); provided, that, if the JSC or a Subcommittee for Intellectual Property Rights matters determines that such action is both reasonably necessary and likely to be successful (after taking into account the facts and circumstances related thereto), PacBio shall use Commercially Reasonable Efforts to seek an amendment to any such Existing In-Licenses in effect as of the Effective Date to waive the requirements to sell such Product with, and subject to, such other terms and conditions of the End User License Agreements. Except as expressly provided in this Agreement under Sections 2.1(d), 4.3(b), 6.3(c) and 15.2(f), nothing in this Agreement shall be construed to convey any license to Roche with respect to the Software, and PacBio retains all its rights under the Software and related Intellectual Property Rights.

5.9 Services. Roche shall, in its sole discretion, have the exclusive right to control and direct marketing, promotion, distribution, sale and performance of the Services for the Field, in accordance with this Agreement. Roche agrees, on behalf of itself and its Affiliates, that they shall provide the Services for the Field in compliance with all Applicable Laws, [***].

5.10 Warranty; Instrumentation Installation, Support and Maintenance.

(a) General. PacBio shall provide to Roche the limited warranty for each of the PacBio Products supplied by PacBio pursuant to Article 6 as set forth in the applicable Supply Agreement for such PacBio Product; provided that the JSC shall determine the appropriate terms and conditions of warranty for such PacBio Product consistent with industry standards applicable to the Field, and provided further that the warranty for any Instrumentation Product shall be for at least one year after the placement with the relevant Instrumentation Product user, [***]. Without limiting Roche’s obligation of inspection as required in the particular Supply Agreement, the Parties acknowledge that a warranty issue may be identified following a resale of the relevant PacBio Product by Roche, its Affiliates or Distributors, and that the consequences of such warranty issue are set forth in the applicable Supply Agreement for such PacBio Product.

(b) Training / Support. PacBio shall provide to Roche, on a PacBio Product-by-PacBio Product basis, appropriate training sessions to Roche’s qualified technical support personnel to ensure that such personnel will have a reasonable and appropriate level of product knowledge and support expertise to enable them to provide end customer support of such PacBio

Product, [***]. Additionally, Roche and PacBio may decide for PacBio to provide installation, support and maintenance services, or parts replacement services, with respect to the Instrumentation Products on Roche's or its Affiliate's or Distributor's behalf, and in such event, the Parties shall enter into a separate services agreement consistent with the standard terms and conditions provided by PacBio to its distributors for such services [***].

5.11 Remote Access Software. In connection with the training provided pursuant to Section 5.10(b) above, PacBio shall provide to Roche appropriate information in PacBio's possession relating to remote access functionality of the PacBio Software. The Parties shall use Commercially Reasonable Efforts to cooperate to create Software that is interoperable with Roche's and its Affiliates' existing IT solution used to provide product support.

5.12 Know-How and Software Transfer. PacBio shall provide Roche with all reasonably requested PacBio Know-How and PacBio Software regarding any Product or Service for the Field reasonably necessary for Roche to exercise its rights or perform its obligations to [***], commercialize and distribute the Products for the Field (including to support and maintain the Products for the Field) and to provide the Services for the Field in accordance with the terms and conditions of this Agreement; provided that PacBio shall not be obligated to provide PacBio Software in source code unless and until Roche can exercise its rights to such PacBio Software pursuant to Sections 4.3(b) or 6.3(c) and the Parties enter into separate software license agreement consistent with this Agreement, the terms and conditions of Third Party licensors of the PacBio Software, and other standard and customary terms and conditions for such license.

5.13 Competing Products. In the event that Roche or any of its Affiliates sell a Competing Product (as defined below), or a service using a Competing Product, for the Field, PacBio shall have the right, at its sole discretion, to convert the rights and licenses granted to Roche and its Affiliates under Section 2.1 above and elsewhere in this Agreement to non-exclusive by giving Roche written notice. For purposes of this Section 5.13, "Competing Product" shall mean any sequencing instrument that competes with any Instrumentation Product; provided that Competing Product excludes (i) any product that Roche or any of its Affiliates is selling or has sold for the Field prior to or as of the Effective Date (each a "Pre-existing Roche Product") and (ii) any Product. For clarity, Roche or its Affiliates may sell new sequencing products which are Pre-existing Roche Products (i.e., based on, using or incorporating substantially the same technology(ies) and the same sequencing system platform(s)) which have been further developed or improved and such sequencing products shall be treated as Pre-existing Roche Products for the purpose of this Section 5.13. Notwithstanding anything to the contrary, nothing in this Section 5.13 shall be construed to expand or limit the rights and licenses granted to Roche under Section 2.1 or elsewhere in this Agreement.

ARTICLE 6

SUPPLY

6.1 Supply.

(a) Exclusivity. Subject to the terms and conditions of this Agreement (including, without limitation, Section 6.3(c)), (i) Roche shall exclusively purchase from PacBio all of its and its Affiliates' and Distributors' requirements of the PacBio Products for the Field in accordance with this ARTICLE 6; (ii) PacBio shall manufacture, or have manufactured, and supply all of Roche's and its Affiliates' and Distributors' requirements of the PacBio Products for the Field to Roche; and (iii) PacBio shall not manufacture, have manufactured or supply the PacBio Products for the Field to any Person other than Roche, its Affiliates and, at Roche's request, Roche's Distributors.

(b) Exhibit M. Promptly following the Effective Date, the Parties shall negotiate in good faith an exhibit to this Agreement setting forth the form of Supply Agreement for the Instrumentation Products and an exhibit to this Agreement setting forth the form of Supply Agreement for the Consumable Products, each such exhibit containing the terms and conditions under which PacBio shall manufacture and supply to Roche the applicable PacBio Products, including, without limitation, terms and conditions relating to warranties (including the warranty timeframes set forth in Section 5.10), quality, forecasting, purchase orders (issuance and acceptance) and invoicing, payment, shipping, returns and recalls, and, unless otherwise agreed by the Parties, the provisions of Section 6.3. Once agreed upon, such exhibits shall be attached to this Agreement as the relevant Exhibit M pursuant to an amendment to this Agreement. If the Parties have not so attached such two Exhibits M to this Agreement within [***] of the Effective Date, then either Party may escalate the remaining terms of such forms for establishment in accordance with ARTICLE 16.

(c) Supply Agreement. For each PacBio Product or, as determined by the JSC, group of PacBio Products, the Parties shall enter into a separate supply agreement substantially in the applicable form of Exhibit M agreed upon pursuant to Section 6.1(b) and attached hereto as consecutively numbered Exhibits M-1, M-2, M-3, and so forth (each a "Supply Agreement"), pursuant to which Roche shall purchase, and PacBio shall supply, such PacBio Product in accordance with the terms and conditions therein. It is understood that a particular Supply Agreement for a PacBio Product or group of PacBio Products may be different from the applicable form of Exhibit M to accommodate the specific characteristics of such PacBio Product(s). Each Supply Agreement, once executed, is hereby incorporated herein by reference and made a part of this Agreement. A Supply Agreement may only be amended by a written amendment signed by an authorized representative of each Party.

(d) Clinical Supplies. To the extent Roche will conduct any clinical development activities involving the PacBio Products pursuant to and in accordance with the Development Plan, PacBio shall supply Roche with such quantities of the PacBio Products [***]

as are reasonably requested by Roche in order for it to conduct such clinical development activities in accordance with the Development Plan ("Clinical Supplies"). The Parties acting through the JSC shall establish reasonable, mutually agreed procedures for Roche to forecast and submit, and PacBio to promptly fill orders for, the PacBio Products for such purposes. Such procedures shall be in lieu of the forecasting and ordering procedures set forth in any applicable Supply Agreement and shall include in all events reasonable lead times (consistent with PacBio's lead time requirements in existence as of the Effective Date, unless the Parties otherwise agree) and a reasonable delivery schedule. Notwithstanding the foregoing, PacBio shall not be obligated to supply any quantities of the PacBio Products in excess of the Products reasonably necessary for Roche to conduct the clinical development activities in accordance with the Development Plan. Roche agrees that if any such PacBio Products supplied pursuant to this Section 6.1(d) are used or resold by Roche for commercial purposes, and not solely for performing clinical development of such PacBio Products for the Field in accordance with the Development Plan, Roche shall (i) notify PacBio in advance of such use or resale and (ii) [***].

6.2 Transfer Price. The transfer price for each PacBio Product shall be determined in accordance with Paragraph 3 of Exhibit 7.1 (the "Transfer Price").

6.3 Shortage of Supply; Cooperation.

(a) General. PacBio and Roche through the JSC shall cooperate to establish reasonable plans and procedures to avoid any shortage of supply of the PacBio Products, including reasonable procedures for buffer stock inventories to be maintained by Roche or PacBio.

(b) Procedures. If at any time PacBio becomes unable, or concludes that it will be unable, to supply Roche's requirements for the PacBio Product ordered and accepted in accordance with the applicable Supply Agreement, PacBio shall immediately notify Roche in writing. In such event, the JSC shall immediately convene to address the problem, including locating alternate suppliers and facilities to increase manufacturing capacity and identifying other actions as may be necessary to resolve the problem. Based on such interactions, the JSC shall reasonably establish appropriate measures to remedy the shortage and the Parties shall promptly implement such measures. In any event, both Parties agree to respond with the level of speed and diligence commensurate with the severity of the problem.

(c) Back-Up Manufacturing Right.

(i) In the event of a Supply Failure with respect to a PacBio Product, Roche on behalf of PacBio shall have the right [***], for such PacBio Product for commercial sale and to have its and its Affiliates' and Distributors' requirements for such PacBio Product manufactured and supplied to PacBio, so that PacBio may supply Roche until PacBio itself is able to resume supply of such quantities. If Roche so elects to exercise its rights under this Section 6.3(c), then the JSC shall develop a reasonable, mutually agreed process [***]. The JSC

shall further establish a process for PacBio to resume supply of such PacBio Product to Roche in accordance with the terms of this Agreement as soon as practicable; provided that no costs or expenses resulting solely from the transfer of the manufacture of such PacBio Product from and to PacBio pursuant to this Section 6.3(c) shall be included in the Transfer Price for such PacBio Product. For the avoidance of doubt, Roche's obligations under Section 6.1(a) and any similar exclusive purchasing obligations under any Supply Agreement shall be suspended and of no force or effect for the applicable PacBio Product during any time period during which Roche has rightfully exercised its rights under this Section 6.3(c).

(ii) PacBio hereby grants to Roche and its Affiliates under the PacBio Intellectual Property Rights, PacBio Product Documentation, PacBio Know-How and PacBio Software a non-exclusive, non-transferable worldwide license, without the right to sublicense, to manufacture (or have manufactured [***]) each PacBio Product in accordance with this Agreement. [***]

ARTICLE 7

PAYMENTS

7.1 Payments. In consideration of the exclusive rights and licenses granted to Roche with respect to the Products and Services and the development and supply of Products to Roche hereunder, in each case, for the Field, Roche shall pay to PacBio the amounts as set forth in Exhibit 7.1.

7.2 Reports. Roche shall provide to PacBio on a calendar quarterly basis a report of (a) its sales of Products in connection with the monitoring of its Sales Minimum Requirements and (b) the PacBio Products that are Consumable Products that were used in the performance of Services for sale by Roche or its Affiliates [***]. Such report shall be provided no later than [***] after the end of the applicable calendar quarter. [***]

ARTICLE 8

PAYMENTS; BOOKS AND RECORDS

8.1 Payment Method. Except as expressly provided otherwise under any Supply Agreement, all payments under this Agreement shall be made by bank wire transfer in immediately available funds to an account designated by the Party to which such payments are due. Any payments or portions thereof due under this Agreement that are not paid by the date such payments are due under this Agreement shall bear interest at a rate equal to: (i) 10% per year; or (ii) if lower, the maximum rate permitted by Applicable Law; calculated on the number of days such payment is delinquent, compounded annually and computed on the basis of a three hundred sixty-five (365) day year. All amounts specified in this Agreement are in United States Dollars, and all payments by one Party to the other Party under this Agreement shall be paid in United States Dollars.

8.2 Withholding. If Applicable Law requires withholding by Roche of any taxes imposed upon PacBio on account of any payments paid by Roche under this Agreement, such taxes shall be deducted by Roche as required by Applicable Law from such payment and shall be paid by Roche to the proper taxing authorities. Official receipts of payment of any withholding tax shall be secured and sent to PacBio as evidence of such payment. The Parties will exercise their reasonable efforts to ensure that any withholding taxes imposed are reduced as far as possible under the provisions of any applicable tax treaty, and shall cooperate in filing any forms required for such reduction. Without limiting the foregoing, it is understood by the Parties as of the Effective Date that no withholding of any taxes with respect to any payments to be made by Roche under this Agreement is required under Applicable Laws.

8.3 Records; Inspection.

(a) Roche. Roche shall keep complete, true and accurate books of accounts and records for the purpose of confirming achievement of the Sales Minimum Requirements and providing the reports described in Section 7.2. Such books and records shall be kept for three (3) years following the end of the calendar quarter to which they pertain. Such records will be open for inspection during such three (3) year period by an independent internationally recognized auditor chosen by PacBio for the purpose of verifying the achievement of Sales Minimum Requirements and the reports submitted in accordance with Section 7.2. Such inspections may be made no more than once each calendar year, at reasonable times and on reasonable prior written notice. Such records for any particular calendar year shall be subject to no more than one inspection. PacBio's independent auditor shall be obligated to execute a reasonable confidentiality agreement prior to commencing any such inspection. Inspections conducted under this Section 8.3(a) shall be at the expense of PacBio, unless a variation or error producing an underpayment in amounts payable exceeding five percent (5%) of the amount paid for a period covered by the inspection is established or such inspection determines that Roche failed to achieve the Sales Minimum Requirements which Roche had claimed to have achieved, in which case all reasonable costs relating to the inspection for such period shall be paid by Roche. PacBio shall ensure that the inspection shall not cause undue disruption to Roche's normal business activities.

(b) PacBio. PacBio shall keep complete, true and accurate books of accounts and records for the purpose of determining Manufacturing Costs, U.S. list prices, average selling prices and payments due from Roche related thereto. Such books and records shall be kept for three (3) years following the end of the calendar quarter to which they pertain. Such records will be open for inspection during such three (3) year period by an independent internationally recognized auditor chosen by Roche for the purpose of verifying such amounts payable by Roche hereunder. Such inspections may be made no more than once each calendar year, at reasonable times and on reasonable prior written notice. Such records for any particular calendar year shall be subject to no more than one inspection. Roche's independent auditor shall be obligated to execute a reasonable confidentiality agreement prior to commencing any such inspection. Inspections conducted under this Section 8.3(b) shall be at the expense of Roche, unless a

variation or error producing an overpayment in amounts payable exceeding five percent (5%) of the amount paid for a period covered by the inspection is established, in which case all reasonable costs relating to the inspection for such period shall be paid by PacBio. In addition any overpaid amounts that are discovered shall be paid by PacBio together with interest on such overpaid amounts at a rate equal to: (i) 10% per year; or (ii) if lower, the maximum rate permitted by Applicable Law, calculated on the number of days from when the overpayment was made, compounded annually and computed on the basis of a three hundred sixty-five day (365) year. Roche shall ensure that the inspection shall not cause undue disruption to PacBio's normal business activities.

ARTICLE 9

CONFIDENTIALITY

9.1 Confidential Information. Except as expressly provided in this Agreement, the Parties agree that the receiving Party shall not publish or otherwise disclose and shall not use for any purpose any information furnished to it by the other Party pursuant to this Agreement (collectively, "Confidential Information"). Notwithstanding the foregoing, Confidential Information shall not include information that, in each case as demonstrated by written documentation:

(a) was already known to the receiving Party or its Affiliates, other than under an obligation of confidentiality to the disclosing Party, at the time of disclosure or, as shown by written documentation, was developed by the receiving Party or its Affiliates prior to its disclosure by the disclosing Party;

(b) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the receiving Party or its Affiliates;

(c) became generally available to the public or otherwise part of the public domain after its disclosure and other than through any act or omission of the receiving Party in breach of this Agreement (including information readily apparent by the routine inspection or authorized use of a Product sold to a Third Party in accordance with this Agreement);

(d) was subsequently lawfully disclosed to the receiving Party or its Affiliates by a Person other than the disclosing Party, and who did not directly or indirectly receive such information from the disclosing Party; or

(e) is developed by the receiving Party or its Affiliates without use of or reference to any Confidential Information disclosed by the disclosing Party.

9.2 Permitted Disclosures. Notwithstanding the provisions of Section 9.1 above and subject to Sections 9.3 and 9.4 below, each Party may use and disclose the other Party's Confidential Information to its Affiliates, licensees, sublicensees, contractors and any other Third Parties to the extent such use or disclosure is reasonably necessary to exercise the rights granted

to it, or reserved by it, under this Agreement, prosecuting or defending litigation, complying with Applicable Law, submitting information to tax or other governmental authorities or, with respect to Roche and its Affiliates as the receiving Party, conducting clinical trials hereunder with respect to any Product or Service. If a Party is required by Applicable Law to make any such disclosure of the other Party's Confidential Information, to the extent it may legally do so, it will give reasonable advance notice to the other Party of such disclosure and, save to the extent inappropriate in the case of patent applications or otherwise, will use its good faith efforts to secure confidential treatment of such Confidential Information prior to its disclosure (whether through protective orders or otherwise). For any other disclosures of the other Party's Confidential Information, including to Affiliates, licensees, sublicensees, contractors and other Third Parties, the receiving Party shall ensure that the recipient thereof is bound by a written confidentiality agreement or ethical obligations as materially protective of such Confidential Information as this ARTICLE 9.

9.3 Confidential Terms. Each Party agrees not to disclose to any Third Party the terms of this Agreement without the prior written consent of the other Party, except each Party may disclose the terms of this Agreement: (a) to advisors (including, without limitation, financial advisors, attorneys and accountants), actual or potential acquisition partners or private investors, and others on a need to know basis, in each case under appropriate confidentiality provisions substantially equivalent to those in this Agreement; or (b) to the extent necessary to comply with Applicable Law and court orders, including, without limitation, securities laws, regulations or guidances; provided that in the case of clause (b) the disclosing Party shall, to the extent it may legally do so, (i) promptly notify the other Party and (ii) (other than in the case where such disclosure is necessary, in the reasonable opinion of the disclosing Party's legal counsel, to comply with securities laws, regulations or guidances) allow the other Party a reasonable opportunity to oppose with the body initiating the process and, to the extent allowable by law, to seek limitations on the portion of the Agreement that is required to be disclosed. Each Party may disclose to Third Parties the information disclosed in accordance with clause (b) without the need for further approval by the other Party.

9.4 Publication of Product Information. Prior to its publishing, publicly presenting or submitting for written or oral publication to a broad audience a manuscript, abstract or the like that includes Data or other information relating to any Product, in each case, that would be reasonably expected to have a material adverse effect on the other Party's Intellectual Property Rights hereunder or respective field, and that has not previously published pursuant to this Section 9.4, a Party shall provide the other Party a copy thereof for its review for at least thirty (30) days (unless such Party is required by Applicable Law to publish such information sooner). Such Party shall consider in good faith any comments provided by the other Party during such thirty- (30) day (or such shorter) period. In addition, the publishing Party shall, at the request of the other Party but subject to its rights and obligations under Section 9.3(b), remove any Confidential Information of the non-publishing Party therefrom. The contribution of each Party shall be noted in all publications or presentations by acknowledgment or co-authorship, whichever is appropriate.

9.5 Publicity Review. The Parties acknowledge the importance of supporting each other's efforts to publicly disclose results and significant developments regarding the Products and other activities in connection with this Agreement that may reflect the terms of this Agreement or information that is not otherwise permitted to be disclosed under this ARTICLE 9, beyond what is required by Applicable Law, and each Party may make such disclosures from time to time with the approval of the other Party, which approval shall not be unreasonably withheld or delayed. Such disclosures may include, without limitation, achievement of milestones, significant events in the development and regulatory process, commercialization activities and the like. When a Party (the "Requesting Party") elects to make any such public disclosure under this Section 9.5, it will give the other Party (the "Cooperating Party") at least five (5) Business Days' notice to review and comment on such statement, it being understood that if the Cooperating Party does not notify the Requesting Party in writing within such five Business Day period of any reasonable objections, as contemplated in this Section 9.5, such disclosure shall be deemed approved, and if the Cooperating Party timely raises its objections, the Parties shall work diligently and reasonably to agree on the text of any proposed disclosure in an expeditious manner.

9.6 Certain Principles. The principles to be observed in any disclosures described in Sections 9.4 and 9.5 shall be accuracy, compliance with Applicable Law, reasonable sensitivity to potential negative reactions of any Regulatory Authority and the need to keep investors informed regarding the publishing Party's business. Accordingly, a Party shall not unreasonably withhold its approval of a proposed disclosure or publication that complies with such principles.

9.7 Prior Non-Disclosure Agreements. Upon execution of this Agreement, the terms of this ARTICLE 9 shall supersede any prior non-disclosure, secrecy or confidentiality agreement between the Parties or their Affiliates, including that certain Mutual Non-Disclosure Agreement between PacBio and Roche Diagnostics GmbH, dated January 17, 2013 (collectively, the "CDAs"); and any information disclosed under such prior agreements shall be deemed disclosed under this Agreement.

ARTICLE 10

INTELLECTUAL PROPERTY

10.1 Ownership of Intellectual Property.

(a) Background Technology. All rights, title and interest in and to Inventions, and all Intellectual Property Rights therein and thereto, (i) Controlled by a Party or its Affiliates prior to the Effective Date or (ii) made, developed, conceived, authored, acquired or created by or on behalf of a Party or its Affiliate independently of the other Party and its Affiliates outside the performance of activities under this Agreement (with respect to each Party, its "Background Technology") shall remain owned by the owner.

(b) Foreground Technology.

(i) General. Each Party or its Affiliates, as applicable, shall own all right, title, and interest in and to the Foreground Technology made, developed, conceived, authored, acquired or created (any of the foregoing, "Made") by or on behalf of such Party or its Affiliate independently of the other Party and its Affiliates, and all Intellectual Property Rights therein and thereto. The Parties shall jointly own all right, title, and interest in and to the Foreground Technology Made jointly by or on behalf of each Party or their respective Affiliates, and all Intellectual Property Rights therein and thereto.

(ii) Improvements. Notwithstanding Section 10.1(b)(i) above, PacBio shall own all right, title and interest in and to any Foreground Technology that constitutes an improvement, enhancement, or modification ("Improvement") Made by or on behalf of Roche or its Affiliate (whether independently or jointly) of PacBio's Background Technology disclosed to Roche or its Affiliate under this Agreement and which is based on such Background Technology, and all Intellectual Property Rights therein and thereto, and Roche shall own all right, title and interest in and to any Foreground Technology that constitutes an Improvement Made by or on behalf of PacBio or its Affiliate (whether independently or jointly) of Roche's Background Technology disclosed to PacBio or its Affiliate under this Agreement and which Improvement is based on such Background Technology, and all Intellectual Property Rights therein and thereto. In the event that any Foreground Technology constitutes an Improvement of both PacBio's Background Technology disclosed to Roche or its Affiliate under this Agreement and Roche's Background Technology disclosed to PacBio or its Affiliate under this Agreement, and which Improvement is based on such Background Technologies, PacBio and Roche shall jointly own all right, title and interest in and to such Improvement and all Intellectual Property Rights therein and thereto with no duty to account to the other Party.

(iii) Roche and its Affiliates shall retain a perpetual, irrevocable, worldwide, royalty-free, non-exclusive license under Improvements of PacBio's Background Technology Made by or on behalf of Roche or its Affiliate (whether independently or jointly) that are assigned by Roche to PacBio hereunder, and all Intellectual Property Rights therein and thereto, for all purposes. PacBio and its Affiliates shall retain a perpetual, irrevocable, worldwide, royalty-free, non-exclusive license under Improvements of Roche's Background Technology Made by or on behalf of PacBio or its Affiliate (whether independently or jointly) that are assigned by PacBio to Roche hereunder, and all Intellectual Property Rights therein and thereto, for all purposes.

(iv) Inventorship. It is understood that except as expressly set forth under this Section 10.1, inventorship, authorship and other indicia of which Party made, developed, conceived, acquired or created an Invention or Intellectual Property Right will be determined in accordance with United States or the relevant foreign intellectual property laws under which the relevant foreign Intellectual Property Right exists in effect at the time of making, development, conception, authorship, acquisition or creation, as applicable.

(c) Sole Inventions.

(i) Assignment. With respect to any Foreground Technology specified as solely owned by a Party (the "Assignee") in Section 10.1(b)(ii) above (a "Sole Invention"), the other Party (the "Assignor") shall assign and hereby does assign any and all of Assignor's right, title and interest in and to such Sole Invention (for clarity, excluding, however, in all cases any and all Background Technology incorporated therein), including all Intellectual Property Rights therein and thereto (collectively, the "Assigned IP") to Assignee. For clarity, Assigned IP assigned to PacBio shall be deemed PacBio Intellectual Property Rights, PacBio Software or PacBio Know-How and Assigned IP assigned to Roche shall be deemed Roche Intellectual Property or Roche Know-How, as applicable, and Assigned IP shall be subject to the licenses granted to the relevant Assignor by the relevant Assignee hereunder, as applicable.

(ii) Further Assurances. Assignor agrees to execute such documents, render such assistance, and take such other action as an Assignee may reasonably request, to apply for, register, perfect, confirm, and protect Assignee's rights in all Assigned IP assigned to Assignee hereunder. Each Assignor agrees that if the Assignee is unable because of Assignor's unavailability, dissolution or incapacity, or for any other reason, to secure Assignor's signature to apply for or to pursue any application for any United States or foreign patents or mask work or copyright registrations within the Assigned IP assigned to Assignee above, then Assignor hereby irrevocably designates and appoints the Assignee and its duly authorized officers and agents as Assignor's agent and attorney in fact, to act for, and in Assignor's behalf and stead, to execute and file any such applications and to do all other lawfully permitted acts to further the prosecution and issuance of patents, copyright and mask work registrations thereon with the same legal force and effect as if executed by Assignor.

(d) Patent Prosecution. Subject to this Section 10.1(d), the Party who owns, or whose Affiliate(s) own, all right, title and interest in and to any Sole Invention (the "Prosecuting Party") shall have the sole right, at its own expense, to execute and control all patent filing, patent prosecution, patent maintenance and patent defense activities of any and all Patents claiming such Sole Invention. If the Prosecuting Party determines to abandon any such Patent solely due to financial reasons, the Prosecuting Party shall provide the other Party with written notice at least sixty (60) days (or if less, as long as reasonably practicable) prior to taking such action, or the date on which such abandonment would become effective, and at the request of the other Party, the Prosecuting Party shall consider in good faith to permit the other Party to pay reasonable out-of-pocket costs incurred by the Prosecuting Party to continue the prosecution or maintenance of such Patent. In addition, where the Prosecuting Party files a patent application claiming a Sole Invention in one jurisdiction but elects not to in any other jurisdiction(s), the Prosecuting Party shall provide the other Party with written notice at least sixty (60) days (or if less, as long as reasonably practicable) prior to the filing deadline for such other jurisdiction(s), and at the request of the other Party, the Prosecuting Party shall consider in good faith prosecuting a patent application in such other jurisdictions as are requested by the other Party, provided that the other Party pays reasonable out-of-pocket costs incurred by the Prosecuting

Party for such prosecution and the maintenance of any resulting Patent(s). For clarity, the Prosecuting Party shall have the sole right (but not obligation) to file for any Patents claiming such Sole Invention or to abandon any Patents claiming such Sole Invention for any reason (e.g., strategic reasons) other than solely due to financial reasons, provided that the Prosecuting Party shall first discuss with the other Party any non-financial reasons for not filing or abandoning any Patent claiming a Sole Invention and consider in good faith any alternative courses of action proposed by the other Party.

(e) Joint Inventions. With respect to any Foreground Technology jointly owned by the Parties (alone or through their Affiliates) as determined in accordance with Section 10.1(b) above (“Joint Inventions”), except as expressly provided in this Agreement, it is understood that neither Party shall have any obligation to obtain any approval of, nor pay a share of the proceeds to, the other Party or its Affiliates to practice, enforce, license, assign or otherwise exploit such Joint Inventions, and each Party hereby waives any right it may have under the laws of any jurisdiction to require such approval or accounting. Patent filing, patent prosecution, patent maintenance and patent defense of any jointly owned Patent claiming a Joint Invention shall be solely as mutually agreed; provided that the Party which Made more than fifty percent (50%) of the underlying invention shall have the first right and the other Party shall have a backup right, in the event such Party elects not to do so, to take the lead in drafting, filing, prosecution, maintenance and defense of such Patent, and the Party taking the lead will also carry all external expenses such as legal fees and outside counsel expenses.

10.2 Patent Challenges.

(a) In partial consideration for the licenses and rights granted hereunder, Roche agrees, during the term of this Agreement, as follows: if Roche or any of its Affiliates commences or actively participates in (other than in response to a court order, in accordance with Applicable Law, in response to any claim brought by PacBio, or in response to any claim brought by any Person with respect to any PacBio Patents) (with respect to this Section 10.2(a), “Supports”) any challenge to the patentability, validity or enforceability of (i) any patent application or patent within the PacBio Patents set forth on Exhibit 1.26 or (ii) any PacBio Patent not set forth on Exhibit 1.26 where PacBio’s Control thereof is clearly set forth in publicly available records of the U.S. Patent and Trademark Office or equivalent agency in the relevant foreign jurisdiction (with respect to this Section 10.2(a), a “Patent Challenge”) in any court or before any government entity or national or international agency with authority to determine the patentability, validity, enforceability or scope of such patent application or patent (each of the foregoing, a “Patent Authority”), then PacBio shall be entitled to terminate the licenses granted by PacBio to Roche and its Affiliates under Section 2.1 and elsewhere in this Agreement with respect to such PacBio Patent by giving Roche written notice, unless, within thirty (30) days after written notice by PacBio to Roche following PacBio’s receipt of notice of the initiation of such Patent Challenge, Roche causes such Patent Challenge to terminate with prejudice prior to any determination by the applicable Patent Authority (to the extent Roche has the right to do so) and takes no other actions to Support such Patent Challenge.

(b) In partial consideration for the licenses and rights granted hereunder, PacBio agrees, during the term of this Agreement, as follows: if PacBio or any of its Affiliates commences or actively participates in (other than in response to a court order, in accordance with Applicable Law, in response to any claim brought by Roche, or in response to any claim brought by any Person with respect to any Roche Patents) (with respect to this Section 10.2(b), “Supports”) any challenge to the patentability, validity or enforceability of any Roche Patents where Roche’s Control thereof is clearly set forth in publicly available records of the U.S. Patent and Trademark Office or equivalent agency in the relevant foreign jurisdiction (with respect to this Section 10.2(b), a “Patent Challenge”) in or before any Patent Authority, then Roche shall be entitled to terminate the licenses granted by Roche to PacBio under Section 2.2(a)(ii) with respect to such Roche Patent by giving Roche written notice unless, within thirty (30) days after written notice by Roche to PacBio following Roche’s receipt of notice of the initiation of such Patent Challenge, PacBio causes such Patent Challenge to terminate with prejudice prior to any determination by the applicable Patent Authority (to the extent PacBio has the right to do so) and takes no other actions to Support such Patent Challenge.

10.3 Enforcement of Roche Patents. As between the Parties, Roche and its Affiliates shall have the sole right to enforce the Roche Patents in their sole discretion.

10.4 Enforcement of PacBio Patents.

(a) Notice. In the event that a Party reasonably believes that any PacBio Patent covering a Product hereunder is being infringed by a Third Party, or is subject to a declaratory judgment action arising from such infringement, in each case with respect to the development, manufacture, sale, offering for sale, importation, support or use of a product for the Field (an “Infringing Product”), such Party shall promptly notify the other Party.

(b) Initiating Enforcement Actions. Subject to this Section 10.4(b), PacBio shall have the sole right (but not the obligation), at its own expense, to enforce the PacBio Patents with respect to such Infringing Product, or to defend any declaratory judgment action with respect thereto (for purposes of this Section 10.4, an “Enforcement Action”). PacBio agrees not to settle any Enforcement Action, or make any admissions or assert any position in such Enforcement Action, in a manner that would materially adversely affect Roche’s rights or interests in the Products for the Field, without the prior written consent of Roche, which shall not be unreasonably withheld or delayed. PacBio may not bring an Enforcement Action seeking recovery for Roche’s or its Affiliates’ or Distributors’ damages with respect to such Infringing Product, without the prior written consent of Roche and separate agreement between the Parties with respect to allocation of any resulting damages award. In the event that PacBio fails to initiate an Enforcement Action under this Section 10.4(b) to enforce the PacBio Patents against a commercially significant infringement by a Third Party in a Major Market, which infringement consists of the manufacture, sale or use of an Infringing Product for the Field in such Major Market, within one hundred eighty (180) days of a request by Roche to initiate such Enforcement Action, the Parties shall agree on and enter into a reasonable “common interest agreement,” if

necessary, to protect the Parties' interests in the PacBio Patents, wherein such Parties will agree to their shared, mutual interest in the outcome of such potential dispute, and thereafter, the Parties shall (through the JSC) promptly meet to consider and cooperate to develop an appropriate course of action with respect to enforcing the PacBio Patents with respect to such Infringing Product or to defend such declaratory judgment action with respect to the PacBio Patents, as applicable, in a manner that takes into account the impact on the market for, and Roche's sales of, the Products and Services for the Field and the reasonable likelihood of an adverse effect on the validity, enforceability or scope of the PacBio Patents being infringed, which course of action may, if agreed by the Parties (such agreement not to be unreasonably withheld, delayed or conditioned), include the right for Roche to initiate or maintain such Enforcement Action as to such PacBio Patents. In any event, Roche agrees not to settle any Enforcement Action, or make any admissions or assert any position in such Enforcement Action, in a manner that would adversely affect the validity, enforceability or scope of any PacBio Patent, without the prior written consent of PacBio, which shall not be unreasonably withheld or delayed.

(c) Cooperation. The Party initiating or defending any Enforcement Action pursuant to this Section 10.4 shall keep the other Party reasonably informed of the progress of any such Enforcement Action, and such other Party shall have the right to participate with counsel of its own choice and at its own expense. In addition, the Parties shall assist one another and cooperate in any such Enforcement Action at the other's reasonable request (including joining as a party plaintiff to the extent necessary or so requested by the other Party).

(d) Recoveries. Any damages or other monetary awards recovered from an Enforcement Action shall be allocated first to reimburse the reasonable out-of-pocket costs and expenses of the Party who initiates the Enforcement Action and, if the other Party joins as a party plaintiff, then the reasonable out-of-pocket costs and expenses of the other Party. Any amounts remaining shall be retained by the Party who initiates the Enforcement Action; provided that if the Parties jointly initiate or maintain the Enforcement Action, then the Parties shall agree on an appropriate allocation of any such amounts based on the share of the costs and expenses to initiate and maintain such Enforcement Action.

10.5 Third Party Technologies.

(a) Generally. The obligations of PacBio and the rights of Roche under this Agreement shall be subject to, and limited by, (i) any agreements pursuant to which PacBio acquired or licensed any particular PacBio Patents, PacBio Know-How, PacBio Software or other PacBio Intellectual Property Rights and any supply agreements for proprietary products or components, in each case in the form of such agreements in effect as of the Effective Date and with respect to which PacBio has provided to Roche an accurate copy thereof prior to the Effective Date (such copy may be redacted provided such redactions do not materially prejudice Roche's ability to accurately understand the scope of relevant rights obtained by PacBio under such agreements) and (ii) such other agreements entered into by PacBio after the Effective Date

in accordance with this Section 10.5 to obtain access to New Technology (collectively, and in each case as may be amended from time to time in accordance therewith, the "Existing In-Licenses"). With respect to the prosecution and maintenance, and enforcement, of PacBio Patents licensed by PacBio from a Third Party, to the extent PacBio has the right to do so, PacBio shall cooperate with Roche to prosecute and maintain, and to enforce, such PacBio Patents in the same manner as set forth in Sections 10.1(d) and (e) and 10.4 above. As between PacBio and Roche, any recoveries from enforcement of such PacBio Patents licensed from a Third Party (including any amounts that PacBio receives from the Third Party licensor as a result of such enforcement) shall be shared in accordance with Section 10.4, after deducting from such recoveries any amounts owed to the Third Party licensor for such enforcement; provided that the costs and expenses incurred by PacBio in such enforcement action shall include, without limitation, the costs and expenses reimbursed or required to be reimbursed by PacBio to the Third Party licensor in such enforcement action.

(b) New [***] Technology. If, after the Effective Date, PacBio determines that it is necessary or desirable to include subject matter controlled by a Third Party within the PacBio Intellectual Property Rights, PacBio Software or PacBio Know-How for the development, manufacture, support or commercialization of a PacBio Product [***] ("New [***] Technology") that is subject to (i) terms or conditions as to packaging or resale of such Product that materially limit the rights and licenses granted to Roche under Section 2.1 and are additional to or materially different from the then-current restrictive terms or conditions as to packaging or resale of the same or a comparable PacBio Product then being supplied to Roche or its Affiliate for the Field under this Agreement, or (ii) terms or conditions of sale or license of such PacBio Product for the Field that materially limit the rights and licenses granted to Roche under Section 2.1 and are additional to or materially different from the then-current terms or conditions set forth in Exhibit 5.8(a) for a Label License Agreement or set forth in Exhibit 5.8(b) for an End User License Agreement, then PacBio shall notify and provide Roche with a description of such terms and conditions, and Roche shall notify PacBio within ten (10) Business Days of receipt of such notice from PacBio if it elects to incorporate such New [***] Technology in the development, manufacture or commercialization of such PacBio Product for the Field. If Roche does not timely elect to incorporate such New [***] Technology, then such New [***] Technology shall be deemed excluded from the PacBio Patents, PacBio Intellectual Property Rights and PacBio Know-How for all purposes of this Agreement, and if such New [***] Technology would constitute a Product or component of a Product, then such New [***] Technology shall be deemed excluded from the Products; and all rights of Roche and obligations of PacBio with respect to such New [***] Technology shall terminate (including any indemnification obligations of PacBio under Sections 14.1 and 14.3(a) with respect to such New [***] Technology). For clarity, it is understood that PacBio may include New [***] Technology within the PacBio Intellectual Property Rights, PacBio Software or PacBio Know-How for the development, manufacture, support or commercialization (whether for the Field, outside the Field, or both) of PacBio Products [***] at its sole discretion and such inclusion shall not require review or approval by Roche or the JSC; Roche may advise but shall not have any right of approval with respect to such inclusion.

(c) New Field Specific Technology. If either Party desires to incorporate Third Party subject matter in the development, manufacture or commercialization of a [***] for the Field or Roche desires for PacBio to incorporate Third Party subject matter in the development or manufacture of a PacBio Product (“New Field Specific Technology”), then such Party shall provide the details of such New Field Specific Technology to the JSC for its review and consideration. The JSC shall determine whether to seek a license or other rights to such New Field Specific Technology, which Party(ies) should attempt to negotiate a license or other rights to such New Field Specific Technology, the terms and conditions which the Parties would be willing to accept with respect to such New Field Specific Technology, and how the Parties will allocate the costs associated with such New Field Specific Technology.

(d) Additional Covenants Regarding Existing In-Licenses.

(i) PacBio represents that it has, as of the Effective Date, fulfilled, and agrees that it shall use Commercially Reasonable Efforts to fulfill, its obligations under the Existing In-Licenses, in each case to the extent that failure to have fulfilled, or to use Commercially Reasonable Efforts to fulfill, as applicable, would materially adversely affect Roche, its Affiliates, or any of Roche’s or its Affiliates’ rights hereunder or under any Supply Agreement; and

(ii) PacBio shall not, without Roche’s prior written consent, not to be unreasonably withheld, terminate, modify or amend any Existing In-License in any way that would materially adversely affect Roche’s rights under this Agreement or any Supply Agreement, and PacBio shall provide Roche with a copy of all modifications to or amendments of the Existing In-Licenses that materially affect Roche’s rights under this Agreement or any Supply Agreement, regardless of whether Roche’s consent was required with respect thereto.

(e) Updates to Exhibit. PacBio shall, at Roche’s request, not more often than on an annual basis, update Exhibit 1.26 to reflect the then-current list of Patents claiming priority to the patent applications listed, as of the Effective Date, on Exhibit 1.26 or to the patent applications from which any such patents issued.

10.6 Non-Infringement of Third Party Intellectual Property Rights. PacBio warrants and represents, as of the Effective Date, that:

(a) except as otherwise disclosed by PacBio to Roche in the data room prior to the Effective Date, to its Knowledge, there are no Intellectual Property Rights as of the Effective Date necessary for PacBio’s carrying out its obligations, or for Roche and its Affiliates to exercise its rights for the Field under this Agreement with respect to Products contemplated to be developed or manufactured by PacBio hereunder as of the Effective Date (but without regard to any specific Roche Content or use or application of any Product, whether or not known or anticipated), other than the Intellectual Property Rights of which PacBio is sole legal and beneficial owner or to which PacBio has access under license agreements included in the

Existing In-Licenses and which are PacBio Intellectual Property Rights or PacBio Know-How or PacBio Software (the “IPR Agreements”), in each case, consistent with the terms and conditions of this Agreement;

(b) PacBio Controls the Patents listed, as of the Effective Date, on Exhibit 1.26 without encumbrance, except as described in the Existing In-Licenses or that would not materially adversely affect Roche’s rights hereunder;

(c) without prejudice to the foregoing and save to the extent specified in the IPR Agreements, there are no agreements of any kind to which PacBio or its Affiliate are a party as of the Effective Date which preclude the use, licensing, or grant of rights by PacBio to Roche and its Affiliates under Sections 2.1 and 5.7 of this Agreement;

(d) except with respect to rights granted to the U.S. government pursuant to 35 USC Sec. 202, et seq. or otherwise as a result of the use of U.S. government funding or resources, PacBio has not granted and is not obliged to grant any license or other permission to any Third Party in respect of any PacBio Intellectual Property Rights or PacBio Know-How that would materially adversely affect Roche’s rights hereunder;

(e) except as otherwise disclosed by PacBio to Roche, as of the Effective Date (i) to its Knowledge, the PacBio Patents that claim the PacBio Technology Platform (collectively, the “Platform Patents”) are not being infringed by any Third Party, (ii) the Platform Patents are not the subject of any claim, opposition or action related to validity, enforceability or scope, and (iii) to its Knowledge, there is no circumstance which is reasonably likely to be the basis for any such claim, opposition or action;

(f) to its Knowledge, all issued Patents within the PacBio Patents as of the Effective Date are valid and subsisting;

(g) to its Knowledge, the performance by PacBio of its obligations under this Agreement with respect to [***] contemplated to be developed or manufactured by PacBio hereunder as of the Effective Date (but without regard to any specific Roche Content or use or application of any Product, whether or not known or anticipated) will not infringe any rights to Patents or other Intellectual Property Rights held by any Third Party or involve the unauthorized use of confidential information, Know-How or software of a Third Party disclosed to PacBio, in each case, in circumstances which would entitle the Third Party to rightfully make a claim against PacBio or Roche;

(h) to its Knowledge, PacBio’s execution of this Agreement will not entitle any other party to any IPR Agreement as of the Effective Date to exercise any of its rights (whether of termination or otherwise) that would reasonably be expected to and would have a material adverse effect on Roche’s rights hereunder; and

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

(i) as of the Effective Date, each of the IPR Agreements is in full force and effect and to PacBio's Knowledge, each is valid and binding and there exist no material grounds upon which any such IPR Agreement may be terminated by any other party thereto; nor has PacBio received notice of termination of any IPR Agreement.

For the purposes of this Section 10.6, "Knowledge" shall mean, the actual knowledge, after having made customary inquiry, of PacBio's in-house legal counsel as of the Effective Date.

10.7 Patent Marking. The Parties agree that they will cooperate to determine the content and format of any patent markings for a Product as necessary to comply with any applicable terms or conditions of any Third Party licensor of such Product.

ARTICLE 11

TERM AND TERMINATION

11.1 Term. This Agreement shall commence on the Effective Date, and unless terminated earlier as provided in this ARTICLE 11, shall continue in full force and effect until thirteen (13) years from the Effective Date ("Initial Term"). This Agreement shall extend for additional successive periods of five (5) years (each, a "Renewal Term") after the expiration of the Initial Term or the then-current Renewal Term, as applicable, unless one or more of the following have occurred as of the date of such expiration: (i) Roche has breached a material provision of this Agreement, which breach was not cured in accordance with the timing set forth in Section 11.2, *mutatis mutandis*, (ii) Roche has failed to meet the Sales Minimum Requirements hereunder, or (iii) Roche failed to provide PacBio notice at least one (1) year in advance of the expiration of the Initial Term or the then-current Renewal Term, as applicable, and referencing this Section 11.1 that it desires to extend this Agreement.

11.2 Termination for Breach. Either Party to this Agreement may terminate this Agreement in the event the other Party shall have materially breached or defaulted in the performance of any of its material obligations hereunder, and such default shall have continued for ninety (90) days after written notice thereof was provided to the breaching Party by the non-breaching Party. Any such termination shall become effective at the end of such ninety (90) day period unless the breaching Party has cured any such breach or default prior to the expiration of the ninety (90) day period.

11.3 Termination by Roche. Roche may terminate this Agreement in its entirety for any reason upon sixty-(60) days prior written notice to PacBio; provided, however, in the event that Roche terminates this Agreement pursuant to this Section 11.3 prior to [***], Roche shall pay PacBio any unpaid Milestone Payments set forth in Paragraph 2 of Exhibit 7.1 in the event the corresponding Milestone is achieved on or prior to [***].

11.4 Termination for Cessation. After the First Commercial Sale of a Product or Service by Roche or its Affiliates, in either case, for the Field, in the event Roche ceases to sell,

other than due to a Supply Failure or an External Factor, all Products and Services for the Field, for a [***] period, PacBio may terminate this Agreement in its entirety upon [***] prior written notice to Roche.

ARTICLE 12

EFFECT OF TERMINATION

12.1 Accrued Obligations. The expiration or termination of this Agreement for any reason shall not release either Party from any liability that, at the time of such expiration or termination, has already accrued to the other Party or that is attributable to a period prior to such expiration or termination, nor will any expiration or termination of this Agreement preclude either Party from pursuing all rights and remedies it may have under this Agreement, or at law or in equity, with respect to breach of this Agreement.

12.2 Effect of Termination. For any expiration or termination of this Agreement, the following shall apply:

(a) Wind-Down Period.

(i) Development. With respect to a termination of this Agreement by PacBio pursuant to Sections 11.2 or 11.4 or by Roche pursuant to Section 11.2 or 11.3, in the event there are any ongoing development activities of the Products being conducted by or on behalf of Roche or Affiliates, at PacBio's request, Roche agrees to promptly provide a summary and a detailed report of the development status quo achieved to PacBio, and to be available for questions regarding the status quo achieved for a period requested up to a maximum [***] after the effective date of such termination. Roche may, in its discretion but to the extent consistent with Applicable Law, terminate or continue any clinical trial then ongoing with respect to a Product or Service for the Field.

(ii) Commercialization. With respect to termination of this Agreement after the First Commercial Sale of a Product or Service by Roche or its Affiliates, in each case, for the Field, to avoid a disruption in the supply of Products, Roche and its Affiliates and Distributors may continue to distribute, market and promote (but shall not be obligated to distribute, market or promote) Products and provide Services, in accordance with the terms and conditions of this Agreement, and PacBio shall continue to provide services with respect to the Instrumentation Products for installation, support and maintenance or parts replacement pursuant to and in accordance with any services agreement entered into between the Parties as contemplated in Section 5.10 for (A) with respect to a termination of this Agreement by Roche pursuant to Section 11.2 or 11.3, [***] following the effective date of any such termination, or (B) with respect to a termination of this Agreement by PacBio pursuant to Section 11.2 or 11.4, [***] following the effective date of any such termination (in either case, the "Wind-Down Period"). Any Products or Services sold or disposed by Roche, its Affiliates or Distributors, during the Wind-Down Period shall be subject to payments under Exhibit 7.1 and the provisions

of Sections 5.6(c), 5.8, 7.1, 7.2 and 10.7. In the event Roche terminates this Agreement pursuant to Section 11.2 and to the extent Roche notifies PacBio, Roche shall have the right to cancel any outstanding purchase orders for Products ordered. In other events, PacBio shall continue to fulfill any purchase orders placed by Roche and accepted by PacBio in accordance with the relevant Supply Agreement during the Wind-Down Period for delivery within the Wind-Down-Period and Roche shall purchase Product so delivered in accordance with the terms and conditions of this Agreement and the relevant Supply Agreement, and within [***] of expiration of the Wind-Down Period, Roche shall notify PacBio of any quantity of the Products remaining in Roche's inventory and PacBio may, at its option (unless this Agreement is terminated by Roche pursuant to Section 11.2, in which case, PacBio shall), repurchase any such quantities of the Products, as applicable, from Roche at a price equal to the amounts paid by Roche for such Products.

(b) Return of Materials. Promptly upon a request by a Party on the later of (i) expiration or termination of this Agreement or (ii) expiration of the Wind-Down Period, the other Party shall either return to the other Party or destroy, Confidential Information of the other Party or its Affiliates that is in its possession. Effective upon the expiration of the Wind-Down Period, each Party shall cease to use all of the other Party's trademarks and trade names.

(c) Supply Agreement. Upon expiration or termination of this Agreement, any Supply Agreement shall automatically terminate, except to the extent Roche may continue to purchase, and PacBio may continue to supply, quantities of Products during the Wind-Down Period in accordance with Section 12.2(a) above.

(d) Licenses. Upon expiration or termination of this Agreement, all rights and licenses granted to a Party under the other Party's Intellectual Property Rights and Know-How in this Agreement shall terminate; except that (i) Sections 2.1, 2.2, 4.3(b), 5.6(b), 5.7, 6.3(c) and 15.2 shall survive (provided that the rights and licenses granted therein shall continue on a non-exclusive basis) during the Wind-Down Period until expiration of the Wind-Down Period, and (ii) the rights and licenses granted to Roche under Sections 2.1, 4.3(b) (to the extent such license was exercised during the term of this Agreement) and 5.7 shall continue on a non-exclusive basis thereafter solely (A) to support and maintain the Products which had been sold by Roche, its Affiliates and Distributors prior to the end of the Wind-Down Period and (B) to perform Services for the Field using Products which had been sold, by PacBio to Roche or its Affiliates or by Roche, its Affiliates and Distributors, prior to the end of the Wind-Down Period. Upon PacBio's request, the Parties shall negotiate in good faith on commercially reasonable terms and conditions for a non-exclusive, royalty-bearing license under Roche Intellectual Property Rights and Roche Know-How as may be reasonably necessary or useful for the development, manufacture or commercialization of Products (but without regard to any specific Roche Content) for in and/or outside the Field.

12.3 No Renewal, Extension or Waiver. Acceptance of any order from, or sale or license of, any Products or Services to Roche after the effective date of expiration or termination

of this Agreement in its entirety shall not be construed as a renewal or extension hereof, or as a waiver of termination of this Agreement.

12.4 Survival. Upon the expiration or termination of this Agreement in its entirety, all rights and obligations of the Parties under this Agreement shall terminate except those described in the following Sections: Sections 2.6, 8.3, 9.1, 9.2, 9.3, 10.1(a), 10.1(b), 10.1(c), 10.1(d) (solely with respect to Sole Inventions which are Assigned IP), 10.1(e), 12, 13.4, 13.5, 14, 16 (other than any obligations relating to the JSC) and 17.3 through 17.14; and, in addition, to the extent that any Products is sold during the Wind-Down Period defined in Section 12.2(a)(ii) above, the following Sections shall survive: (a) Section 2.5 shall survive with respect to the units of Products referenced therein, and (b) Section 4.4(b) shall survive with respect to the right to cross-reference any DMF, to the extent necessary to maintain any Marketing Approval Authorization with respect to such units of Products.

12.5 Non-exclusive Remedy. Termination of this Agreement shall be in addition to, and shall not prejudice, the Parties' remedies at law or in equity, including the Parties' ability to receive legal damages or equitable relief with respect to any breach of this Agreement, regardless of whether or not such breach was the reason for the termination. Except as expressly set forth in this Agreement, all rights and remedies of a Party are cumulative.

ARTICLE 13

REPRESENTATIONS AND WARRANTIES

13.1 General Representations. Each Party hereby represents and warrants to the other Party as of the Effective Date as follows:

(a) Duly Organized. Such Party is a corporation duly organized, validly existing and is in good standing under the laws of the jurisdiction of its incorporation, is qualified to do business and is in good standing as a foreign corporation in each jurisdiction in which the conduct of its business or the ownership of its properties requires such qualification and failure to have such would prevent such Party from performing its obligations under this Agreement.

(b) Due Execution; Binding Agreement. This Agreement is a legal and valid obligation binding upon such Party and enforceable in accordance with its terms. The execution, delivery and performance of this Agreement by such Party have been duly authorized by all necessary corporate action and do not and will not: (i) require any consent or approval of its stockholders; (ii) to such Party's knowledge, violate any law, rule, regulation, order, writ, judgment, decree, determination or award of any court, governmental body or administrative or other agency having jurisdiction over such Party; nor (iii) conflict with, or constitute a default under, any agreement, instrument or understanding, oral or written, to which such Party is a party or by which it is bound.

13.2 Representations and Warranties of PacBio. PacBio represents and warrants to Roche that, as of the Effective Date:

- (a) it has the full right and authority to grant the rights and licenses as provided herein;
- (b) all necessary consents, approvals and authorizations of all Regulatory Authorities, other governmental authorities and other Persons required to be obtained by PacBio in order to enter into this Agreement have been obtained; and
- (c) neither PacBio nor any of its Affiliates has been debarred under 21 U.S.C. §§335a or similar Applicable Law.

13.3 Representations and Warranties of Roche. Roche represents and warrants to PacBio that, as of the Effective Date:

- (a) it has the full right and authority to grant the rights granted herein; and
- (b) all necessary consents, approvals and authorizations of all Regulatory Authorities, other governmental authorities and other Persons required to be obtained by Roche in order to enter into this Agreement (if any) have been obtained.

13.4 DISCLAIMER. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OR VALIDITY OF ANY PATENTS ISSUED OR PENDING.

13.5 LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING IN THIS AGREEMENT OR OTHERWISE, OTHER THAN BY REASON OF A BREACH OF ARTICLE 9 (CONFIDENTIALITY) ABOVE OR THE GRANT OF RIGHTS OR LICENSES BY PACBIO TO A THIRD PARTY IN CONFLICT WITH THE EXCLUSIVE RIGHTS AND LICENSES GRANTED BY PACBIO TO ROCHE UNDER SECTIONS 2.1 OR 5.7, AS APPLICABLE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER WITH RESPECT TO ANY SUBJECT MATTER OF THIS AGREEMENT (WHETHER UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY) FOR ANY INCIDENTAL, INDIRECT, SPECIAL, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS; PROVIDED HOWEVER THAT NOTHING IN THIS SECTION 13.5 SHALL BE DEEMED TO LIMIT THE INDEMNIFICATION OBLIGATIONS OF EITHER PARTY UNDER ARTICLE 14 TO THE EXTENT A THIRD PARTY RECOVERS ANY INCIDENTAL, INDIRECT, SPECIAL, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES, OR LOST PROFITS, FROM AN INDEMNITEE.

***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

ARTICLE 14

INDEMNIFICATION AND INSURANCE

14.1 Indemnification of PacBio. Except with respect to IP Infringement Claims set forth under Section 14.3 below, Roche shall indemnify and hold harmless each of PacBio, its Affiliates and the directors, officers and employees of such entities and the successors and assigns of any of the foregoing (the "PacBio Indemnitees"), from and against any and all losses, damages, penalties, fines, costs and expenses paid to a Third Party ("Losses") incurred by any PacBio Indemnitee arising from, or occurring as a result of, any claims, actions, suits or proceedings brought by a Third Party (a "Third Party Claim"), to the extent such Third Party Claim arises from, or occurs as a result of: (a) any material breach of any representations or warranties by Roche in ARTICLE 13; (b) the design, development, manufacture or sale of a Product by Roche or any of its Affiliates, or a Third Party at the direction of Roche; or (c) the gross negligence or willful misconduct of a Roche Indemnitee or Distributor; except, in each case, to the extent such Third Party Claims fall within the scope of PacBio's indemnification obligations set forth in Section 14.2 below.

14.2 Indemnification of Roche. Except with respect to IP Infringement Claims set forth under Section 14.3 below, PacBio shall indemnify and hold harmless each of Roche, its Affiliates and the directors, officers and employees of such entities and the successors and assigns of any of the foregoing (the "Roche Indemnitees"), from and against any and all Losses incurred by any Roche Indemnitee arising from, or occurring as a result of, any Third Party Claim, to the extent such Third Party Claim arises from or occurs as a result of (a) any material breach of any representations or warranties by PacBio in Section 10.6 or ARTICLE 13; (b) any material breach of the warranties by PacBio in the applicable Supply Agreement (as provided in accordance with the terms and conditions therein); (c) the design, development, manufacture or sale of the Products by PacBio or any of its Affiliates, or a Third Party at the direction of PacBio; or (d) the gross negligence or willful misconduct of a PacBio Indemnitee; except, in each case, to the extent such Third Party Claims fall within the scope of Roche's indemnification obligations set forth in Section 14.1 above.

14.3 IP Infringement.

(a) By PacBio.

(i) PacBio shall indemnify and hold harmless the Roche Indemnitees from and against any and all Losses incurred by any Roche Indemnitee to the extent arising from, or occurring as a result of, an IP Infringement Claim. In connection with any such IP Infringement Claim, in the event the development, manufacture, use or sale of a Product is found to infringe or misappropriate any Intellectual Property Right of a Third Party or the use or sale of a Product is enjoined, or in the reasonable opinion of PacBio, a Product is likely to become the subject of such an adjudication or injunction, PacBio, at its election and expense, will (A) procure for Roche the right to continue using and selling such Product for the Field; (B) modify

or replace, as applicable, such Product so that it becomes non-infringing while providing substantially equivalent performance and functionality; or (C) in the event PacBio is unable to achieve either of the foregoing (A) or (B) despite using Commercially Reasonable Efforts, cease supply of such Product to Roche and provide to Roche a credit of the amounts paid to PacBio with respect to such Product, including all units thereof purchased by any of its Affiliates or Distributors, calculated on a pro-rata basis, as applicable, on a straight-line basis over the most recent period of 5 years.

(ii) The foregoing obligations in Section 14.3(a)(i) above shall not apply to the extent that such IP Infringement Claim arises from, or occurs as a result of (in each case, with respect to the Product giving rise to such IP Infringement Claim): (A) such Product not being a PacBio Product; (B) modifications to such Product by a Person other than by or on behalf of PacBio and without PacBio's consent; (C) failure to use the most recent version of the Software (including any updates, patches, or bug fixes to portions of the Software) provided by PacBio, provided that such version provides substantially equivalent or better performance and functionality as the previous version, or to otherwise take any commercially reasonable corrective action, including implementing such modifications or revisions to such Product, directed by PacBio, in each case within thirty (30) days after provision by PacBio to Roche; (D) the combination of such Product with any other information, materials, technology or other items or service (including any Roche Content) not expressly recommended by PacBio in writing, where there would be no claim but for such combination; (E) compliance with the Product Specifications for such Product [***]; (F) compliance with any other content, design, feature, or procedure expressly required by Roche in writing [***]; or (G) use of any information, materials, or other items expressly required by Roche in writing [***]; or (H) any use or application of such Product by Roche, its Affiliate or Distributor, or their direct or indirect customers, including any medical claim made by Roche, its Affiliates or Distributors with regard to a Product or Service or the use of any data resulting therefrom, to the extent such use or application is not specified by PacBio in the PacBio Product Documentation [***].

(b) By Roche. Roche shall indemnify and hold harmless the PacBio Indemnitees from and against any and all Losses incurred by any PacBio Indemnitee to the extent arising from or occurring as a result of an IP Infringement Claim, to the extent such IP Infringement Claim arises from, or occurs as a result of (in each case with respect to the Product giving rise to such IP Infringement Claim): (A) modifications to such Product by or on behalf of Roche or its Affiliates and in each case without PacBio's consent; (B) compliance with the Product Specifications expressly required by Roche in writing [***]; (C) failure to use Commercially Reasonable Efforts to make available for installation within thirty (30) days the most recent version of the Software (including any updates, patches, or bug fixes to portions of the Software) provided by PacBio, provided that such version provides substantially equivalent or better performance and functionality as the previous version; (D) compliance with any other content, design, feature, or procedure expressly required by Roche in writing [***]; or (E) use of any information, materials, or other items expressly required by Roche in writing [***]; or (F) any use or application of such Product by Roche, its Affiliate or Distributor, or their direct or

indirect customers, including any medical claim made by Roche, its Affiliates or Distributors with regard to a Product or Service, to the extent such use or application is directed or authorized by Roche, its Affiliates, or Distributors and in each case that is not specified by PacBio in the PacBio Product Documentation [***].

14.4 **Procedure.** Each PacBio Indemnitee or Roche Indemnitee (each, an “Indemnitee”) shall promptly notify the other Party (the relevant “Indemnitor”) in writing of any Third Party Claim to which the Indemnitee is entitled to indemnification under this ARTICLE 14 and, when known, the facts constituting the basis for the Third Party Claim and with respect to such claim, to the extent possible, the Parties shall meet and discuss their mutual interest in the defense or outcome of such potential dispute and cooperate to develop the appropriate course of action in accordance with this Section 14.4. Neither Party shall without the prior written consent of the other Party, settle or compromise any Third Party Claim in any way that would adversely affect such other Party’s rights or obligations hereunder. Notwithstanding the foregoing provisions of this Article 14, except to the extent otherwise agreed in writing by the Parties, each Party shall be responsible for its own attorney’s fees and its own other costs and expenses incurred in the defense or settlement of any Third Party Claim and such fees, costs and expenses shall not constitute “Losses” hereunder.

14.5 **Insurance.** Reasonably in advance of the anticipated First Commercial Sale of a Product or Service for the Field, PacBio will procure and maintain in continuous force adequate and sufficient liability insurance coverage, consistent with industry standards, with respect to the operation of the business associated with *in vitro* diagnostic devices and related services and that it will, at its own expense, list Roche and its Affiliates (and ensure they remain listed) as additional insureds for primary and noncontributing insurance coverage under each of its general liability, product liability, errors & omissions, excess and umbrella liability insurance policies against relevant liabilities that may arise out of or in relation to any Product or Service and with a coverage level for product liability consistent with industry standards, with respect to its activities hereunder. PacBio agrees to provide the Roche with copies of such insurance policies and declarations promptly upon Roche’s written request.

ARTICLE 15

BANKRUPTCY LAW; FIRST RIGHT OF NEGOTIATION; ESCROW

15.1 **Bankruptcy.** All rights and licenses granted by PacBio to Roche and/or its Affiliates under or pursuant to this Agreement, including, without limitation, those set forth in Section 2.1, are and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of right to “intellectual property” as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that Roche and its Affiliates shall retain and may fully exercise all of their rights and elections under the U.S. Bankruptcy Code and any foreign counterpart thereto. The Parties further agree that that upon commencement of a bankruptcy proceeding by or against PacBio under the U.S. Bankruptcy Code, Roche will be entitled to a complete duplicate of, or complete access to (as Roche deems appropriate), all such intellectual

property and all embodiments of such intellectual property. Such intellectual property and all embodiments of such intellectual property will be promptly delivered to Roche (a) upon any such commencement of a bankruptcy proceeding and upon written request by Roche, unless PacBio elects to continue to perform all of its obligations under this Agreement, or (b) if not delivered under (a) above, upon the rejection of this Agreement by or on behalf of PacBio and upon written request by Roche. PacBio (in any capacity, including debtor-in-possession) and its successors and assigns (including any trustee) agree not to interfere with the exercise by Roche and its Affiliates of its rights and licenses to such intellectual property and such embodiments of intellectual property in accordance with this Agreement, and agree to assist Roche and its Affiliates in obtaining such intellectual property and such embodiments of intellectual property in the possession or control of PacBio's Affiliates or any Third Parties as reasonably necessary for Roche to exercise such rights and licenses in accordance with this Agreement. The foregoing provisions are without prejudice to any rights Roche or its Affiliates may have arising under the U.S. Bankruptcy Code or other Applicable Laws.

15.2 Escrow. No later than such time as PacBio is obligated to deposit the Escrow Materials (as defined below) for the first PacBio Product [***] for the Field, the Parties shall enter into a mutually agreed escrow agreement (the "Escrow Agreement") with an escrow agent chosen by Roche, such Escrow Agreement to be negotiated in good faith. Pursuant to the terms of such Escrow Agreement:

(a) Initial Deposit. Upon Roche's filing of a Marketing Approval Application for a PacBio Product [***] for the Field, PacBio shall deposit in escrow the PacBio Know-How, PacBio Software and PacBio Product Documentation used to manufacture such PacBio Product for the Field, which may include documentation consisting of, containing or relating to technical information, computer programs, source code, object code, ideas, concepts, processes, procedures, designs, schematics, works-in-progress, prototypes, works of authorship, inventions, documentation, techniques, information and materials arising out of or relating to the manufacture of such PacBio Product for the Field, including, without limitation, process sheets, manufacturing assembly instructions, bills of material, approved vendor lists, schematics, artwork, tooling drawings, specifications, blueprints, test procedures, fixtures and test beds, internal/external software and firmware (in binary and source code form), diagnostics, device drivers, and test verification results, and information filed (or which would be filed) in a DMF and the relevant Quality Systems Information (collectively, the "Escrow Materials"). [***]

(b) Updates. PacBio will update the Escrow Materials deposited with the escrow agent in accordance with the Escrow Agreement, but in no event shall such updates be performed less than once in each calendar year.

(c) Verification. The Escrow Agreement shall include verification services to confirm that the Escrow Materials are complete, correct and accurate. Additionally, Roche will have the right under the terms of the Escrow Agreement to inspect any Escrow Materials after

delivery to the escrow agent, but only on the premises of the escrow agent and only as is necessary to verify the completeness of such Escrow Materials.

(d) Fees. Roche will be responsible for the fees and costs of the escrow agent; provided, however, that if the verification process set forth in Section 15.2(c) determines that the deposit is incomplete, PacBio will be responsible for such fees and costs of such verification.

(e) Release Conditions. Upon the occurrence of one or more of the following events (an “Escrow Triggering Event”), Roche may receive the Escrow Materials as follows: (i) if a Supply Failure of a PacBio Product occurs and PacBio does not perform the transfer of such Escrow Materials to Roche referenced under and in accordance with Section 6.3(c) within thirty (30) days of Roche’s written request for such transfer to the extent PacBio has not already previously provided such Escrow Materials to Roche hereunder, then Roche may receive the Escrow Materials with respect to such PacBio Product; or (ii) if a Supply Failure of all Products occurs as a result of PacBio commencing proceedings (or has proceedings commenced against it) under Chapter 7 of the U.S. Bankruptcy Code, then Roche may receive the Escrow Materials with respect to all PacBio Products.

(f) Deposited Materials License. PacBio hereby grants to Roche a limited, non-exclusive, royalty-free, worldwide license (with the right to grant sublicenses to Third Parties acting on Roche’s behalf), under all Intellectual Property Rights Controlled by PacBio in and to the Escrow Materials with respect to the PacBio Products, to use the Escrow Materials to manufacture (or have manufactured by the CMO (which manufacture the Parties understand may, in either case, need to be on PacBio’s behalf to satisfy PacBio’s obligations to, or licensed conditions imposed by, one or more Third Parties)) PacBio Products in accordance with the terms and conditions of this Agreement. Roche covenants that it will not exercise its rights under the foregoing license to use the Escrow Materials unless and until an Escrow Triggering Event occurs and then only with respect to the PacBio Product to which such Escrow Triggering Event relates, only until PacBio may resume manufacture and supply of such Product pursuant to Section 6.3(c), and solely to the applicable Product Specifications as they exist as of such Escrow Triggering Event (for clarity, Roche shall not have any license to manufacture any PacBio Product to any other Product Specification). Roche’s rights under the foregoing license to use the PacBio Software in source code will be further subject to a separate software license agreement entered into by the Parties consistent with the terms and conditions of Third Party licensors of the PacBio Software and other standard and customary terms and conditions for such license. The grant of rights and licenses under this Section 15.2(f) above shall include a grant to the Affiliates of Roche; provided that Roche shall remain responsible to PacBio hereunder for all activities of its Affiliates to the same extent as if such activities had been undertaken by Roche itself. Except as expressly granted in this Section 15.2(f), PacBio reserves all rights, title and interest in and to the Escrow Materials, including, without limitation, all Intellectual Property Rights therein and thereto, and all Escrow Materials shall be deemed PacBio’s Confidential Information pursuant to the terms of this Agreement.

(g) Support in Use of Escrow Materials. For a period of ninety (90) days after delivery of the Escrow Materials to Roche, PacBio agrees to use Commercially Reasonable Efforts to provide technical support, by mail, email and phone, with regard to Roche's use of the Escrow Materials in accordance with the terms and conditions of the license grant under Section 15.2(f) above on a time and materials basis at PacBio's then applicable hourly rates.

(h) Suspension of Purchase Obligations. For purposes of clarity, upon the occurrence of an Escrow Triggering Event for any PacBio Product, Roche's exclusivity obligations under Section 6.1(a) to purchase such PacBio Product and any similar exclusive purchasing obligations under any Supply Agreement with respect to such PacBio Product shall be suspended and of no force or effect for such PacBio Product during any time period during which Roche has rightfully exercised its rights under Section 15.2(f).

15.3 Roche Right of First Negotiation. Prior to PacBio or any of its Affiliates entering into any negotiations regarding terms or entering into any definitive agreement with a Third Party for [***], PacBio shall provide written notice to Roche of its *bona fide* intent to engage in [***] at such time (the "ROFN Notice"), which ROFN Notice shall include information in reasonable detail sufficient to enable Roche to make an informed decision with respect to [***]. If Roche notifies PacBio in writing within [***] of receipt of the ROFN Notice (the "ROFN Response Period", such notice, the "ROFN Response") that it has a *bona fide* interest in discussing the acquisition of rights with respect to [***], the Parties shall enter into good faith negotiations with respect thereto on an exclusive basis, on such terms as may be mutually agreeable. If Roche does not provide the ROFN Response during the ROFN Response Period, or Roche provides the ROFN Response during the ROFN Response Period but the Parties are unable, after good faith negotiations, to reach mutual agreement and execute a definitive agreement with respect to [***], PacBio and its Affiliates shall be free thereafter to enter into a transaction (including execution of a definitive agreement) relating to [***] with one or more Third Parties. To the extent PacBio or any of its Affiliates agrees [***], such agreement to assign shall not constitute [***] for purposes of this Section 15.3. The foregoing shall not limit PacBio's obligations with respect to Sections 10.5 and 10.6. For clarity, an assignment by PacBio (or its Affiliate if PacBio has assigned this Agreement to such Affiliate) to a Person that acquires substantially all of the business or assets of PacBio (or its Affiliate if PacBio has assigned this Agreement to such Affiliate) relating to this Agreement, whether by merger, acquisition or otherwise, shall not constitute [***] for purposes of this Section 15.3.

ARTICLE 16

DISPUTE RESOLUTION

16.1 Dispute Resolution. The Parties agree that all disputes arising out of or in connection with this Agreement, including, without limitation, any dispute regarding the interpretation, performance, enforcement, termination or invalidity of this Agreement or the failure of the JSC to reach unanimous agreement on any issue within its respective authority

under this Agreement (each a “Dispute”), shall be resolved by the Parties in accordance with this ARTICLE 16:

16.2 Pre-Arbitration Dispute Resolution. No Dispute under this Agreement shall be referred to arbitration proceedings under Section 16.3 below until the following procedures in this Section 16.2 have been satisfied, unless the Senior Executives have already attempted to resolve such Dispute pursuant to Section 3.4, in which case, either Party may submit such Dispute for resolution pursuant to Section 16.3; provided that any applicable statute of limitations with respect to such Dispute shall be tolled while the Parties attempt to resolve such Dispute in accordance with Section 3.4 or this Section 16.2. In the event of a Dispute, the Dispute shall be first referred by either Party to the JSC, which shall meet as soon as practicable discuss in good faith and attempt to achieve a mutually agreeable solution to recommend to the respective Senior Executive of each Party. Following such recommendation, or following the determination by either Party that the JSC that it will not reach such a mutually agreeable recommendation, the Senior Executives shall meet as soon as practicable. If the Dispute is not resolved by the Senior Executives by mutual agreement within ninety (90) days after the Dispute was first referred to the JSC, either Party may at any time thereafter provide the other Party notice of its decision to commence arbitration proceedings in accordance with the procedures set forth under Section 16.3 below. If the Parties should resolve such Dispute, a memorandum setting forth their agreement will be prepared and signed by both Parties. For clarity, in no event shall a Party be obligated to wait more than ninety (90) days after a Dispute is first referred to the JSC, before commencing arbitration proceedings in accordance with the procedures set forth under Section 16.3 below with respect to such Dispute.

16.3 Disputes. Subject to Section 16.2 above, all Disputes, upon written notice by either Party to the other Party, shall be submitted for resolution by final, binding arbitration in the manner described in this Section 16.3:

(a) Conduction of the Arbitration. Any arbitration pursuant to this Section 16.3 shall be administered by the International Chamber of Commerce (“ICC”) pursuant to the Rules of Arbitration of the International Chamber of Commerce then in effect, except as modified below. The arbitration shall be conducted by three (3) arbitrators. Each Party shall appoint one (1) arbitrator by written notice to the other Party and the two Party-appointed arbitrators shall select the third arbitrator to serve as the Chairperson of the arbitration panel within thirty (30) days of their appointment. If the Party-appointed arbitrators are unable to agree upon the third arbitrator, the third arbitrator shall be appointed by the ICC.

(b) Arbitration Proceedings. The Parties and the arbitrator(s) shall use all reasonable efforts to complete any arbitration under this Section 16.3 within twelve (12) months after the appointment of the arbitrator(s). It is the intent of the Parties that the arbitration be conducted in as expeditious and cost effective a manner as possible. In that regard, the Parties agree that discovery in any arbitration be limited as follows: (i) discovery shall be limited to the Parties or their respective Affiliates and with respect to a Party’s Affiliates, discovery shall be

limited to that which is reasonably necessary to establish such Party's and its Affiliates' compliance with this Agreement; and (ii) allowable document requests and exchanges shall be limited to documents that are directly relevant to the issues in dispute. The arbitration proceedings and all pleadings, responses and evidence shall be in the English language.

(c) Decision of the Arbitrator(s). The arbitrator(s) shall issue a reasoned decision or award. The Parties agree that the decision or award rendered by the arbitrator(s) shall be the sole, exclusive and binding remedy between them regarding any Dispute presented to the arbitrator(s) and that the arbitrator(s) may rule on the bearing of reasonable costs (including reasonable attorney's fees). Any decision or award of the arbitrator(s) may be entered in any court of competent jurisdiction for judicial recognition of the decision and an order of enforcement. Except and to the extent one or both Parties have a legal obligation under Applicable Laws to do so, neither the existence or proceedings of the arbitration nor the decision of the arbitrator(s) shall be made public without the joint consent of the Parties and each Party shall maintain the confidentiality of such proceedings and decision unless each Party otherwise agrees in writing; provided that either Party may make such disclosures as are permitted for Confidential Information of the other Party under ARTICLE 9 above.

(d) Location; Costs. Unless otherwise mutually agreed by the Parties, the arbitration proceeding shall be conducted in New York, New York. The Parties agree that they shall share bear the costs of arbitration according to the Rules of Arbitration of the International Chamber of Commerce subject to a ruling of the arbitrators on costs.

ARTICLE 17

GENERAL PROVISIONS

17.1 Responsibilities. Each Party shall conduct its activities under this Agreement in accordance with all Applicable Laws and except as otherwise provided herein, each Party shall be responsible for and bear its own costs and expenses arising therefrom.

17.2 Force Majeure. If the performance of any part of this Agreement (except for any payment obligation under this Agreement) by either Party is prevented, restricted, interfered with or delayed by reason of *force majeure* (which is defined as a cause beyond the reasonable control of the affected Party, and may include fire, flood, embargo, power shortage or failure, acts of war, insurrection, riot, terrorism, strike, lockout or other labor disturbance or acts of God), the Party so affected shall, upon giving written notice to the other Party, be excused from such performance to the extent of such prevention, restriction, interference or delay; provided that the affected Party shall use its reasonable efforts to avoid or remove such causes of non-performance and shall continue performance with the utmost dispatch whenever such causes are removed.

17.3 Governing Law. This Agreement and all questions regarding its validity or interpretation, or the breach or performance of this Agreement, shall be governed by, and construed and enforced in accordance with, the laws of the State of New York, without reference

to conflict of law principles. The Parties hereby disclaim application of the United Nations Convention on Contracts for the International Sale of Goods.

17.4 Waiver of Breach. Except as otherwise expressly provided in this Agreement, any term of this Agreement may be waived only by a written instrument executed by a duly authorized representative of the Party waiving compliance. The delay or failure of either Party at any time to require performance of any provision of this Agreement shall in no manner affect such Party's rights at a later time to enforce the same. No waiver by either Party of any condition or term in any one or more instances shall be construed as a further or continuing waiver of such condition or term or of another condition or term.

17.5 Modification. No amendment or modification of any provision of this Agreement shall be effective unless in writing signed by a duly authorized representative of each Party. No provision of this Agreement shall be varied, contradicted or explained by any oral agreement, course of dealing or performance or any other matter not set forth in an agreement in writing and signed by a duly authorized representative of each Party.

17.6 Severability. In the event any provision of this Agreement should be held invalid, illegal or unenforceable in any jurisdiction, such provision shall be severed from this Agreement and the Parties shall negotiate in good faith a valid, legal and enforceable substitute provision that most nearly reflects the original intent of the Parties and all other provisions of this Agreement shall remain in full force and effect in such jurisdiction. Such invalidity, illegality or unenforceability shall not affect the validity, legality or enforceability of such provision in any other jurisdiction.

17.7 Entire Agreement. This Agreement (including the Exhibits attached hereto), the Supply Agreements (when executed) and any other agreements that may be entered into between the Parties or their respective Affiliates as contemplated herein, altogether constitute the entire agreement between the Parties relating to their subject matter and supersede all prior or contemporaneous agreements, understandings or representations, either written or oral, between PacBio and Roche with respect to such subject matter, including the CDAs and the Letter of Intent between PacBio and F. Hoffman-La Roche Ltd.

17.8 Notices. Unless otherwise agreed by the Parties or specified in this Agreement, all communications between the Parties relating to, and all written documentation to be prepared and provided under, this Agreement shall be in the English language. Any notice required or permitted under this Agreement shall be in writing in the English language and: (a) delivered personally; (b) sent by registered or certified mail (return receipt requested and postage prepaid); (c) sent by express courier service providing evidence of receipt, postage pre-paid where applicable; or (d) sent by facsimile and a copy promptly sent by another permissible method of providing notice described in clauses (a), (b), or (c) above, each to the following addresses of the receiving Party or such other address for a Party as may be specified by like notice:

To PacBio:

Pacific Biosciences of California, Inc.
1380 Willow Road
Menlo Park, CA 94025
Telephone: (650) 521-8000
Facsimile: (650) 323-9420
Attention: Office of the CEO

To Roche:

F. Hoffmann-La Roche Ltd
Grenzacherstrasse 124
CH-4070 Basel
Switzerland
Facsimile: +41 616 88 1396
Attention: Legal Department - Diagnostics

With a copy to:

Pacific Biosciences of California, Inc.
1380 Willow Road
Menlo Park, CA 94025
Telephone: (650) 521-8000
Facsimile: (650) 323-9420
Attention: Legal Department

With a copy to:

Roche Molecular Systems, Inc.
4300 Hacienda Drive
Pleasanton, CA 94588
Facsimile: (925) 225-1128
Attention: Roche Sequencing Unit Legal
Department

Any notice required or permitted to be given concerning this Agreement shall be effective upon receipt by the Party to whom it is addressed or within seven (7) days of dispatch whichever is earlier.

17.9 Assignment. This Agreement shall not be assignable by either Party to any Third Party without the written consent of the other Party; except either Party may assign this Agreement without the other Party's consent to a Person that acquires substantially all of the business or assets of the assigning Party relating to this Agreement, whether by merger, acquisition or otherwise, provided that the Person to whom this Agreement is assigned assumes this Agreement in writing or by operation of law. In addition, either Party shall have the right to assign this Agreement to an Affiliate upon written notice to the non-assigning Party; provided that the assigning Party guarantees the performance of this Agreement by such Affiliate; and provided further that, if such assignment results in the imposition of any withholding taxes on the other Party, which withholding taxes would not otherwise have been imposed on such other Party other than as a result of such assignment, and such other Party could not recover such withholding tax through the exercise of Commercially Reasonable Efforts, then (a) the assigning Party shall pay to such other Party such additional amounts as are necessary so that such other Party receives the amounts that it would have received if such payments were not subject to such withholding tax as a consequence of such assignment, and (b) if such other Party recovers a withholding tax amount, such other Party, shall return such recovered amount to the assigning Party within thirty (30) days after such recovery. Upon an Acquisition: (i) the Acquiring Entity, and its Affiliates who were not Affiliates of the Acquired Party prior to such Acquisition, shall not obtain any rights or licenses under any Intellectual Property Rights of the other Party or its Affiliates hereunder, except as required to perform its obligations under this Agreement and (ii)

the Acquired Party will enter into a written agreement with the Acquiring Entity under which Know-How and Intellectual Property Rights owned or licensed by the Acquiring Entity and its Affiliates that are used or generated in the course of performance of activities under this Agreement are deemed Controlled by the Acquired Party hereunder and licensed to the other Party under the terms and conditions of this Agreement. Subject to the foregoing, this Agreement shall inure to the benefit of each Party, its successors and permitted assigns. Any assignment of this Agreement in contravention of this Section 17.9 shall be null and void.

17.10 No Partnership or Joint Venture. Nothing in this Agreement is intended, or shall be deemed, to establish a joint venture or partnership between PacBio and Roche. Neither Party to this Agreement shall have any express or implied right or authority to assume or create any obligations on behalf of, or in the name of, the other Party, or to bind the other Party or any of its Affiliates to any contract, agreement or undertaking with an Affiliate or any Third Party.

17.11 Third Party Subcontractors. Either Party may subcontract or delegate all or any portion of its obligations under this Agreement to a Third Party; provided that such Party shall ensure that each of its Third Party subcontractors is bound by a written agreement containing provisions as protective of the other Party's rights with respect to the Products and Services as this Agreement, including provisions consistent with the obligations of intellectual property rights and confidentiality in this Agreement; and shall remain responsible to the other Party for all activities of its Third Party subcontractors to the same extent as if such activities had been undertaken by such Party itself.

17.12 Export Laws. Notwithstanding anything to the contrary contained herein, all obligations of PacBio and Roche are subject to prior compliance with the export regulations of the United States, the European Union or any other relevant country and such other laws and regulations in effect in the United States, the European Union or any other relevant country as may be applicable, and to obtaining all necessary approvals required by the applicable agencies of the governments of the United States, the countries within the European Union and any other relevant countries. PacBio and Roche shall cooperate with each other and shall provide assistance to the other as reasonably necessary to obtain any such required approvals.

17.13 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

17.14 Affiliates. For clarity and without limitation, Roche shall have the right to exercise any of its rights and licenses or perform or delegate all or any portion of any of its obligations through any of its Affiliates; provided that Roche shall remain responsible to PacBio hereunder for all activities of its Affiliates to the same extent as if such activities had been undertaken by Roche itself.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

BY: _____

NAME: Michael W. Hunkapiller

TITLE: Chairman, CEO and President

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

F. HOFFMANN-LA ROCHE LTD

BY: _____

NAME: _____

TITLE: _____

BY: _____

NAME: _____

TITLE: _____

***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 1.26

PacBio Patents

[***]

- 1 -

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 1.30

PacBio Technology Platform

“PacBio Technology Platform” shall mean [***].

“Chip Product” shall mean [***].

“Instrumentation Product” shall mean [***].

For clarity, for purposes of this Agreement, (a) “Instrumentation Product” excludes the PacBio RS and RS II sequencing instruments that PacBio or any of its Affiliates is selling or has sold prior to or as of the Effective Date, and any improvements thereto and new versions thereof which, in each case, do not incorporate the PacBio Technology Platform [***].

- 1 -

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 1.34

Exemplary Consumable Product Categorization

[***]

- 1 -

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 4.2

OUTLINE OF DEVELOPMENT ACTIVITIES

[***]

- 1 -

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 5.4

Non-Binding Examples of Sales Minimum Requirements

[***]

1

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 5.7(b)

Listed Trademarks

(i) PacBio Listed Trademarks

a. Listed Trademarks for which the license in Section 5.7 is exclusive:

{None as of the Effective Date – to be inserted in accordance with Section 5.7(b) if/when adopted by PacBio}

b. Listed Trademarks for which the license in Section 5.7 is non-exclusive:

Pacific Biosciences[®],  PACIFIC BIOSCIENCES[®], PacBio[®], SMRT[®] and SMRTbell[™]

(ii) Roche Listed Trademarks

{None as of the Effective Date – to be inserted in accordance with Section 5.7(b) if/when adopted by Roche}

Exhibit 5.8(a)

Label Licenses

[***]

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

Exhibit 5.8(b)

- (i) PacBio's End User License, available at <http://www.pacificbiosciences.com/licenses.html>:

End User License Agreement

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Exhibit 7.1

Payments

1. **Upfront Payment.** Roche shall pay to PacBio an upfront payment in the amount of Thirty Five Million Dollars (\$35,000,000) within fifteen (15) days following the Effective Date in accordance with the payment provisions of ARTICLE 8. The payment set forth in this Paragraph 1 shall not be refundable or creditable against any other payments by Roche to PacBio under this Agreement.

2. **Milestone Payments.**

(a) **Milestone Payments.** Roche shall pay to PacBio each “Milestone Payment” set out below following the first achievement of the corresponding milestone set out below, in accordance with this Paragraph 2 and the payment provisions in ARTICLE 8:

Milestone Event

Milestone Payment

[***]

[***]

(b) **Reports and Payments.** The relevant Party shall notify the other Party in writing within thirty (30) days after the first achievement of each milestone event set out in Paragraph 2(a) by it or its Affiliate (a “**Milestone Notice**”). Roche shall pay PacBio the corresponding milestone payment for the first achievement of the milestone event in a Milestone Notice (i) if Roche is providing such Milestone Notice, together with such Milestone Notice to PacBio, or (ii) if PacBio is providing such Milestone Notice, upon receipt of such Milestone Notice from PacBio, or if the achievement of the corresponding milestone is subject to any acceptance testing as may be set forth in the Development Plan, upon confirmation by Roche of successful completion of the milestone acceptance tests. For the avoidance of doubt, the milestone payments set forth in this Paragraph 2 shall not be refundable and shall not be creditable against future milestone payments or other payments to PacBio under this Agreement.

3. **Transfer Price.** Roche shall pay PacBio a transfer price for [***] the PacBio Products supplied to Roche pursuant this Agreement, in accordance with the terms and conditions set out in the applicable Supply Agreement and the payment provisions in Article 8 as follows:

[***]

4. **No Other Payments.** Except as expressly provided herein, no other payments are due from Roche to PacBio for PacBio’s performance hereunder and PacBio shall otherwise perform all activities assigned to it or for which it is responsible at its own expense.

[***] DESIGNATES PORTIONS OF THIS DOCUMENT THAT HAVE BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a), AS ADOPTED PURSUANT
TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael Hunkapiller, Chairman, President and Chief Executive Officer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Pacific Biosciences of California, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 8, 2013

/s/ Michael Hunkapiller
Michael Hunkapiller
Chairman, President and Chief Executive
Officer
(Principal Executive Officer)

**CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a), AS ADOPTED PURSUANT
TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Susan Barnes, Executive Vice President and Chief Financial Officer, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Pacific Biosciences of California, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 8, 2013

/s/ Susan Barnes

Susan Barnes
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

**Certification of CEO Furnished Pursuant to 18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of The Sarbanes-Oxley Act of 2002**

In connection with the Quarterly Report of Pacific Biosciences of California, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2013, as filed with the Securities and Exchange Commission on the date hereof, I, Michael Hunkapiller, Chief Executive Officer of the Company, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that,

(i) the Quarterly Report of the Company on Form 10-Q for the period ended September 30, 2013 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 8, 2013

/s/ Michael Hunkapiller

Michael Hunkapiller
Chairman, President and Chief Executive Officer
(Principal Executive Officer)

**Certification of CFO Furnished Pursuant to 18 U.S.C. Section 1350,
As Adopted Pursuant To
Section 906 of The Sarbanes-Oxley Act of 2002**

In connection with the Quarterly Report of Pacific Biosciences of California, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2013, as filed with the Securities and Exchange Commission on the date hereof, I, Susan Barnes, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that,

(i) the Quarterly Report of the Company on Form 10-Q for the period ended September 30, 2013 (the "Report"), fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and

(ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 8, 2013

/s/ Susan Barnes

Susan Barnes
Executive Vice President and
Chief Financial Officer
(Principal Financial Officer)
