

COMPLETE GENOMICS INC

Form S-1/A

May 18, 2011

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As filed with the Securities and Exchange Commission on May 18, 2011

Registration No. 333-174081

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 1
TO
FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

COMPLETE GENOMICS, INC.

(Exact name of registrant as specified in its charter)

Delaware

8731

20-3226545

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(State or other jurisdiction of
incorporation or organization) (Primary Standard Industrial
Classification Code Number) (I.R.S. Employer
Identification Number)

2071 Stierlin Court, Mountain View, CA 94043

(650) 943-2800

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Clifford A. Reid, Ph.D.

Chairman, President and Chief Executive Officer

Complete Genomics, Inc.

2071 Stierlin Court

Mountain View, CA 94043

(650) 943-2800

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

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If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

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.

Large accelerated filer

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

Accelerated filer

Smaller reporting company

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion May 18, 2011

Preliminary Prospectus

4,500,000 Shares

Common Stock

We are offering all of the 4,500,000 shares of our common stock offered by this prospectus.

Our common stock is listed on The NASDAQ Global Market under the symbol GNOM. On May 17, 2011, the closing price of our common stock as reported on The NASDAQ Global Market was \$14.85 per share.

Investing in our common stock involves a high degree of risk. Before buying any shares, you should carefully read the discussion of material risks of investing in our common stock in Risk Factors beginning on page 10 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

| | Per Share | Total |
|---|------------------|--------------|
| Public offering price | \$ | \$ |
| Underwriting discounts and commissions | \$ | \$ |
| Proceeds, before expenses, to us | \$ | \$ |

The underwriters have the option, exercisable on or before the thirtieth day after the date of this prospectus, to purchase up to an additional 675,000 shares of our common stock at the public offering price, less the underwriting discounts and commissions payable by us, to cover over-allotments, if any. If the underwriters exercise this option in full, the total underwriting discounts and commissions will be \$, and our total proceeds, before expenses, will be \$.

The underwriters are offering the common stock as set forth under Underwriting. Delivery of the shares will be made on or about , 2011.

Jefferies

UBS Investment Bank

Baird

The date of this prospectus is _____, 2011.

Cowen and Company

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You should rely only on the information contained in this prospectus. We have not, and the underwriters have not, authorized anyone to provide you with additional information or information different from that contained in this prospectus. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of shares of our common stock.

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Our logo, Complete Genomics, Complete Genomics Analysis Platform, CGA Platform, CGATools, cPAL and DNB and other trademarks or service marks of Complete Genomics, Inc. appearing in this prospectus are the property of Complete Genomics, Inc. This prospectus contains additional trade names, trademarks and service marks of other companies. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply relationships with, or endorsement or sponsorship of us by, these other companies.

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Prospectus Summary

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information you should consider in making your investment decision. You should read this summary together with the more detailed information, including our financial statements and the related notes, elsewhere in this prospectus. You should carefully consider, among other things, the matters discussed in Risk Factors and Management's Discussion and Analysis of Financial Condition and Results of Operations before making an investment decision. Unless otherwise indicated, Complete Genomics, Inc., Complete Genomics, the Company, we, us and our refer to Complete Genomics, Inc.

Our Company

We are a life sciences company that has developed and commercialized an innovative DNA sequencing platform, and our goal is to become the preferred solution for complete human genome sequencing and analysis. Our Complete Genomics Analysis Platform, or CGA Platform, combines our proprietary human genome sequencing technology with our advanced informatics and data management software and our innovative, end-to-end, outsourced service model to provide our customers with data that is immediately ready to be used for genome-based research. We believe that our solution provides academic and biopharmaceutical researchers with complete human genomic data and analysis at an unprecedented combination of quality, cost and scale without requiring them to invest in in-house sequencing instruments, high-performance computing resources and specialized personnel. By removing these constraints and broadly enabling researchers to conduct large-scale complete human genome studies, we believe that our solution has the potential to significantly advance medical research and expand understanding of the basis, treatment and prevention of complex diseases. Since launching our service in May 2010, we have sequenced over 1,400 complete human genomes, including over 600 in the first quarter of 2011, and, as of March 31, 2011, we had an order backlog of over 2,000 genomes.

We believe that our complete human genome sequencing technology, which is based on our proprietary DNA arrays and ligation-based read technology, is superior to existing commercially available complete human genome sequencing methods in terms of quality, cost and scale. In the DNA sequencing industry, complete human genome sequencing is generally deemed to be coverage of at least 90% of the nucleotides in the genome. Because we have optimized our technology platform and our operations for the unique requirements of high-throughput complete human genome sequencing, we are able to achieve accuracy levels of 99.999% at a total cost that is significantly less than the total cost of purchasing and using commercially available DNA sequencing instruments and the necessary information processing technology, and then performing all the required sequence data assembly and analysis. We believe that we will be able to further improve our accuracy levels and reduce the total cost of sequencing and analysis, enabling us to maintain significant competitive advantages over the next several years. Because our technology resides only in our centralized facilities, we can quickly and easily implement enhancements and provide their benefits to our entire customer base. Our goal is to be the first company to sequence and analyze high-quality complete human genomes, at scale, for a total cost of under \$1,000 per genome.

While our competitors primarily sell DNA sequencing instruments and reagents that produce raw sequenced data, requiring their customers to invest significant additional resources to process that raw data into a form usable for research, we offer our customers an end-to-end, outsourced solution that delivers research-ready genomic data. As the cost of complete human genome sequencing declines, we believe the basis of competition in our industry will shift from the cost of sequencing to the value of the entire sequencing solution. We believe that our integrated, advanced informatics and data management services will emerge as a key competitive advantage as this shift occurs.

Our genome sequencing center, which began commercial operations in May 2010, combines a high-throughput sample preparation facility, a collection of our proprietary high-throughput sequencing instruments and a large-scale data center. Our customers ship us their samples via common carrier services such as Federal Express and

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United Parcel Service. We then sequence and analyze these samples and provide our customers with finished, research-ready data, enabling them to focus exclusively on their single highest priority, discovery.

Our customers include some of the leading global academic and government research centers and biopharmaceutical companies. At present, our facility has the capacity to sequence and analyze over 400 complete human genomes per month. We expect this capacity to increase between two- and three-fold by the end of 2011 as we deploy additional sequencers and increase the throughput of our sequencing process through software refinements and component upgrades. In future years, we plan to construct additional genome centers in the United States and international strategic markets to accommodate an expected growing global demand for high-quality, low-cost complete human genome sequencing on a large scale.

Our Industry

Studying how genes differ between species and among individuals within a species, or genetic variations, helps scientists to determine their functions and roles in health and disease. Improving our understanding of the genome and its functions has driven and, we expect, will continue to drive advancements in medical research and diagnostics. Genetic analysis products comprise instruments and consumables, as well as associated hardware, software and services directly involved in the study of DNA and RNA. Scientia Advisors, a third-party research firm, estimated genomic revenue in 2009 to be approximately \$5.8 billion and projects the market to grow to approximately \$9.0 billion by 2014. Scientia Advisors further estimates that human genomics research will grow from \$4.6 billion in 2009 to \$7.3 billion in 2014.

The primary genetic analytical methods traditionally used by genetic researchers fall into three categories: DNA sequencing, genotyping and gene expression analysis. DNA sequencing is the process of determining the exact order, or sequence, of the individual nucleotides in a DNA strand so that this information can be correlated to the genetic activity influenced by that segment of DNA. Genotyping is the process of examining certain known mutations or variations in the DNA sequence of genes to determine whether the particular variant can be associated with a specific disease susceptibility or drug response. Gene expression analysis is the process of examining the molecules that are produced when a gene is activated, or expressed, to determine whether a particular gene is expressed in a specific biological tissue.

The Importance of Complete Human Genome Sequencing and the Limitations of Existing Technologies

One of the most difficult challenges facing the genetic research and analysis industry is the need to improve our understanding of how genes contribute to diseases that have a complex pattern of inheritance. For many diseases, multiple genes each make a subtle contribution to a person's predisposition or susceptibility to a disease or response to a drug treatment protocol. Accordingly, we believe that unraveling this complex network will be critical to understanding human health and disease. We believe that sequencing complete human genomes is the most comprehensive and accurate method by which to achieve these objectives and improve our understanding of human disease.

Innovations in DNA sequencing have led to the development of high-throughput sequencing technologies, commonly referred to as next-generation or second-generation sequencing, which produce thousands to millions of sequences at once. Although second-generation sequencing technologies have led to dramatic reductions in cost and improvements in quality and throughput for complete human genome sequencing, they were designed as general-purpose instruments for sequencing the DNA or RNA of plants, animals, bacteria and viruses. We believe the key limitations of the model of purchasing and using second-generation technologies for sequencing large numbers of complete human genomes include the following:

- § **High Cost.** Laboratories using commercially available DNA sequencing instruments cannot sequence complete human genomes at a price low enough to make large-scale projects affordable to researchers.
- § **Insufficient Scale and Speed.** Laboratories using commercially available DNA sequencing instruments typically require months to sequence all of the genomes for large projects.

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§ ***Difficulty of Data Management.*** Many users of commercially available DNA sequencing instruments lack the costly computing resources, storage capacity, network bandwidth and specialized personnel to process and analyze the massive data sets generated by sequencing complete human genomes.

Our Solution

We have developed a novel approach focused on complete human genome sequencing. Our solution combines our proprietary sequencing technology, which achieves accuracy levels of 99.999%, with our advanced informatics and data management software and our innovative, end-to-end service model to deliver research-ready genomic data at a total cost that is significantly less than the total cost of purchasing and operating commercially available DNA sequencing instruments.

Proprietary Sequencing Technology

Our patterned DNA nanoball, or DNB, arrays, due to their small size and biochemical characteristics, enable us to pack DNA very efficiently on a silicon chip. In addition, we have developed a highly accurate combinatorial probe-anchor ligation, or cPAL, read technology, which enables us to read DNA fragments efficiently using small concentrations of low-cost reagents, while retaining extremely high single-read accuracy. We believe this unique combination of our proprietary DNB and cPAL technologies is superior in both quality and cost when compared to other commercially available approaches and provides us with significant competitive advantages. As reported in the January 2010 edition of *Science*, we sequenced a complete human genome at a consumables cost of approximately \$1,800 and with a consensus error rate of approximately 1 error in 100,000 nucleotides. Our read accuracy was further validated by one of our customers, the Institute for Systems Biology, or ISB, as published in *Science Express* in March 2010. We have continued to reduce our costs of consumables, and, currently, our consumables costs are under \$1,000 per genome.

Advanced Informatics and Data Management

Sequencing complete human genomes generates substantial amounts of data that must be managed, stored and analyzed. To address this potential need by our customers, we have built a genomics data processing facility with computing infrastructure for managing both small- and large-scale genomic sequencing projects. Our proprietary assembly software uses advanced data analysis algorithms and statistical modeling techniques to accurately reconstruct over 90% of the complete human genome from approximately two billion 70-base reads. After assembling the genomic data, we use our analysis software to identify and annotate key differences, or variants, in each genome.

By using our analytical tools and data management software, our customers can significantly reduce their investments in computing infrastructure. Our customers are provided with reliable access to assembled and annotated sequence data in multiple formats to ease data sharing and comparative analyses. In addition, our data storage options provide flexibility and allow customers to customize their data management strategy based on their particular business, operational and scientific requirements. We have developed a suite of open source analytical tools, called CGA Tools, designed to enable our customers to rapidly analyze the data we generate from their samples. We are also developing additional analytical tools, such as a tumor-normal comparison tool designed to allow cancer researchers to compare a cancer genome to the normal genome from which it was derived. As the reagent cost of sequencing declines, we believe that the cost and complexity of data analysis and management will emerge as the primary constraint for conducting complete human genome analysis.

Innovative, End-to-End Outsourced Solution

While our competitors primarily sell DNA sequencing instruments and reagents that produce raw sequenced data, our end-to-end, outsourced solution enables our customers to offload to us the complex processes of sample

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preparation, sequencing, computing and data storage and management. We believe our services will expand the potential addressable market by enabling a broad base of researchers who may lack sufficient capital and the specialized personnel necessary to build and operate a sequencing laboratory, or who have historically been constrained by the high total cost of sequencing, to conduct large-scale complete human genome studies.

Our end-to-end solution provides the following advantages to our customers:

- § ***High-Quality Data.*** Our technology delivers what we believe is the industry's highest quality complete human genome data.
- § ***Cost-Savings.*** Our customers can avoid purchasing expensive sequencing instruments and high-performance computing resources or hire the necessary specialized personnel to sequence and analyze large sets of complete human genome data.
- § ***Speed at Scale.*** Our customers can often complete their large-scale projects more quickly by using our services than by using commercially available sequencing instruments.
- § ***Ease of Use.*** We believe our customers can avoid the difficulty and time-consuming process of purchasing and operating their own sequencing instruments and can outsource the entire process to us, from sample preparation to delivery of research-ready data.
- § ***Operational Flexibility.*** By outsourcing their large-scale complete human genome sequencing projects to us, our customers can free up the capacity of in-house instruments to run smaller or more targeted sequencing projects and applications.
- § ***Technological Flexibility.*** As DNA sequencing technology improves, our customers will have available to them the latest technology that we have implemented, and they avoid the risk of their expensive instruments becoming technologically obsolete.
- § ***Enables Customers to Focus on Discovery.*** Outsourcing offloads the operational burdens of managing large-scale genome sequencing projects and enables our customers to focus their resources on their strength in research, which can reduce the time to discovery.

We have more than 40 past and current customers, which include some of the leading global academic and government research centers and biopharmaceutical companies. In May 2010, we received an order from SAIC-Frederick, Inc., under a National Cancer Institute prime contract, to use our sequencing and bioinformatics end scientific services to sequence and analyze 50 tumor-normal pairs, or 100 complete human genomes. This contract contains a provision for SAIC-Frederick to engage us at its option to sequence more than 500 additional cancer cases, or more than a 1,000 complete human genomes, over an 18-month period. In addition, we sequenced complete genomes that enabled ISB to pinpoint the causal gene, and subsequently confirm that gene's role, in Miller Syndrome. This work has led to two follow-on projects with the ISB to sequence an additional 122 and 615 genomes, respectively. We also worked with Genentech, Inc. (a member of the Roche Group) on a non-small cell lung cancer study that was the first complete human genome sequence of a primary non-small cell lung tumor and matched normal tissue. The data we delivered allowed Genentech to measure the rate of smoking-induced mutations accumulated over time.

Applications for Our Sequencing Service

Potential applications for our complete human genome sequencing service include:

- § ***Cancer Research.*** We believe understanding genetic mutations in cancer patients will guide development of new cancer therapeutics and diagnostics and ultimately enable doctors to select the best course of therapy based on the specific mutations found in a tumor.

§ ***Mendelian Disease Research.*** By sequencing the complete genomes of families affected with Mendelian diseases, which likely have a significant genetic component, we believe the genetic causes of these diseases can be discovered, which could lead to the development of novel diagnostics and therapeutics.

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§ ***Rare Variant Disease Research.*** Large-scale genomic studies of central nervous system disorders, cardiac disease and certain metabolic disorders may help to identify disrupted pathways and lead to the development of novel diagnostics and therapeutics.

§ ***Clinical Trial Optimization.*** We believe that selecting or stratifying patients on the basis of their genetic profiles could enable the preferential admission of high responders into clinical trials, lowering costs and resulting in faster clinical trials and drug commercialization.

In addition to these research studies, we expect future clinical applications to include:

§ ***Companion Diagnostics.*** We believe that therapeutics that are not first-line treatments for the general population may be elevated to first-line treatments or used in combination therapies for subsets of the population that share a common genetic profile. Complete human genome studies may unlock new market opportunities for these therapies or combination therapies.

§ ***Cancer Pathology.*** We believe that analyzing complex cancer genomes that involve large and unpredictable structural changes will be most reliably and economically implemented using complete human genome sequencing.

§ ***Universal Diagnostics.*** As medical records technology and public health policy advance, we believe that large numbers of people will have their complete human genomes sequenced and stored in their electronic medical records for use by their physicians in managing their health care decisions.

Competitive Strengths

We believe that our competitive strengths are as follows:

§ ***Proprietary Human Genome Sequencing Technology.*** Our proprietary sequencing technology achieves accuracy levels of 99.999% at a total cost that is significantly less than the total cost of purchasing and operating commercially available DNA sequencing instruments and the necessary information processing technology, and then performing all the required sequence data assembly and analysis.

§ ***Fully Integrated Advanced Informatics and Data Management Software.*** Our solution enables our customers to manage and gain useful information from the massive data sets generated in complete human genome sequencing.

§ ***Highly Scalable and Capital-Efficient Business Model.*** Consolidating volume across our entire customer base enables us to sequence large numbers of genomes while avoiding the cost and complexity of employing a large field installation and support organization. By implementing a high degree of automation, we have reduced the possibility of human errors that could adversely affect quality and increase costs.

§ ***Unique Insight Into Customer Needs.*** We interact directly with our customers on their discovery projects, which enables us to develop and enhance our analysis software to meet our customers' specific needs while expanding our understanding of variation in the human genome.

§ ***Fast and Efficient Deployment of Operational and Technological Enhancements.*** Because our sequencing operations and data center are centralized, we can rapidly upgrade our technology and deliver the benefits to our customers. In addition, our access to genomic data allows our software engineers to continually refine and improve our software with each genome we sequence.

§ ***Expanded Market Opportunity.*** We believe our outsourced model will expand the potential addressable market by providing academic and biopharmaceutical researchers who lack sufficient budgets or the specialized personnel necessary to build and operate a sequencing laboratory with access to high-quality, low-cost complete human genome data.

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Our Strategy

We intend to become the leading complete human genome sequencing and analysis company and the preferred platform for human genome discovery by:

- § continuing to deliver the highest quality genomic data and analysis at a low total cost;
- § maintaining and strengthening our technology;
- § capitalizing on our scalable model;
- § establishing ourselves as the leader in outsourced complete human genome sequencing;
- § expanding globally to increase capacity and reach new markets;
- § exploring strategic partnerships and collaborations; and
- § expanding applications for the use of our technology.

Risks Associated with our Business

Our business is subject to numerous risks, as discussed more fully in the section entitled **Risk Factors** immediately following this prospectus summary. These risks include the following, among others:

- § We are an early, commercial-stage company and have a limited operating history.
- § We may need substantial additional capital in the future in order to maintain and expand our business.
- § We have a history of losses, and we may not achieve or sustain profitability in the future, on a quarterly or annual basis.
- § Our only source of revenue is our human genome sequencing service, which is a new business model in an emerging industry, and failure to achieve market acceptance will harm our business.
- § Our order backlog may never be completed, and we may never earn revenue on backlogged contracts to sequence genomes; our ability to convert backlog orders into revenue is dependent in part on our receiving genomic samples from our customers, which can follow a signed order by weeks or months.
- §

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The presence or absence in a specific quarter of one or more new large orders for hundreds of genomes may cause our results of operations and backlog to fluctuate significantly on a quarterly basis.

- § Our success depends on the growth of markets for analysis of genetic variation and biological function, and the shift of these markets to complete human genome sequencing.
- § We face significant competition from large, well-capitalized companies. The emergence of new competitive genome sequencing technologies may also harm our business.
- § We must significantly expand our capacity in order to reach profitability.
- § If our Mountain View genome sequencing facility becomes inoperable, we will be unable to perform our genome sequencing services, and our business will be harmed.
- § If third parties assert, as they currently are asserting, that we have infringed their patents or other proprietary rights or challenge the validity of our patents or other proprietary rights, we may become involved in costly and time-consuming disputes and litigation that could affect our ability to sell our services.

Corporate Information

We were incorporated in the state of Delaware on June 14, 2005. The address of our principal executive offices is 2071 Stierlin Court, Mountain View, California 94043, and our telephone number is (650) 943-2800. Our website address is www.completegenomics.com. We do not incorporate the information on, or that can be accessed through, our website into this prospectus, and you should not consider it part of this prospectus.

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The Offering

| | |
|--|--|
| Common stock offered by Complete Genomics | 4,500,000 shares (or 5,175,000 shares if the underwriters exercise their over-allotment option in full). |
| Common stock to be outstanding after this offering | 30,488,934 shares (or 31,163,934 shares if the underwriters exercise their over-allotment option in full). |
| NASDAQ Global Market symbol | GNOM |
| Use of proceeds | We currently intend to use the net proceeds of this offering for capital expenditures to expand the sequencing and computing capacity in our Mountain View and Santa Clara leased facilities, to finance the further development of our sequencing technology and services, for sales and marketing activities and for working capital and other general corporate purposes. Please see Use of Proceeds. |

Risk factors See Risk Factors starting on page 10 of this prospectus for a discussion of factors you should carefully consider before deciding to invest in our common stock.

The number of shares of common stock to be outstanding after this offering is based on 25,988,934 shares outstanding as of March 31, 2011 and excludes:

§ 2,875,125 shares of common stock issuable upon exercise of options outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.40 per share;

§ 27,500 shares of common stock issuable upon vesting of restricted stock units outstanding as of March 31, 2011;

§ an aggregate of 5,207,396 shares of common stock reserved for future issuance under our 2010 Equity Incentive Award Plan and Employee Stock Purchase Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under these benefit plans; and

§ 2,165,323 shares of common stock subject to warrants outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.42 per share.

Except as otherwise indicated, all information in this prospectus reflects or assumes no exercise of the underwriters' over-allotment option.

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The following tables set forth a summary of our historical financial data as of, and for the periods ended on, the dates indicated. You should read these tables together with our financial statements and the related notes, Selected Financial Data and Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this prospectus. The statement of operations data for the years ended December 31, 2008, 2009 and 2010 are derived from our audited financial statements included elsewhere in this prospectus. The statement of operations data for the three months ended March 31, 2010 and 2011, and the balance sheet data as of March 31, 2011 are derived from our unaudited financial statements included elsewhere in this prospectus. The unaudited financial statements have been prepared on a basis consistent with our audited financial statements and include, in the opinion of management, all adjustments, consisting only of normal recurring adjustments, necessary for the fair statement of the financial information in those statements. Our historical results are not necessarily indicative of the results to be expected in any future period, and the results for the three months ended March 31, 2011 are not necessarily indicative of the results to be expected for the year ending December 31, 2011.

| | Years ended December 31, | | | Three months ended March 31, | |
|---|--------------------------|-------------|-------------|---------------------------------|-------------|
| | 2008 | 2009 | 2010 | 2010 | 2011 |
| (in thousands, except share and per share amounts) | | | | | |
| Statement of Operations Data: | | | | | |
| Revenue | \$ | \$ 623 | \$ 9,389 | \$ 336 | \$ 6,833 |
| Operating expenses: | | | | | |
| Cost of revenue | | | | | 6,582 |
| Start-up production costs | | 5,033 | 19,895 | 4,077 | |
| Research and development | 23,633 | 22,424 | 21,691 | 6,169 | 6,808 |
| General and administrative | 3,179 | 4,953 | 9,345 | 3,099 | 2,780 |
| Sales and marketing | 1,045 | 1,798 | 6,111 | 1,226 | 2,700 |
| Total operating expenses | 27,857 | 34,208 | 57,042 | 14,571 | 18,870 |
| Loss from operations | (27,857) | (33,585) | (47,653) | (14,235) | (12,037) |
| Interest expense | (974) | (3,465) | (2,827) | (311) | (340) |
| Interest and other income (expense), net | 437 | 1,101 | (7,207) | 210 | (87) |
| Net loss | (28,394) | (35,949) | (57,687) | (14,336) | (12,461) |
| Deemed dividend related to beneficial conversion feature of Series E convertible preferred stock | | | (405) | | |
| Net loss attributed to common stockholders | \$ (28,394) | \$ (35,949) | \$ (58,092) | \$ (14,336) | \$ (12,461) |
| Net loss per share, basic and diluted | \$ (369.36) | \$ (386.56) | \$ (13.60) | \$ (51.15) | \$ (0.48) |
| Weighted-average shares of common stock outstanding used in computing net loss per share, basic and diluted | 76,873 | 92,998 | 4,271,176 | 280,283 | 25,959,929 |

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The table below presents our balance sheet data as of March 31, 2011:

§ on an actual basis; and

§ on an as adjusted basis to give effect to the sale of 4,500,000 shares of common stock in this offering at the assumed public offering price of \$14.78 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

| | March 31, 2011 | |
|-------------------------------------|----------------|----------------|
| | Actual | As adjusted |
| | (in thousands) | |
| Balance Sheet Data: | | |
| Cash and cash equivalents | \$ 68,791 | \$ 130,743 |
| Working capital | 64,699 | 126,651 |
| Total assets | 105,089 | 167,041 |
| Current and long-term notes payable | 24,136 | 24,136 |
| Total stockholders' equity | 62,756 | 124,708 |

Each \$1.00 increase (decrease) in the public offering price per share would increase (decrease) each of cash and cash equivalents, working capital, total assets and total stockholders' equity by approximately \$4.3 million, assuming that the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same and that the underwriters do not exercise their over-allotment option. Depending on market conditions and other considerations at the time we price this offering, we may sell a greater or lesser number of shares than the number set forth on the cover page of this prospectus. An increase (decrease) of 1,000,000 in the number of shares we are offering would increase (decrease) each of cash and cash equivalents, working capital, total assets and total stockholders' equity by approximately \$ 14.0 million, assuming the public offering price per share remains the same. An increase of 1,000,000 in the number of shares we are offering, together with a \$1.00 increase in the public offering price per share, would increase each of cash and cash equivalents, working capital, total assets and total stockholders' equity by approximately \$ 19.2 million. A decrease of 1,000,000 in the number of shares we are offering, together with a \$1.00 decrease in the public offering price per share, would decrease each of cash and cash equivalents, working capital, total assets and total stockholders' equity by approximately \$17.3 million. This information is illustrative only, and following the pricing of this offering, we will update this information based on the actual public offering price and other terms of this offering.

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Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the following risk factors, as well as the other information in this prospectus, before deciding whether to invest in shares of our common stock. The occurrence of any of the events described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the trading price of our common stock may decline and you may lose all or part of your investment.

Risks Related to Our Limited Operating History, Financial Condition and Capital Requirements

We are an early, commercial-stage company and have a limited operating history, which may make it difficult to evaluate our current business and predict our future performance.

We are an early, commercial-stage company and have a limited operating history. We were incorporated in Delaware in June 2005 and began operations in March 2006. From March 2006 until mid-2009, our operations focused on research and development of our DNA sequencing technology platform. In December 2009, we recognized our first revenue from the sale of our genome sequencing services, and in 2010 and the three months ended March 31, 2011, our revenue was \$9.4 million and \$6.8 million, respectively. Our limited operating history, particularly in light of our novel, service-based business model in the rapidly evolving genome sequencing industry, may make it difficult to evaluate our current business and predict our future performance. Our lack of a long operating history, and especially our very short history as a revenue-generating company, make any assessment of our profitability or prediction about our future success or viability subject to significant uncertainty. We have encountered and will continue to encounter risks and difficulties frequently experienced by early, commercial-stage companies in rapidly evolving industries. If we do not address these risks successfully, our business will suffer.

Based on our current operating projections, we will need substantial additional capital in the future in order to maintain and expand our business. A failure to secure additional capital will have a material effect on our ability to meet our long-term objectives.

Our future capital requirements are substantial, particularly as we further develop our business, expand the sequencing and computing capacity in our Mountain View and Santa Clara, California leased facilities and establish additional genome sequencing centers. Historically, we have financed our operations through private placements of preferred stock, convertible debt, borrowings under our credit facility, secured debt and through our recently completed initial public offering.

We believe that, based on our current level of operations and anticipated growth, our cash and cash equivalent balances, including interest income we earn on those balances, when taken together with the proceeds from this offering, will be sufficient to meet our anticipated cash requirements beyond 12 months from the date of this offering. Based on our current operating projections, without giving effect to the proceeds from this offering, we will need additional capital to fund our operations in 2012 and to expand our business to achieve our longer term business objectives.

We may not be able to raise sufficient additional financing on terms that are acceptable, if at all. Given the risks associated with our business, including our limited operating history and our new business model in an emerging industry, and recent difficulties for life sciences companies raising funds in the capital markets, we may be unable to raise additional capital in the amounts we require, if at all. Our failure to raise additional capital in sufficient amounts, will severely impact our ability to operate our business in 2012 and meet our long-term business objectives. In addition, if future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. If we raise additional debt financing, we may be subject to additional restrictive covenants that limit our ability to conduct our business. If we fail to raise sufficient funds and continue to incur losses, our ability to operate our business, take advantage of strategic opportunities, further develop and enhance our technology or otherwise respond to competitive pressures could significantly suffer. If this happens, we may be forced to:

§ slow or halt the expansion of our Mountain View facility and the establishment of additional genome sequencing centers;

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§ slow the commercialization of our services;

§ delay or terminate research or development programs;

§ curtail or cease operations; or

§ seek to obtain funds through collaborative and licensing arrangements, which may require us to relinquish commercial rights or grant licenses on terms that are not favorable to us.

The amount of additional capital and timing at which we require the additional capital necessary to fund our operations and expand our business depends on many factors, including:

§ the financial success of our genome sequencing business;

§ our ability to increase the sequencing and computing capacity in our Mountain View and Santa Clara leased facilities;

§ the rate at which we establish additional genome sequencing centers and whether we can find suitable partners to establish such centers, if at all;

§ whether we are successful in obtaining payments from customers;

§ whether we can enter into collaborations or establish a recurring customer base;

§ the progress and scope of our research and development projects;

§ the effect of any joint ventures or acquisitions of other businesses or technologies that we may enter into or make in the future;

§ the filing, prosecution and enforcement of patent claims; and

§ the costs associated with lawsuits brought against us by third parties, including our current litigation with Illumina, Inc.

We have a history of losses, and we may not achieve or sustain profitability in the future, on a quarterly or annual basis.

We have not been profitable in any quarterly period since we were formed. We incurred net losses of \$28.4 million, \$35.9 million and \$57.7 million for the years ended December 31, 2008, 2009 and 2010, respectively. As of March 31, 2011, our accumulated deficit was \$151.3 million (unaudited). Based on our current operating plans and assumptions, we do not expect to achieve profitability on an annual basis in the near future. In addition, we expect our cash expenditures to increase significantly in the near term, including significant expenditures for the expansion of our Mountain View, California sequencing facility, research and development, sales and marketing and general and administrative expenses and the possible development of additional sequencing centers. We may encounter unforeseen difficulties, complications and delays in expanding our Mountain View sequencing facility or in establishing additional genome sequencing centers and other unforeseen factors that require additional expenditures. These costs, among other factors, have had and will continue to have an adverse effect on our working capital and stockholders' equity. We will have to generate and sustain substantially increased revenue to achieve and maintain profitability, which we

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may never do. If we are unable to achieve and then maintain profitability, the market value of our common stock will decline.

Our operating results may fluctuate in the future. As a result, we may fail to meet or exceed the expectations of research analysts or investors, which could cause our stock price to decline.

Our financial condition and operating results may fluctuate from quarter to quarter and year to year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these fluctuations include the following, as well as other factors described elsewhere in this prospectus:

§ our ability to achieve profitability;

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- § our need for and ability to obtain capital necessary to operate and expand our business;
- § the size and frequency of customer orders;
- § the presence or absence in a specific quarter of one or more new large orders for hundreds of genomes;
- § our ability to expand our sequencing operations;
- § the cost of our sequencing services;
- § the demand for the sequencing of complete human genomes;
- § the existence and extent of government funding for research and development relating to genome sequencing;
- § the emergence of alternative genome sequencing technologies;
- § risks associated with expanding our business into international markets;
- § our ability to lower the average cost per genome that we sequence;
- § our dependence on single-source suppliers;
- § our ability to manage our growth;
- § our ability to successfully partner with other businesses in joint ventures or collaborations, or integrate any businesses we may acquire with our business;
- § our dependence on, and the need to attract and retain, key management and qualified sales personnel;
- § our ability to obtain, protect and enforce our intellectual property rights and avoid infringing the intellectual property rights of others;
- § our ability to prevent the theft or misappropriation of our know-how or technologies;
- § lawsuits brought against us by third parties;

§ business interruptions, such as earthquakes and other natural disasters;

§ public concerns about the ethical, legal and social concerns related to the use of genetic information;

§ our ability to comply with current laws and regulations and new or expanded regulatory schemes;

§ our ability to properly handle and dispose of hazardous materials used in our business and biological waste; and

§ our ability to use our net operating loss carryforwards to offset future taxable income.

Due to the various factors mentioned above, and others, the results of any prior quarterly or annual periods are not necessarily indicative of our future operating performance.

Risks Related to Our Business

Our only source of revenue is our human genome sequencing service, which is a new business model in an emerging industry, and failure to achieve market acceptance will harm our business.

Since our inception, all of our efforts have been focused on the creation of a technology platform for our human genome sequencing service, which we have only just recently commercialized. We expect to generate all of our revenue from our human genome sequencing service for the foreseeable future. As a result, market acceptance of our human genome sequencing service is critical to our future success.

Providing genome sequencing as a service is a new and unproven business model in a relatively new and rapidly evolving industry. We are using proprietary technology, involving multiple scientific and engineering disciplines, and a novel service model to bring complete human genome sequencing to an unproven market. Historically,

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companies in this industry have sold sequencing instruments directly to customers, and the customer performs the sequencing itself. We do not know if the purchasers and users of sequencing instruments will adopt our service model. For example, many potential customers want to sequence human genomes for proprietary studies that may lead to discoveries which they would seek to exploit, either commercially or through the publication of scientific literature. Accordingly, these potential customers may have significant reservations about allowing a third party to control the sequencing processes for their proprietary studies. Alternatively, other potential customers may want to sequence only portions of human genomes, rather than complete human genomes. There are many reasons why our services might not become widely adopted, ranging from logistical or quality problems to a failure by our sales force to engage potential customers, and including the other reasons stated in this Risk Factors section. As a result, our genome sequencing service may not achieve sufficient market acceptance to allow us to become profitable.

Our success depends on the growth of markets for analysis of genetic variation and biological function, and the shift of these markets to complete human genome sequencing.

We are currently targeting customers for our genome sequencing service in academic and government research institutions and in the pharmaceutical and other life science industries. Our customers are using our service for small- and large-scale human genome studies for a wide variety of diagnostic and discovery applications. These markets are new and emerging, and they may not develop as quickly as we anticipate, or reach their full potential. The development of the market for complete human genome sequencing and the success of our service depend in part on the following factors:

- § demand by researchers for complete human genome sequencing;
- § the usefulness of genomic data in identifying or treating disease;
- § the ability of our customers to successfully analyze the genomic data we provide;
- § the ability of researchers to convert genomic data into medically valuable information;
- § the capacity and scalability of the hardware storage components necessary to store, manage, backup, retain and safeguard genomic data; and
- § the development of software tools to efficiently search, correlate and manage genomic data.

For instance, demand for our genome sequencing service may decrease if researchers fail to find meaningful correlations between genetic variation and disease susceptibility through genome-wide association studies. In addition, factors affecting research and development spending generally, such as changes in the regulatory environment affecting pharmaceutical and other life science companies and changes in government programs that provide funding to companies and research institutions, could harm our business. If our target markets do not develop in a timely manner, demand for our service may grow at a slower rate than we expect, or may fall, and we may not achieve profitability.

To date, relatively few complete human genomes have been sequenced, in large part due to the high cost of large-scale sequencing. Our business plan assumes that the demand for sequencing complete human genomes will increase significantly as the cost of complete human genome sequencing decreases. This assumption may prove to be incorrect, or the increase in demand may take significantly more time than we anticipate. For example, potential customers may not think our cost reductions are sufficient to permit or justify large-scale sequencing. Moreover, some companies and institutions have focused on sequencing targeted areas of the genome that are believed to be primarily associated with disorders and diseases, as opposed to the entire genome. Demand for sequencing complete human genomes may not increase if these targeted sequencing strategies, such as exome sequencing, where selected regions containing key portions of genes are sequenced, prove to be more cost effective or are viewed as a more efficient method of genetic analysis than complete human genome sequencing. Since exome sequencing is currently less expensive than the sequencing of an entire human genome, customers, including those with limited budgets, may choose to sequence exomes instead of using our human genome sequencing services.

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We face significant competition. Our failure to compete effectively could adversely affect our sales and results of operations.

We currently compete with companies that develop, manufacture and market genome sequencing instruments or provide genome sequencing services. We expect competition to increase as our competitors develop new, improved or cheaper instruments or expand their businesses to include sequencing services, and as new companies enter the market with innovative technologies.

The market for genome sequencing technology is highly competitive and is served by several large companies with significant market shares. For example, established companies such as Illumina, Inc., Life Technologies Corporation and Roche Diagnostics Corporation are marketing instruments for genetic sequencing that are directly competitive with our services, and these companies have significantly greater financial, technical, marketing and other resources than we do to invest in new technologies and have substantial intellectual property portfolios and substantial experience in product development and regulatory expertise. Also, there are many other companies, such as NABsys, Inc., Oxford Nanopore Technologies, Ltd. and Pacific Biosciences, Inc., that are developing sequencing technologies or services that would compete with ours. Moreover, large established companies may acquire smaller companies with emerging technologies and use their extensive resources to develop and commercialize such technologies or incorporate such technologies into their instruments and services. For example, in 2010, Life Technologies acquired Ion Torrent Systems, Inc., a chip-based sequencing technology company.

In addition, there are many research, academic and other non-profit institutions that are pursuing new sequencing technologies. These institutions often have access to significant government and other funding. For example, BGI (formerly known as Beijing Genomics Institute) in the People's Republic of China offers a service that is similar to ours and is funded by the government of China. In the United States, agencies such as the National Human Genome Research Institute provide funding to institutions to discover new sequencing technology. We may compete directly with these institutions, or these institutions may license their technologies to third parties with whom we would compete.

While many of our existing competitors primarily sell sequencing instruments, they may also provide sequencing services like us. Since these competitors have already developed their own sequencing technology, they will not experience significant technological barriers to entry and can likely enter the sequencing services market fairly quickly and with little additional cost. For example, Illumina started providing whole genome sequencing services in-house and through its Illumina Genome Network in mid-2010, and Life Technologies has recently announced a collaboration to build a genome sequencing facility. Furthermore, many of these instrumentation companies have already established a significant market presence and are trusted by customers in the industry. As established instrumentation companies enter the sequencing services market, many potential customers may purchase sequencing services from these companies instead of us, even if we offer superior technology and services.

For more information regarding our existing and potential competitors, please see [Business Competition](#).

The emergence of competitive genome sequencing technologies may harm our business.

The success of our genome sequencing services will depend, in part, on our ability to continue to enhance the performance and decrease the cost of our genome sequencing technology. A number of genome sequencing technologies exist, and new methods and improvement to existing methods are currently being developed, including technology platforms developed by companies that we expect will directly compete with us as providers of sequencing services or instruments. These new technologies may result in faster, more cost-effective and more accurate sequencing methods than ours. For example, our sequencing technology does not currently cover all of the nucleotides in the genome. If competitive technologies emerge that sequence portions of the genome that our technology does not, our business could suffer if those portions contain important genomic information. We expect to face competition from emerging companies, including NABsys, Oxford Nanopore Technologies and Pacific Biosciences. As a result of the emergence of these competitive sequencing technologies, demand for our service may decline or never develop sufficiently to sustain our operations.

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Our industry is rapidly changing, with emerging and continually evolving technologies that increase the efficiency and reduce the cost of sequencing genomes. As new technologies emerge, we believe that the cost and error rates of, and the time required to, sequence human genomes will eventually decrease to a level where competition in the industry will shift to other factors, such as providing related services and analytical technologies. We may not be able to maintain any technological advantage over these new sequencing technologies, and if we fail to compete effectively on other factors relevant to our customers, our business will suffer.

Our order backlog may never be completed, and we may never earn revenue on backlogged contracts to sequence genomes.

As of March 31, 2011, we had a backlog of orders for sequencing over 2,000 genomes, which we believe could result in approximately \$15.0 million in revenue over the next 12 months. This figure represents the number of genomes for which customers have placed sequencing orders that we believe are firm and for which we have not yet recognized revenue. We may not be able to convert order backlog into revenue at the rate or times we anticipate, or at all. Consequently, the order backlog we report in this prospectus and elsewhere from time to time may not be indicative of future revenue.

We may fail to complete backlog orders as we expect for many reasons. We may experience sequencing delays or customers might cancel orders. We are in the early stages of launching our services, and while we have been increasing our throughput capacity rapidly, we have in the past experienced growing backlog due to our inability to keep pace with new orders. Delays in sequencing for which we are responsible could cause backlog orders to be cancelled by customers, which has happened to us at least once. Even with sufficient throughput capacity, we are not always in control of the rate at which we complete orders and therefore convert backlog to revenue. For example, customers often place firm orders with us before providing us with genomic samples, delaying our start of the sequencing process by weeks or months. Additionally, once we receive a customer's samples, we test them to assure that they are of sufficient quality and quantity for sequencing. If not, we contact the customer and request additional samples, resulting in further delay. Also, customers may negotiate a period of time, measured in weeks or in some cases months, to accept or reject our sequencing reports once delivered. Customer acceptance in these instances is a prerequisite for recording revenue for those orders. For these reasons, you should use caution in adopting changes in, or the absolute amount of, our backlog as a proxy for market acceptance of our sequencing services or as an indicator of future revenue.

The presence or absence in a specific quarter of one or more new large orders, or the cancellation of any previous orders, for hundreds of genomes may cause our results of operations and backlog to fluctuate significantly on a quarterly basis.

Since beginning commercial operations, we have received purchase orders or contracts from a limited number of customers each quarter, typically between 10 and 20 customers quarterly. Historically, the size of each purchase order has fluctuated between a few genomes and multiple hundreds of genomes. As a result, the presence or absence in a specific quarter of one or more new large orders, or the cancellation of any previous orders, for hundreds of genomes, combined with our uncertain sales cycle and changes in the variables that influence conversion of orders into revenue, may cause our results of operations and our backlog to fluctuate on a quarterly basis. These fluctuations may be significant from one quarter to the next. In addition, our limited commercial history and the characteristics of our quarterly orders makes it very difficult to predict or forecast our future operating results and backlog.

We must significantly increase our production capabilities in order to achieve profitability.

We have very limited experience in running a commercial-scale production facility. We have only one sequencing facility, which at present has the capacity to sequence over 400 complete human genomes per month. This capacity is significantly less than what would be required to achieve profitability. Our business plan assumes that we will be able to increase our capacity multiple fold.

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We plan to increase the capacity of our sequencing facility by installing additional sequencing machines, improving our software and designing and installing newer generations of sequencing instruments that are currently under research and development. We may also construct additional genome sequencing centers in the United States and elsewhere in 2012 and afterward. We may encounter difficulties in expanding our sequencing infrastructure, and we may not build and improve this infrastructure in time to meet the volume, quality or timing requirements necessary to be successful. Manufacturing and supply quality issues may arise, including due to third parties who provide the components of our technology platform. Implementing improvements to our sequencing technology may involve significant changes, which may result in delays, or may not achieve expected results. For example, we are experimenting with increasing the density of DNBs on our DNA arrays. These experiments may be unsuccessful and may not lead to feasible technological improvements that increase the capacity or reduce the costs of our sequencing services. If capacity or cost limitations prevent us from meeting our customers' expectations, we will lose revenue and our potential customers may take their business to our competitors.

Our need to increase capacity may require us to upgrade our machines to enhance our current production process. This may render our current machines obsolete sooner than anticipated. If this occurs, the value of these machines could be impaired and we may need to write down the value of this equipment, which could have a material impact on our financial statements in light of the dollar significance of the long-lived assets carried on our balance sheet.

Our genome sequencing technology platform was developed for human DNA and is not currently optimized to sequence non-human DNA.

Our technology platform was developed and has been optimized for sequencing human DNA, and we do not intend to sequence non-human DNA. We face significant competition from established companies who sell genome sequencing instruments that can sequence both human and non-human DNA. Many of the academic and research institutions that are our target customers conduct studies on both human and non-human DNA. Prospective customers may choose to purchase sequencing instruments from a competitor because of their broader sequencing application. Our competitors may also choose to provide sequencing services for non-human DNA. As a result, there may not be sufficient demand for our human genome sequencing service, which will harm our business.

We depend on a limited number of suppliers, including single-source suppliers, of various critical components for our sequencing process. The loss of these suppliers, or their failure to supply us with the necessary components on a timely basis, could cause delays in the current and future capacity of our sequencing center and adversely affect our business.

We depend on a limited number of suppliers, including some single-source suppliers, of various critical components for our sequencing process. We do not have long-term contracts with our suppliers or service providers. Because we do not have long-term contracts, our suppliers generally are not required to provide us with any guaranteed minimum production levels. As a result, we may not be able to obtain sufficient quantities of critical components in the future.

Although alternative suppliers exist for each of the critical components of our sequencing process, that process has been designed around the functions, limitations, features and specifications of the components that we currently utilize. For example, the cameras in our sequencers are supplied by Hamamatsu Photonics and the optical equipment is supplied by Carl Zeiss, Inc. A failure by either or both of these companies to supply these components would require us to integrate alternative cameras and optical equipment, and potentially integrate other components, into future sequencing instruments. If we are required to integrate new components into future sequencers, we would experience a delay in the deployment of these sequencers, and, as a result, our efforts to expand our sequencing capacity would be delayed.

A delay or interruption by our suppliers may also harm our business. For example, the wafers that comprise the base of our sample slide are fabricated by SVTC Technologies, L.L.C. We have not yet qualified an alternative source for the supply of these wafers, which are critical to our sequencing process, and the custom manner in

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which these wafers are made may make it difficult to qualify other semiconductor suppliers to manufacture them for us. Similarly, an interruption of services by Amazon Web Services, on whom we rely to deliver finished genomic data to our customers, would result in our customers not receiving their data on time.

In addition, the lead time needed to establish a relationship with a new supplier can be lengthy, and we may experience delays in meeting demand in the event we must switch to a new supplier. The time and effort to qualify a new supplier could result in additional costs, diversion of resources or reduced manufacturing yields, any of which would negatively impact our operating results. Our dependence on single-source suppliers exposes us to numerous risks, including the following:

§ our suppliers may cease or reduce production or deliveries, raise prices or renegotiate terms;

§ delays by our suppliers could significantly limit our ability to sequence customer data and delay our efforts to increase our sequencing capacity;

§ we may be unable to locate a suitable replacement on acceptable terms or on a timely basis, if at all; and

§ delays caused by supply issues may harm our reputation, frustrate our customers and cause them to turn to our competitors for future projects.

If our Mountain View genome sequencing facility becomes inoperable, we will be unable to perform our genome sequencing services and our business will be harmed.

We currently do not have redundant sequencing facilities on a scale that could support our business. We perform all of our commercial genome sequencing in our facility located in Mountain View, California. Mountain View is situated on or near earthquake fault lines. Our facility, the equipment we use to perform our sequencing services and our other business process systems are costly to replace and could require substantial time to repair or replace. The facility may be harmed or rendered inoperable by natural or man-made disasters, including earthquakes, wildfires, floods, acts of terrorism or other criminal activities, infectious disease outbreaks and power outages, which may render it difficult or impossible for us to sequence genomes for some period of time. In addition, these events may temporarily interrupt our ability to receive samples from our customers or materials from our suppliers and our access to our various systems necessary to operate our business. The inability to perform our sequencing service would result in the loss of customers and harm our reputation. While we currently maintain approximately \$40.0 million in property insurance coverage, we do not currently have insurance coverage for damage arising from an earthquake. Our insurance covering damage to our property may not be sufficient to cover all of our potential losses and will not cover us in the event of an earthquake, and may not continue to be available to us on acceptable terms, or at all.

Failure to achieve expected sequencing process yields, or variability in our sequencing process yields, could harm our operating results and damage our reputation.

Our sequencing process, like any other commercial-scale production process, is not flawless. For example, our DNBs may not adhere to all of the sticky spots on the surface of the silicon wafers we use to sequence DNA, or parts of the wafers may be unreadable. We refer to the efficiency of our sequencing process as its yield. The sequencing process yields we achieve depend on the design and operation of our sequencing process, which uses a number of complex and sophisticated biochemical, informatics, optical and mechanical processes. An operational or technology failure in one of these complex processes may result in sequencing processing yields that are lower than we anticipate or that vary between sequencing runs. In addition, we are regularly evaluating and refining our sequencing process. These refinements may initially result in unanticipated issues that further reduce our sequencing process yields or increase the variability of our sequencing yields. Low sequencing yields, or higher than anticipated variability, increases total sequencing costs and reduces the number of genomes we can sequence in a given time period, which can cause variability in our operating results and damage our reputation.

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We may have to resequence genomes due to contamination of DNA samples or other failures in the sequencing process.

In the past, we have had to resequence various genome samples as a result of contamination occurring in the sample preparation and library construction process. The sequencing process is highly sensitive, and the presence of any foreign substances during the preparation of the slide samples can corrupt the results of the sequencing process. The quality of our sequencing runs may also vary for other reasons. Resequencing requires additional expense, time and capacity and delays the recognition of revenue from the service. Samples may be contaminated in the future or the quality of our sequencing results may vary, which may damage our reputation and decrease the demand for our service.

Mishandling or switching of DNA samples or genomic data may harm our reputation and result in litigation against us.

We may unintentionally mishandle DNA samples. For example, if customer samples or sequencing results are switched, our customers would receive the wrong sequencing data, which could have significant consequences, particularly if that data is used to diagnose or treat disease. Mishandling customer samples or data could lead to loss of current or future business, harm our reputation and result in litigation against us.

If we are not successful in reducing the average cost of our sequencing service, demand for our services, and therefore our business, will suffer.

Our ability to expand our customer base depends highly on our ability to reduce the average cost of sequencing a human genome. For example, certain academic or government-sponsored research organizations may forgo or delay whole genome-wide studies based on the cost required to sequence complete human genomes, in favor of other less expensive studies. Additionally, certain of our target customers may decide it is more cost-effective to purchase sequencing instruments from a competitor than contract for our sequencing service. To compete effectively with competitors who sell and market sequencing instruments, our service must provide cost advantages, superior quality and time savings over the purchase of sequencing instruments. In addition, as new competitors enter the market or expand their business model to include sequencing services, or as the price of competitor sequencing services decreases, we expect increased pricing pressure, which may force us to decrease the price of our genome sequencing service. Our gross profit and operating results will suffer if we are unable to offset any reductions in our prices by reducing our costs by developing new or enhanced technologies or methods, or increasing our sales volumes.

Reduction or delay in research and development budgets and government funding may adversely impact our sales.

We expect that for the foreseeable future, our revenue will be derived primarily from selling our genome sequencing service to a relatively small number of academic, governmental and other research institutions, as well as pharmaceutical and other life science companies. Our revenue may decline substantially due to reductions and delays in research and development expenditures by these customers, which depend, in part, on their budgets and the availability of government funding. Factors that could affect the spending levels of our customers include:

- § weakness in the global economy and changing market conditions that affect our customers;
- § changes in the extent to which the pharmaceutical and life science industry may use genetic information and genetic testing as a methodology for drug discovery and development;
- § changes in government programs that provide funding to companies and research institutions;
- § changes in the regulatory environment affecting pharmaceutical and life science companies and research;
- § impact of consolidation within the pharmaceutical and life science industry; and
- § cost-reduction initiatives of customers.

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Also, government funding of research and development is subject to the political process, which is inherently unpredictable. Any reduction in the funding of life science research and development or delay surrounding the approval of government budget proposals may cause our customers to delay or forgo purchases of our services. A reduction or delay in demand for our service will adversely affect our ability to achieve profitability.

The timing and extent of funding provided by the American Recovery and Reinvestment Act of 2009 could adversely affect our business, financial condition or results of operations.

In February 2009, the U.S. government enacted the American Recovery and Reinvestment Act of 2009, which we refer to as the Recovery Act, to provide stimulus to the U.S. economy in the wake of the economic downturn. As part of the Recovery Act, over \$10 billion in research funding was provided to the National Institutes of Health, or NIH, through September 2010 to support the advancement of scientific research. A portion of the stimulus funding supported the analysis of genetic variation and biological function and may have a significant positive long-term impact on our business and the industry generally. In the short-term, however, potential customers may delay or forgo their purchases of our services as they wait to learn whether, and to what extent, they will receive stimulus funding. If potential customers are unable to obtain stimulus money, they may reduce their research and development budgets, resulting in a decrease in demand for our service. In addition, even if potential customers receive these stimulus funds, they may not purchase our services, and we may not benefit from the Recovery Act.

Ethical, legal and social concerns related to the use of genetic information could reduce demand for our genome sequencing services.

Our genome sequencing services are intended to facilitate large-scale human genome studies for a wide variety of diagnostic and discovery applications. However, genetic testing has raised ethical, legal and social issues regarding privacy and the appropriate uses of the resulting information. Governmental authorities could, for social or other purposes, limit or regulate the use of genetic testing or prohibit testing for genetic predisposition to certain conditions, particularly for those that have no known cure. Similarly, these concerns may lead individuals to refuse to use genetics tests even if permissible.

In addition, we do not control how our customers use the genomic data we provide. In most cases, we do not know the identity of the individuals whose DNA we sequence, the reason why their DNA is being sequenced or the intended use of the genomic data we provide. If our customers use our services or the resulting genomic data irresponsibly or in violation of legal restrictions, our reputation could be harmed and litigation may be brought against us.

Ethical and social concerns may also influence U.S. and foreign patent offices and courts with regard to patent protection for technology relevant to our business. These and other ethical, legal and social concerns may limit market acceptance of our technology for certain applications or reduce the potential markets for our technology, either of which could have an adverse effect on our business, financial condition or results of operations.

We use biological and hazardous materials that require considerable expertise and expense for handling, storage and disposal and may result in claims against us.

We work with materials, including chemicals, biological agents and compounds and DNA samples, that could be hazardous to human health and safety or the environment. Our operations also produce hazardous and biological waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental laws and regulations may restrict our operations. If we do not comply with applicable regulations, we may be subject to fines and penalties.

In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes. While our property insurance policy provides limited coverage in the event of contamination from hazardous and biological products and the resulting cleanup costs, we do not currently have any additional insurance coverage for legal liability for claims arising from the handling, storage or disposal of hazardous materials. Further, our

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general liability insurance and workers compensation insurance policies do not cover damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be liable for damages or penalized with fines in an amount exceeding our resources and our operations could be suspended or otherwise adversely affected.

We have limited selling and marketing resources and may be unable to successfully commercialize our human genome sequencing service.

To grow our business as planned, we must expand our sales, marketing and customer support capabilities. We may be unable to attract, retain and manage the specialized workforce necessary to gain market acceptance and successfully commercialize our services. In addition, developing these functions is time consuming and expensive.

The sale of genome sequencing services involves extensive knowledge about genomic research and sequencing technology, including the sequencing technology of our competitors. To be successful, our sales force and related personnel must be technically proficient in a variety of disciplines. For example, many of our existing salespersons have a Ph.D. or other advanced degree in relevant scientific fields. There are relatively few people that have the necessary knowledge and qualifications to be successful salespersons or support personnel in our industry.

In certain regions or markets, we may seek to partner with others to assist us with sales, marketing and customer support functions. However, we may be unable to find appropriate third parties with whom to enter into these arrangements. Furthermore, if we do enter into these arrangements, these third parties may not perform as expected.

Our software may incorrectly analyze the raw genomic data produced by our sequencing equipment.

Our sequencing instruments generate raw genomic data from various segments of the genome being sequenced. This data must be arranged into the correct order to reconstruct the original genomic structure of the sample. We have developed software algorithms that facilitate this reconstruction. However, these algorithms rely on statistical models that provide only relative assurance, and not absolute assurance, that the original genomic structure has been reconstructed.

In addition, the genomic data we provide our customers includes a comparison of the sequenced genome against a reference genome to help identify possible mutations or variations. This reference genome is designed to approximate a standard human genome. However, this approximation may not be accurate.

If the algorithms we use to reconstruct genomic data incorrectly reconstruct the sequenced genome, or if our reference genome is significantly flawed, the genomic data we deliver could be inaccurate and of little or no use to our customers.

An inability to manage our planned growth or expansion of our operations could adversely affect our business, financial condition or results of operations.

Our business has grown rapidly, and we expect this growth to continue as we expand our sequencing capacity. For example, we had three employees at the end of 2005 and 202 employees as of March 31, 2011. The rapid expansion of our business and addition of new personnel may place a strain on our management and operational systems. To effectively manage our operations and growth, we must continue to expend funds 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 expand our genome sequencing capacity and implement improvements to our control systems efficiently and quickly, or if we encounter deficiencies in existing systems and controls, then we will not be able to successfully expand the commercialization of our services. In addition to enhancing our sequencing capacity, our future operating results will depend on our management's ability to:

§ implement and improve our sales, marketing and customer support programs and our research and development efforts;

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§ enhance our operational and financial control systems;

§ expand, train and manage our employee base;

§ integrate acquired businesses, if applicable; and

§ effectively address new issues related to our growth as they arise.

We may not manage our expansion successfully, which could adversely affect our business, financial condition or results of operations.

If we expand our operations outside of the United States, we will face risks that may increase our operating costs.

We plan to expand our operations to include additional genome sequencing centers outside of the United States. Because the laws of certain countries currently prohibit the export of DNA, we will have to establish local facilities to access those markets and establish a presence in other markets. To date, we have not expanded our operations outside the United States. Operating in international markets requires significant resources and management attention and will subject us to regulatory, economic and political risks that are different from those in the United States. Because of our limited experience with international operations, our international expansion efforts may be unsuccessful. In addition, we will face risks in doing business internationally that could increase our operating costs, including the following:

§ economic conditions in various parts of the world;

§ unexpected and more restrictive laws and regulations, including those laws governing ownership of intellectual property, collection and use of personal information and other privacy considerations, hazardous materials and other activities important to our business;

§ new and different sources of competition;

§ multiple, conflicting and changing tax laws and regulations that may affect both our international and domestic tax liabilities and result in increased complexity and costs;

§ the difficulty of managing and staffing additional genome sequencing centers and the increased travel, infrastructure and legal compliance costs associated with multiple international locations;

§ difficulties in enforcing contracts and collecting accounts receivable, especially in developing countries;

§ fluctuations in exchange rates; and

§ tariffs and trade barriers, import/export controls and other regulatory or contractual limitations on our ability to sell or develop our services in certain foreign markets.

The success of the expansion of our business internationally will depend, in part, on our ability to anticipate and effectively manage these and other risks associated with international operations. Our failure to manage any of these risks successfully could increase our operating costs.

Certain of our potential customers may require that we become certified under the Clinical Laboratory Improvement Amendments of 1988.

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Although we are not currently subject to the Clinical Laboratory Improvement Amendment of 1988, or CLIA, we may in the future be required by certain customers to obtain a CLIA certification. CLIA, which extends federal oversight over clinical laboratories by requiring that they be certified by the federal government or by a federally approved accreditation agency, is designed to ensure the quality and reliability of clinical laboratories by mandating specific standards in the areas of personnel qualifications, administration and participation in proficiency testing, patient test management, quality control, quality assurance and inspections. If our customers require a CLIA certification, we will have to continually expend time, money and effort to ensure that we meet the applicable quality and safety requirements, which may divert the attention of management and disrupt our core business operations.

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Because the market for genome sequencing is relatively new and rapidly evolving, we may become subject to additional future governmental regulation, which may place additional cost and time burdens on our operations.

We are subject, both directly and indirectly, to the adverse impact of existing and potential future government regulation of our operations and markets. The life sciences and pharmaceutical industries, which are significant target markets for our services, have historically been heavily regulated. There are comprehensive federal and state laws regarding matters such as the privacy of patient information and research in genetic engineering. For example, if we inadvertently disclose private patient information in the course of providing our sequencing services, we could be prosecuted for violations of federal law.

Legislative bodies or regulatory authorities may adopt additional regulation that adversely affects our market opportunities. They could also extend existing regulations to cover our services. For example, medical diagnostic products may, depending on their intended use, be regulated as medical devices by the Food and Drug Administration, or FDA, if they are:

§ used in the diagnosis of disease or other conditions;

§ used in the cure, mitigation, treatment or prevention of disease; or

§ intended to affect the structure or any function of the body.

Medical devices generally cannot be marketed without first receiving clearance or approval (depending on the regulatory pathway) from the FDA. We do not believe that our sequencing services are currently subject to the FDA's medical device requirements because we do not intend our services to be used for the diagnosis of disease. However, we cannot control how the genomic information we provide will be used by our customers.

In addition, the FDA is focusing on our market, which has created uncertainty regarding the regulatory landscape. The FDA has recently taken actions suggesting that it interprets the applicable regulations expansively to cover certain genomic devices and services, particularly those sold directly to consumers. Since June 2010, the FDA has sent numerous letters to certain companies in this market, including 23andMe, Inc., deCODE Genetics, Knome, Inc., Navigenics, Inc. and Pathway Genomics. In these letters, the FDA noted that it considers genetic tests marketed by these companies to be subject to FDA regulation and, accordingly, unapproved medical devices. Additionally, in March 2011, the FDA held a public two-day meeting discussing the appropriate regulation of the direct-to-consumer genetic tests. The FDA may extend this position to services such as ours. In addition, the FDA may implement new regulations that may be broad enough to cover our operations. Changes to the current regulatory framework, including the imposition of new regulations, could arise anytime, and we may be unable to obtain or maintain FDA or comparable regulatory approval or clearance for our services, if required. For example, the FDA may impose restrictions on the types of customers to which we can market and sell our services and the types of persons whose DNA we may sequence. Also, future legislation may require that patients provide specific consent to have their DNA sequenced. This could require our customers to obtain new consents before they can submit DNA samples to us for sequencing.

In any event, if we expand our business to include sequencing services intended to be used for the diagnosis of disease, we will likely become subject to regulation by the FDA or other comparable agencies of other countries, which may require us to obtain regulatory approval or clearance before we can market those services.

These regulatory approval processes may be expensive, time-consuming and uncertain, and our failure to obtain or comply with these approvals or clearances could harm our business, financial condition or operating results.

Disruption to or failure of our data center or other technical systems may disrupt our business and harm our operating results.

We rely on our network infrastructure, data centers, enterprise applications and technology systems for the development and support of our sequencing service, including the preparation, analysis and transmission of data from our sequencing center, as well as for the internal operation of our business. These systems are susceptible to disruption or failure in the event of natural disasters such as a major earthquake, fire, flood, cyber-attack, terrorist

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attack, telecommunications failure, power outage or other catastrophic event. Further, our data center and our sequencing facility, which houses certain of our technology systems, are located near major earthquake faults. Disruptions to or the failure of our data center or any of these technology systems, including the network connection between our Mountain View facility and our data center, and the resulting loss of critical data, could cause delays in the transmission and analysis of the sequencing data, prevent us from fulfilling our customers' orders and severely affect our ability to conduct normal business operations.

Our term loans contain restrictions that limit our flexibility in operating our business.

In December 2010, we entered into two loan and security agreements and refinanced our existing credit facility. In March 2011, we entered into a new loan and security agreement for a term loan and repaid and terminated one of the December 2010 agreements with the proceeds from the new term loan. Our term loans contain various covenants that limit our ability to engage in specified types of transactions. These covenants limit our ability to, among other things:

§ sell, transfer, lease or dispose of our assets;

§ create, incur or assume additional indebtedness;

§ encumber or permit liens on certain of our assets;

§ make restricted payments, including paying dividends on, repurchasing or making distributions with respect to our common stock;

§ make specified investments (including loans and advances);

§ consolidate, merge, sell or otherwise dispose of all or substantially all of our assets; and

§ enter into certain transactions with our affiliates.

A breach of any of these covenants or a material adverse change to our business could result in a default under either or both of our term loans. Upon the occurrence of an event of default under our term loans, our lenders could elect to declare all amounts outstanding to be immediately due and payable and terminate all commitments to extend further credit. If we were unable to repay those amounts, the lenders could proceed against the collateral granted to them to secure such indebtedness. We have pledged substantially all of our assets, other than our intellectual property, as collateral under the term loans.

If we fail to retain the services of our key executives or if we are unable to attract and retain skilled personnel, our ability to grow our business and our competitive position would be impaired.

We believe our future success will depend in large part upon our ability to attract, retain and motivate highly skilled personnel. In particular, we depend highly on the contributions of Clifford A. Reid, Ph.D., our President and Chief Executive Officer, and Radoje Drmanac, Ph.D., our Chief Scientific Officer. The loss of either of these executives could make it more difficult to manage our operations and research and development activities, reduce our employee retention and revenue and impair our ability to compete. If either of these key executives were to leave us unexpectedly, we could face substantial difficulty in hiring qualified successors and could experience a loss in productivity, both during the search for, and integration of, any such successor.

Our research and development, operations and sales and marketing personnel represent a significant asset and serve as the source of our business strategy, scientific and technological innovations and sales and marketing initiatives. As a result, our success substantially depends on our ability to retain and attract personnel for all areas of our organization. Competition for qualified personnel is intense, and we may not be successful in attracting and retaining qualified personnel on a timely basis or on competitive terms, if at all. In addition, many qualified personnel are located

outside of Northern California, where we are located, and some qualified personnel that we may recruit may not be interested in relocating. If we are unable to attract and retain the necessary personnel on a cost-effective basis, our ability to grow our business and our competitive position would be impaired.

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We may engage in joint ventures or acquisitions that could disrupt our business, cause dilution to our stockholders, reduce our financial resources and result in increased expenses.

In the future, we may enter into joint ventures or acquire other businesses, products or technologies. Because we have not entered into any joint ventures or made any acquisitions to date, our ability to do so successfully is unproven. We may not be able to find suitable partners or acquisition candidates, and we may not be able to complete such transactions on favorable terms, if at all, or successfully integrate any acquired business, products or technologies into our operations. If we do enter into any joint ventures or complete acquisitions, we may not strengthen our competitive position or achieve our goals, or these transactions may be viewed negatively by customers or investors. In addition, we may have difficulty integrating and motivating personnel, technologies and operations from acquired businesses and retaining and motivating key personnel from those businesses. Joint ventures and acquisitions may disrupt our ongoing operations, divert management from day-to-day responsibilities and increase our expenses. Future acquisitions may reduce our cash available for operations and other uses, and could result in an increase in amortization expense related to identifiable intangible assets acquired, potentially dilutive issuances of equity securities or the incurrence of debt. We cannot predict the number, timing or size of future joint ventures or acquisitions, or the effect that any such transactions might have on our operating results.

We incur significant costs as a result of operating as a public company, and our management devotes substantial time to new compliance initiatives. We may fail to comply with the rules that apply to public companies, including section 404 of the Sarbanes-Oxley Act of 2002.

We have incurred and will continue to incur significant legal, accounting and other expenses as a public company, including costs resulting from public company reporting obligations under the Securities Exchange Act of 1934, as amended, and regulations regarding corporate governance practices. The listing requirements of The NASDAQ Global Market require that we satisfy certain corporate governance requirements relating to director independence, distributing annual and interim reports, stockholder meetings, approvals and voting, soliciting proxies, conflicts of interest and a code of conduct. Our management and other personnel will need to devote a substantial amount of time to all of these requirements. Moreover, the reporting requirements, rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. These reporting requirements, rules and regulations, coupled with the increase in potential litigation exposure associated with being a public company, could make it more difficult for us to attract and retain qualified persons to serve on our board of directors or board committees or to serve as executive officers.

In addition, the Sarbanes-Oxley Act of 2002, or Sarbanes-Oxley Act, and the related rules of the Securities and Exchange Commission, or SEC, require that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, our management and, depending on the size of our public float, independent registered public accounting firm will have to provide a report on the effectiveness of our internal control over financial reporting with our annual report for the year ending December 31, 2011, as required by Section 404 of the Sarbanes-Oxley Act. To date, we have never conducted a review of our internal control for the purpose of providing the reports required by these rules. During the course of our review and testing, we may identify deficiencies and be unable to remediate them before we must provide the required reports. We or our independent registered public accounting firm may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting, which could harm our operating results, cause investors to lose confidence in our reported financial information and cause the trading price of our stock to fall.

Our compliance with Section 404 may require that we incur substantial expense and expend significant management time on compliance-related issues. Moreover, if we are unable to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm is unable to conclude that our internal control over financial reporting is effective or otherwise identifies material weaknesses in our internal control, the market price of our stock would likely decline and we could be subject to sanctions or investigations by NASDAQ, the SEC or other regulatory authorities, which would require additional financial and management resources.

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Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an ownership change is subject to limitations on its ability to use its pre-change net operating loss carryforwards, or NOLs, to offset future taxable income. If the Internal Revenue Service challenges our analysis that our existing NOLs will not expire before utilization due to previous ownership changes, our ability to use our NOLs could be limited by Section 382 of the Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Code. Furthermore, our ability to use NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to use a material portion of the NOLs reflected on our balance sheet, even if we attain profitability.

Unfavorable global economic conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. The recent global financial crisis caused extreme volatility and disruptions in the capital and credit markets. A severe or prolonged economic downturn, such as the recent global financial crisis, could result in a variety of risks to our business, including, reductions or delays in planned research and development and other expenditures by our customers or decreased funding of genomic research by governmental entities. A weak or declining economy could also put strain on our suppliers, possibly resulting in supply disruption, or cause our customers to delay making payments for our services. Any of the foregoing could harm our business.

Risks Related to Intellectual Property

We currently are, and could in the future be, subject to litigation regarding patent and other proprietary rights that could harm our business.

Our commercial success depends in part on not infringing patents and proprietary rights of third parties. On August 3, 2010, Illumina, Inc. and Solexa, Inc. (an entity acquired by Illumina) filed a complaint in the U.S. District Court in Delaware alleging patent infringement by us. The complaint alleges that our Complete Genomics Analysis Platform, and in particular our combinatorial probe anchor ligation technology, infringes upon three patents held by Illumina and Solexa. The complaint seeks, among other things, a preliminary and permanent injunction against us from infringing these patents and unspecified monetary damages. We may incur substantial time and expense in defending against this complaint. If we were found to infringe one or more valid claims of a patent-in-suit and if the district court granted an injunction on that basis, we may be forced to redesign portions of our sequencing process, seek a license or cease the infringing activity. Redesigning portions of our sequencing process may take substantial time and resources and may delay our ability to generate revenue. In addition, a license to the necessary patent rights may not be available on commercially reasonable terms, if at all. In the event that the district court grants an injunction and we are unsuccessful in redesigning our sequencing process or obtaining a license, we may be forced to cease our sequencing operations altogether. See Business Legal Proceedings.

As we enter our markets, it is possible other competitors will claim that our services infringe their intellectual property rights as part of a business strategy to impede our successful entry into those markets. Such competitors and other third parties may have obtained and may in the future obtain patents covering products or processes that are similar to or may include steps or processes used in our sequencing technology, allowing them to claim that the use of our technologies infringes these patents. In particular, we are aware of issued U.S. patents owned by competitors and other third parties, including Illumina, to which we do not have licenses that may relate to our sequencing technology and which pertain to, among other things:

§ sample preparation techniques;

§ processes for making nucleic acid templates, or library construction;

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§ processes for making DNBs from nucleic acid templates;

§ nucleic acid arrays;

§ methods of making arrays of DNBs;

§ sequencing methods, including those involving ligation;

§ identifying genomic sequences on nucleic acid arrays;

§ devices and apparatus used in nucleic acid detection systems, including optical systems; and

§ information processing systems including software for base calling, sequence mapping and assembly.

Some of the third parties that own these patents, including Illumina, have strong economic incentives, and substantial financial resources, to claim that we are infringing their patent rights. In a patent infringement claim against us, we may assert, as a defense, that we do not infringe the relevant patent claims, that the patent is invalid or both. The strength of our defenses will depend on the patents asserted, the interpretation of these patents, our ability to identify invalidating prior art (that is, publication of the patent holder's invention or technology prior to the stated invention date) in order to invalidate the asserted patent and on other factors. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense. In the United States, issued patents enjoy a presumption of validity, and the party challenging the validity of a patent claim must present clear and convincing evidence of invalidity, which is a high burden of proof. Conversely, the patent owner need only prove infringement by a preponderance of the evidence, which is a lower burden of proof.

If we were found by a court to have infringed a valid patent claim, we could be prevented from using the patented technology or be required to pay the owner of the patent rights for the rights to use that technology. If we decide to pursue a license to one or more of these patents, we may not be able to obtain such a license on commercially reasonable terms, if at all, or the license we obtain may require us to pay substantial royalties or grant cross licenses to our patent rights. For example, if the relevant patent is owned by a competitor, that competitor may choose not to license patent rights to us, as it would be under no obligation to do so. If we decide to develop alternative technology, we may not be able to do so on a timely or cost-effective manner, if at all.

In addition, because patent applications can take years to issue and are often afforded confidentiality for some period of time, there may currently be pending applications, unknown to us, which later result in issued patents that processes in our sequencing technology infringe. Processes in our sequencing technology may also infringe existing issued patents of which we are currently unaware. Even though we own or have other rights to patents, these patents do not provide us with the freedom to offer our sequencing services unimpeded by the patent rights of others. For example, we may be required to pursue or defend a patent infringement action in order to protect our intellectual property rights or practice our sequencing technology. In addition, we do not currently provide sequencing services intended to be used for diagnosis of disease. If we expand our business to include sequencing services intended to be used for the diagnosis of disease, it may be necessary to license patents related to such services.

It is possible that, in addition to our current litigation, we may in the future receive, particularly as a public company, communications from competitors and others alleging that we may be infringing their patents, trade secrets or other intellectual property rights or offering licenses to such intellectual property or threatening litigation. For example, an educational institution has recently invited us to engage in negotiations for the license of certain of that institution's patent rights. We have not yet determined whether we will seek such a license. In addition to patent infringement claims, third parties may assert copyright, trademark or other proprietary rights against us. We may not be able to successfully defend against the claims asserted by Illumina, or future claims, and our business may suffer if we are found to have infringed upon the patents held by Illumina, or if future claims are brought against us.

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We may not be able to protect our patent rights or other intellectual property which could impair our ability to compete effectively.

We depend on proprietary technology for our success and ability to compete. If others are able to reproduce our technology, our business will suffer significantly unless we can prevent them from competing with us. To protect our proprietary technology, we rely on patents and other intellectual property laws, as well as nondisclosure agreements, licensing arrangements and confidentiality provisions. U.S. patent, copyright and trade secret laws afford us only limited protection, and the laws of some foreign countries do not protect proprietary rights to the same extent.

We have licensed, from Callida Genomics, Inc., U.S. and international patents and patent applications relating to our business. Because the issuance of a patent is not conclusive of its validity or enforceability, our existing patent rights, and rights we may obtain in the future, may not provide us with meaningful protection. The patent rights on which we rely may be challenged and invalidated or may be interpreted not to be broad enough to cover the critical components of our technology. Our pending patent applications may have their claims limited or may not result in issued patents. Moreover, our patent rights become more limited as owned or licensed patents begin to expire in 2014. We will be able to protect our technologies from unauthorized use by third parties only to the extent that valid and enforceable patents or other proprietary rights cover them. Even if we have valid and enforceable patents or other proprietary rights, competitors may be able to design alternative methods or devices that avoid infringement of those patents or rights.

Our key patent rights are licensed from Callida, which is owned by our Chief Scientific Officer and his spouse. If we breach the terms of these licenses, or if our relationship with Callida or its owners deteriorates, Callida may seek to terminate the licenses. If we lose our rights to use these patents, we may be forced to re-design our sequencing technology, which would be expensive and may not be possible.

The patent positions of biotechnology companies, including us, can be highly uncertain and involve complex and evolving legal and factual questions. No consistent policy regarding the breadth of claims allowed in biotechnology patents has emerged to date in the United States. Legal developments may preclude or limit the patent protection available for our sequencing technology.

Despite our efforts to protect our proprietary rights, attempts may be made to copy or reverse engineer aspects of our sequencing technology or to obtain and use information that we regard as proprietary. Accordingly, we may be unable to protect our proprietary rights against unauthorized third-party copying or use. Furthermore, policing the unauthorized use of our intellectual property is difficult. Litigation may be necessary in the future to enforce our intellectual property rights, to protect our trade secrets or to determine the validity and scope of the proprietary rights of others. Litigation could result in substantial costs and diversion of resources and could harm our business.

We may incur substantial costs as a result of our current, or future, litigation or other proceedings relating to patent and other proprietary rights.

The genomic sequencing industry includes several large companies that have rights to many broad issued patents and pending patent applications. Competitors in this industry have fiercely litigated their patent positions and alleged infringements by others. For example, Illumina and Affymetrix were recently involved in long and expensive patent litigation relating to DNA sequencing technology. This litigation resulted in a settlement involving the payment of \$90 million by one party to the other.

Our involvement in intellectual property litigation, including our current litigation with Illumina, or administrative proceedings could result in significant expense. Some of our competitors, including Illumina, Life Technologies and Affymetrix, have considerable resources available to them. We, on the other hand, are an early-stage commercial company with comparatively few resources available to us to engage in costly and protracted litigation. Intellectual property infringement claims asserted against us, whether with or without merit, could be costly to defend and could limit our ability to use some technologies in the future. They will be time consuming, will divert our management's and scientific personnel's attention and may result in liability for

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substantial damages. In addition, our standard customer contract requires us to indemnify our customers for claims alleging that any of our products misappropriate or violate any third party patent, copyright, trade secret or other intellectual property or proprietary rights.

If third parties file patent applications or are issued patents claiming technology also claimed by us in pending applications, we may be required to participate in interference proceedings with the U.S. Patent Office or in other proceedings outside the United States, including oppositions, to determine priority of invention or patentability. Even if we are successful in these proceedings, we may incur substantial costs, and the time and attention of our management and scientific personnel will be diverted in pursuit of these proceedings.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biotechnology. This could make it difficult for us to stop the infringement of our patents or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit.

Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate. In addition, changes in the law and legal decisions by courts in the U.S. and foreign countries may affect our ability to obtain adequate protection for our technology and the enforcement of intellectual property.

Confidentiality agreements with employees and others may not adequately prevent disclosures of our trade secrets and other proprietary information.

We rely in part on trade secret protection to protect our confidential and proprietary information and processes. However, trade secrets are difficult to protect. We have taken measures to protect our trade secrets and proprietary information, but these measures may not be effective. We require new employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting arrangement with us. These agreements generally require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements also generally provide that inventions conceived by the individual in the course of rendering services to us will be our exclusive property. Despite these measures, our proprietary information may be disclosed, third parties could reverse engineer our sequencing technologies and others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Risks Related to This Offering and Ownership of Our Common Stock

Our stock price is volatile and purchasers of our common stock could incur substantial losses.

Our stock price is volatile, and from November 11, 2010, the first day of trading of our common stock, to May 17, 2011, the trading prices of our stock have ranged from \$17.25 to \$6.60 per share. The market price of our common stock may fluctuate significantly in response to a number of factors. These factors include those discussed in this Risk Factors section and others such as:

§ quarterly variations in our results of operations or those of our competitors;

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- § changes in earnings estimates or recommendations by securities analysts;

- § announcements by us or our competitors of new products or services, significant contracts, commercial relationships, acquisitions or capital commitments;

- § developments with respect to intellectual property rights;

- § our commencement of, or involvement in, litigation;

- § changes in financial estimates or guidance, including our ability to meet our future revenue and operating profit or loss estimates or guidance;

- § announcements regarding equity or debt financing transactions;

- § any major changes in our board of directors or management;

- § changes in governmental regulations; and

§ a decrease in government funding of research and development or a slowdown in the general economy.

In recent years, the stock market in general, and the market for technology/life science companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our stock shortly following this offering. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and divert our management's attention and resources.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us issue an adverse or misleading opinion regarding us, business model, technology or stock performance, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. Moreover, the unpredictability of our financial results likely reduces the certainty, and therefore reliability, of the forecasts by securities or industry analysts of our future financial results, adding to the potential volatility of our stock price.

Our directors, executive officers and principal stockholders and their respective affiliates will continue to have substantial influence over us after this offering and could delay or prevent a change in corporate control.

Our directors, executive officers and the holders of more than 5% of our common stock, together with their affiliates, beneficially own approximately 80% of our outstanding common stock based on the number of shares outstanding on April 29, 2011. These stockholders, acting together, have significant influence over the outcome of matters submitted to our stockholders for approval, including the election of directors and any merger, consolidation or sale of all or substantially all of our assets. In addition, these stockholders, acting together, have significant influence over our management and affairs. Accordingly, this concentration of ownership might harm the market price of our common stock by:

§ delaying, deferring or preventing a change in control;

§ impeding a merger, consolidation, takeover or other business combination involving us; or

§ discouraging a potential acquiror from making a tender offer or otherwise attempting to obtain control of us.

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Future sales of shares by existing stockholders could cause our stock price to decline.

If our existing stockholders sell, or if the market believes our existing stockholders will sell, substantial amounts of our common stock in the public market, the trading price of our common stock could decline significantly.

As of April 29, 2011, there were:

§ 4,014,727 shares subject to outstanding options under our 2006 Equity Incentive Plan and 2010 Equity Incentive Award Plan;

§ 27,500 shares issuable upon vesting of restricted stock units under our 2009 Equity Incentive Plan;

§ an aggregate of 4,045,407 shares reserved for future issuance under our 2010 Equity Incentive Award Plan and Employee Stock Purchase Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under these benefit plans; and

§ 2,165,323 shares of common stock subject to warrants outstanding as of April 29, 2011 with a weighted-average exercise price of \$2.42 per share.

If additional shares are sold, or if it is perceived that they will be sold, in the public market, the price of our common stock could decline substantially.

Some of our existing stockholders have demand and piggyback rights to require us to register with the SEC up to approximately 21.7 million shares of our common stock, including shares issuable upon exercise of outstanding options. If we register these shares of common stock, the stockholders would be able to sell those shares freely in the public market, subject to the lock-up agreements described above.

We also registered 6,628,347 shares of our common stock that are subject to outstanding stock options and reserved for issuance under our equity plans. These shares can be freely sold in the public market upon issuance, subject to vesting restrictions.

Purchasers in this offering will experience immediate and substantial dilution in the book value of their investment.

The offering price of our common stock will be substantially higher than the net tangible book value of our common stock immediately after the offering. As a result, purchasers of our common stock in this offering will incur immediate and substantial dilution of approximately \$10.70 per share, based on the assumed public offering price of \$14.78 per share. Those purchasers could experience additional dilution upon the exercise of outstanding stock options and warrants. See *Dilution* for a more detailed discussion of the dilution new investors will incur in this offering.

We have broad discretion to determine how to use the funds raised in this offering, and may use them in ways that may not enhance our operating results or the price of our common stock.

Our management will have broad discretion over the use of proceeds from this offering, and we could spend the proceeds from this offering in ways our stockholders may not agree with or that do not yield a favorable return, if at all. We currently intend to use the net proceeds of this offering for capital expenditures to expand the sequencing and computing capacity in our Mountain View and Santa Clara leased facilities, to finance the further development of our sequencing technology and services, for sales and marketing activities and for working capital and other general corporate purposes. If we do not invest or apply the proceeds of this offering in ways that improve our operating results, we may fail to achieve expected financial results, which could cause our stock price to decline.

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Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable and may lead to entrenchment of management.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent changes in control or changes in our management without the consent of our board of directors. These provisions include the following:

- § a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- § no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- § the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- § the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- § the ability of our board of directors to alter our bylaws without obtaining stockholder approval;
- § the required approval of at least 66 ²/₃% of the shares entitled to vote at an election of directors to adopt, amend or repeal our bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- § a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- § the requirement that a special meeting of stockholders may be called only by the chairman of the board of directors, the chief executive officer, the president or the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- § advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

We are also subject to the anti-takeover provisions contained in Section 203 of the Delaware General Corporation Law. Under Section 203, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other exceptions, the board of directors has approved the transaction. For a description of our capital stock, see the section titled "Description of Capital Stock."

We do not currently intend to pay dividends on our common stock, and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We do not currently intend to pay any cash dividends on our common stock for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Additionally, the terms of our credit facility restrict our ability to pay dividends. Therefore, you are not

likely to receive any dividends on your common stock for the foreseeable future.

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Special Note Regarding Forward-Looking Statements

This prospectus contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, that are subject to the safe harbor created by those sections. These forward-looking statements involve risks and uncertainties and are contained principally in the sections entitled Prospectus Summary, Risk Factors, Management's Discussion and Analysis of Financial Condition and Results of Operations and Business. These statements relate to future events or our future financial or operational performance and involve known and unknown risks, uncertainties and other factors that could cause our actual results, levels of activity, performance or achievement to differ materially from those expressed or implied by these forward-looking statements. These risks and uncertainties are contained principally in the section entitled Risk Factors.

Forward-looking statements include all statements that are not historical facts. In some cases, you can identify forward-looking statements by terms such as may, will, should, intend, could, would, continue, expect, plan, anticipate, believe, estimate, project, negative of those terms, and similar expressions and comparable terminology intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. These forward-looking statements represent our estimates and assumptions only as of the date of this prospectus, and, except as required by law, we undertake no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise after the date of this prospectus.

This prospectus also contains estimates and other information concerning our current and target markets that are based on industry publications, surveys and forecasts, including those generated by Scientia Advisors. These estimates and information involve a number of assumptions and limitations, and you are cautioned not to give undue weight to these estimates and information. These industry publications, surveys and forecasts generally indicate that their information has been obtained from sources believed to be reliable. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in Risk Factors. These and other factors could cause actual results to differ materially from those expressed in these publications, surveys and forecasts.

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Use of Proceeds

We estimate that we will receive net proceeds of approximately \$62.0 million from the sale of 4,500,000 shares of common stock offered in this offering, or approximately \$71.4 million if the underwriters exercise their over-allotment option in full, based on the public offering price per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We currently intend to use approximately \$20.0 million of the net proceeds of this offering for capital expenditures to expand the sequencing and computing capacity in our Mountain View and Santa Clara leased facilities. We intend to use approximately \$15.0 million of the net proceeds of this offering to finance the further development of our sequencing technology and services, and approximately \$15.0 million for sales and marketing activities. We intend to use the remainder of the net proceeds of this offering for working capital and other general corporate purposes.

Each \$1.00 increase (decrease) in the public offering price per share would increase (decrease) the net proceeds to us from this offering, after deducting underwriting discounts and commissions and our estimated offering expenses, by approximately \$4.3 million, assuming that the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same and that the underwriters do not exercise their over-allotment option. Depending on market conditions and other considerations at the time we price this offering, we may sell a greater or lesser number of shares than the number set forth on the cover page of this prospectus. An increase (decrease) of 1,000,000 in the number of shares we are offering would increase (decrease) the net proceeds to us from this offering, after deducting underwriting discounts and commissions and our estimated offering expenses, by approximately \$14.0 million, assuming the public offering price per share remains the same. An increase of 1,000,000 in the number of shares we are offering, together with a \$1.00 increase in the public offering price per share, would increase the net proceeds to us from this offering, after deducting underwriting discounts and commissions and our estimated offering expenses, by approximately \$19.2 million. A decrease of 1,000,000 in the number of shares we are offering, together with a \$1.00 decrease in the public offering price per share, would decrease the net proceeds to us from this offering, after deducting underwriting discounts and commissions and our estimated offering expenses, by approximately \$17.3 million. This information is illustrative only, and following the pricing of this offering, we will update this information based on the actual public offering price and other terms of this offering.

The expected use of net proceeds of this offering represents our current intentions based upon our present plan and business conditions. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering. Accordingly, we will have broad discretion in the application of the net proceeds, and investors will be relying on our judgment regarding the application of the proceeds of this offering.

Until we use the net proceeds of this offering, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities. We cannot predict whether the proceeds invested will yield a favorable return, if any.

Table of Contents**Market Price of Common Stock**

On November 12, 2010, our common stock began trading on The NASDAQ Global Market under the symbol GNOM. The following table presents quarterly information on the price range of our common stock. This information indicates the high and low sales prices reported by The NASDAQ Global Market. These prices do not include retail markups, markdowns or commissions.

| | High | Low |
|---------------------------------------|-------------|------------|
| Year ended December 31, 2010 | | |
| Fourth quarter | \$ 8.45 | \$ 6.60 |
| Year ending December 31, 2011 | | |
| First quarter | 9.16 | 6.91 |
| Second quarter (through May 17, 2011) | 17.25 | 9.01 |

On May 17, 2011, the last sale price reported on The NASDAQ Global Market for our common stock was \$14.85 per share.

Dividend Policy

We have never declared or paid cash dividends on our common stock and currently do not plan to declare dividends on shares of our common stock in the foreseeable future. In addition, the provisions of our term loans currently prohibit us from paying cash dividends on our common stock. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. The payment of cash dividends in the future, if any, will be at the discretion of our board of directors and will depend upon such factors as earnings levels, capital requirements, requirements under the Delaware General Corporation Law, restrictions and covenants pursuant to our term loans and any other credit facilities we may enter into, our overall financial condition and any other factors deemed relevant by our board of directors. See Management's Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources Term Loans for a description of the restrictions on the payment of dividends imposed by our existing term loans.

Table of Contents**Capitalization**

The following table sets forth our capitalization as of March 31, 2011:

§ on an actual basis; and

§ on an as adjusted basis to give effect to the sale of 4,500,000 shares of our common stock we are offering at an assumed public offering price of \$14.78 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us. You should read this table together with Management's Discussion and Analysis of Financial Condition and Results of Operations and our financial statements and the related notes appearing elsewhere in this prospectus.

| | As of March 31, 2011 | |
|--|--|-------------|
| | Actual | As adjusted |
| | (unaudited) | |
| | (in thousands, except share and per share amounts) | |
| Notes payable, net of current portion | \$ 22,724 | \$ 22,724 |
| Stockholders' equity (deficit): | | |
| Preferred stock, \$0.001 par value per share; 5,000,000 shares authorized, no shares issued and outstanding, actual and as adjusted | | |
| Common stock, \$0.001 par value per share; 300,000,000 shares authorized, 25,988,934 shares issued and outstanding, actual; 300,000,000 shares authorized, 30,488,934 shares issued and outstanding, as adjusted | 26 | 31 |
| Additional paid-in capital | 214,039 | 275,986 |
| Accumulated deficit | (151,309) | (151,309) |
| Total stockholders' equity | 62,756 | 124,708 |
| Total capitalization | \$ 85,480 | \$ 147,432 |

Each \$1.00 increase (decrease) in the public offering price per share would increase (decrease) each of additional paid in capital, total stockholders' equity and total capitalization by approximately \$4.3 million, assuming that the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same and that the underwriters do not exercise their over-allotment option. Depending on market conditions and other considerations at the time we price this offering, we may sell a greater or lesser number of shares than the number set forth on the cover page of this prospectus. An increase (decrease) of 1,000,000 in the number of shares we are offering would increase (decrease) each of additional paid in capital, total stockholders' equity and total capitalization by approximately \$14.0 million, assuming the public offering price per share remains the same. An increase of 1,000,000 in the number of shares we are offering, together with a \$1.00 increase in the expected public offering price per share, would increase each of additional paid in capital, total stockholders' equity and total capitalization by approximately \$19.2 million. A decrease of 1,000,000 in the number of shares we are offering, together with a \$1.00 decrease in the public offering price per share, would decrease each of additional paid in capital, total stockholders' equity and total capitalization by approximately \$17.3 million. This information is illustrative only, and following the pricing of this offering, we will update this information based on the actual public offering price and other terms of this offering.

The outstanding share information in the table above excludes:

§ 2,875,125 shares of common stock issuable upon exercise of options outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.40 per share;

- § 27,500 shares of common stock issuable upon vesting of restricted stock units outstanding as of March 31, 2011;

- § an aggregate of 5,207,396 shares of common stock reserved for future issuance under our 2010 Equity Incentive Award Plan and Employee Stock Purchase Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under these benefit plans; and

- § 2,165,323 shares of common stock subject to warrants outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.42 per share.

Table of Contents**Dilution**

If you invest in our common stock, you will experience dilution to the extent of the difference between the public offering price per share of our common stock you pay in this offering and the net tangible book value per share of our common stock after this offering. As of March 31, 2011, our net tangible book value was \$62.5 million, or \$2.41 per share of our common stock. Net tangible book value per share is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding on March 31, 2011.

After giving effect to the sale of 4,500,000 shares of common stock we are offering at an assumed public offering price of \$14.78 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value at March 31, 2011 would have been approximately \$124.5 million, or \$4.08 per share. This represents an immediate increase in net tangible book value of approximately \$1.67 per share to existing stockholders and an immediate dilution of approximately \$10.70 per share to new investors. The following table illustrates this per share dilution:

| | |
|---|----------|
| Assumed public offering price per share | \$ 14.78 |
| Net tangible book value per share as of March 31, 2011 | \$ 2.41 |
| Increase per share attributable to this offering | 1.67 |
| As adjusted net tangible book value per share after this offering | 4.08 |
| Dilution per share to investors in this offering | \$ 10.70 |

If the underwriters fully exercise their over-allotment option, as adjusted net tangible book value after this offering would increase to approximately \$4.30 per share, and there would be an immediate dilution of approximately \$10.48 per share to new investors.

A \$1.00 increase (decrease) in the public offering price per share would increase (decrease) our as adjusted net tangible book value by approximately \$4.3 million, or \$0.14 per share, and would decrease (increase) dilution to investors in this offering by \$0.86 per share, assuming that the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same and that the underwriters do not exercise their over-allotment option. Depending on market conditions and other considerations at the time we price this offering, we may sell a greater or lesser number of shares than the number set forth on the cover page of this prospectus. An increase (decrease) of 1,000,000 in the number of shares we are offering would increase (decrease) our as adjusted net tangible book value by approximately \$14.0 million, or \$0.32 per share, and would decrease (increase) dilution to investors in this offering by \$0.32 per share, assuming the public offering price per share remains the same. An increase of 1,000,000 in the number of shares we are offering, together with a \$1.00 increase in the expected public offering price per share, would increase our as adjusted net tangible book value as of March 31, 2011 by approximately \$19.2 million, or \$0.48 per share, and would increase dilution to investors in this offering by approximately \$0.52 per share. A decrease of 1,000,000 in the number of shares we are offering, together with a \$1.00 decrease in the initial public offering price per share, would decrease our as adjusted net tangible book value as of March 31, 2011 by approximately \$17.3 million, or approximately \$0.45 per share, and would decrease dilution to investors in this offering by approximately \$0.55 per share. This information is illustrative only, and following the pricing of this offering, we will update this information based on the actual public offering price and other terms of this offering.

To the extent that outstanding options or warrants with an exercise price per share that is less than the as adjusted net tangible book value per share are exercised, you will experience further dilution. If all of our outstanding options and warrants described below were exercised, our as adjusted net tangible book value as of March 31, 2011 after this offering would have been approximately \$131.6 million, or approximately \$3.77 per share, representing dilution to new investors of approximately \$0.31 per share.

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In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

The information and tables in this section are based on 25,988,934 shares of common stock issued and outstanding as of March 31, 2011 and exclude:

- § 2,875,125 shares of common stock issuable upon exercise of options outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.40 per share;

- § 27,500 shares of common stock issuable upon vesting of restricted stock units outstanding as of March 31, 2011;

- § an aggregate of 5,207,396 shares of common stock reserved for future issuance under our 2010 Equity Incentive Award Plan and Employee Stock Purchase Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under these benefit plans; and

- § 2,165,323 shares of common stock subject to warrants outstanding as of March 31, 2011 with a weighted-average exercise price of \$2.42 per share.

Table of Contents**Selected Financial Data**

The following selected financial data should be read together with our financial statements and accompanying notes and Management's Discussion and Analysis of Financial Condition and Results of Operations appearing elsewhere in this prospectus. The selected financial data in this section is not intended to replace our financial statements and the accompanying notes.

We derived the statement of operations data for the years ended December 31, 2008, 2009 and 2010 and the balance sheet data as of December 31, 2009 and 2010 from our audited financial statements appearing elsewhere in this prospectus. We derived the statement of operations data for the years ended December 31, 2006 and 2007 and the balance sheet data as of December 31, 2006, 2007 and 2008 from our audited financial statements not included in this prospectus. The statement of operations data for the three months ended March 31, 2010 and 2011 and the balance sheet data as of March 31, 2011 are derived from our unaudited financial statements appearing elsewhere in this prospectus. The unaudited financial statements have been prepared on a basis consistent with our audited financial statements and include, in the opinion of management, all adjustments, consisting only of normal recurring adjustments, necessary for the fair statement of the financial information in those statements. Our historical results are not necessarily indicative of the results to be expected in any future period, and the results for the three months ended March 31, 2011 are not necessarily indicative of the results to be expected for the year ending December 31, 2011.

| | Year ended December 31, | | | | | Three months ended | |
|---|--|-------------|-------------|-------------|-------------|--------------------|-------------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2010 | March 31, 2011 |
| | (in thousands, except share and per share amounts) | | | | | | |
| Statement of Operations Data: | | | | | | | |
| Revenue | \$ | \$ | \$ | \$ 623 | \$ 9,389 | \$ 336 | \$ 6,833 |
| Operating expenses: | | | | | | | |
| Cost of Revenue | | | | | | | 6,582 |
| Start-up production costs | | | | 5,033 | 19,895 | 4,077 | |
| Research and development | 3,732 | 10,305 | 23,633 | 22,424 | 21,691 | 6,169 | 6,808 |
| General and administrative | 951 | 1,896 | 3,179 | 4,953 | 9,345 | 3,099 | 2,780 |
| Sales and marketing | | | 1,045 | 1,798 | 6,111 | 1,226 | 2,700 |
| Total operating expenses | 4,683 | 12,201 | 27,857 | 34,208 | 57,042 | 14,571 | 18,870 |
| Loss from operations | (4,683) | (12,201) | (27,857) | (33,585) | (47,653) | (14,235) | (12,037) |
| Interest expense | (11) | (215) | (974) | (3,465) | (2,827) | (311) | (340) |
| Interest and other income (expense), net | 129 | 163 | 437 | 1,101 | (7,207) | 210 | (84) |
| Net loss | (4,565) | (12,253) | (28,394) | (35,949) | (57,687) | (14,336) | (12,461) |
| Deemed dividend related to beneficial conversion feature of Series E convertible preferred stock | | | | | (405) | | |
| Net loss attributable to common stockholders | \$ (4,565) | \$ (12,253) | \$ (28,394) | \$ (35,949) | \$ (58,092) | \$ (14,336) | \$ (12,461) |
| Net loss per share attributed to common stockholders, basic and diluted | \$ (123.58) | \$ (211.00) | \$ (369.36) | \$ (386.56) | \$ (13.60) | \$ (51.15) | \$ (0.48) |
| Weighted-average shares outstanding used in computing net loss per share attributed to common stockholders, basic and diluted | 36,941 | 58,072 | 76,873 | 92,998 | 4,271,176 | 280,283 | 25,959,929 |

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| | 2006 | 2007 | December 31, | | 2010 | March 31, |
|---|----------------|-------------|--------------|-------------|-----------|-----------|
| | | | 2008 | 2009 | | 2011 |
| | (in thousands) | | | | | |
| Balance Sheet Data: | | | | | | |
| Cash and cash equivalents | \$ 1,632 | \$ 4,260 | \$ 6,186 | \$ 7,765 | \$ 68,918 | \$ 68,791 |
| Working capital | 1,047 | 1,845 | 741 | 2,964 | 61,333 | 64,699 |
| Total assets | 2,748 | 8,762 | 15,754 | 30,278 | 103,160 | 105,089 |
| Current and long-term notes payable | 1,000 | 3,473 | 11,697 | 7,950 | 13,301 | 24,136 |
| Convertible preferred stock warrant liability | 39 | 386 | 1,100 | 1,553 | | |
| Convertible preferred stock | 6,236 | 20,223 | 45,622 | 85,833 | | |
| Total stockholders' equity (deficit) | \$ (4,852) | \$ (17,121) | \$ (45,154) | \$ (77,690) | \$ 73,636 | \$ 62,756 |

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**Management's Discussion and Analysis of
Financial Condition and Results of Operations**

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and related notes that appear elsewhere in this prospectus. In addition to historical financial information, the following discussion contains forward-looking statements that involve risks and uncertainties. Our actual results may differ materially from those discussed below. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this prospectus, particularly under the caption Risk Factors.

Overview

We are a life sciences company that has developed and commercialized a DNA sequencing platform for complete human genome sequencing and analysis, and our goal is to become the preferred solution for complete human genome sequencing and analysis. Our Complete Genomics Analysis Platform, or CGA Platform, combines our proprietary human genome sequencing technology with our advanced informatics and data management software and our innovative, end-to-end, outsourced service model to provide our customers with data that is immediately ready to be used for genome-based research. We believe that our solution provides academic and biopharmaceutical researchers with complete human genomic data and analysis at an unprecedented combination of quality, cost and scale without requiring them to invest in in-house sequencing instruments, high-performance computing resources and specialized personnel. By removing these constraints and broadly enabling researchers to conduct large-scale complete human genome studies, we believe that our solution has the potential to significantly advance medical research and expand understanding of the basis, treatment and prevention of complex diseases.

We have targeted our complete human genome sequencing service at academic, governmental and other research institutions, as well as pharmaceutical and other life science companies. In the DNA sequencing industry, complete human genome sequencing is generally deemed to be coverage of at least 90% of the nucleotides in the genome. We perform our sequencing service at our Mountain View, California headquarters facility, which began commercial operation in May 2010. In the near term, we expect to make significant expenditures related to the expansion of our Mountain View sequencing facility and our research and development initiatives, as well as to increase our sales and marketing and general and administrative expenses to support our commercial operations and anticipated growth. In future years, we may construct additional genome centers in the United States and in other strategic markets to accommodate an expected growing, global demand for high-quality, low-cost complete human genome sequencing on a large scale.

Our ability to generate revenue, and the timing of our revenue, will depend on generating new orders and contracts, receiving qualified DNA samples from customers and the rate at which we can convert our backlog of sequencing orders into completed and delivered data and the price per genome contracted with the customer. We define backlog as the number of genomes for which customers have placed orders that we believe are firm and for which no revenue has yet been recorded. As of March 31, 2011, we had a backlog of orders for sequencing over 2,000 genomes, which we believe could result in approximately \$15.0 million in revenue over the next 12 months. The speed with which we can convert orders into revenue depends principally on:

§ the speed with which our customers provide us with qualified samples after submitting an order;

§ the rate at which our system can sequence a genome; and

§ the rate at which all significant contractual obligations are fulfilled.

The presence or absence in a specific quarter of one or more new large orders for hundreds of genomes combined with our uncertain sales cycle and changes in the variables that influence conversion of orders to revenue will cause our results of operations and our backlog to fluctuate on a quarterly basis, perhaps significantly from one quarter to the next. In addition, we have only recently engaged in commercial-scale manufacturing, so we have a very limited history on which we can rely in making predictions regarding operating variables such as equipment

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failure, throughput yield, customer delivery of qualified genomic samples and other factors that could affect our ability to sequence genomes and recognize revenue.

We have not been profitable in any period since we were formed. We incurred net losses attributable to stock holders of \$28.4 million, \$35.9 million and \$58.1 million for the years ended December 31, 2008, 2009 and 2010, respectively, and \$14.3 million and \$12.5 million for the three months ended March 31, 2010 and 2011, respectively. We recognized revenue of \$0.0 million, \$0.6 million and \$9.4 million for the years ended December 31, 2008, 2009 and 2010, respectively, and \$0.3 million and \$6.8 million for the three months ended March 31, 2010 and 2011, respectively. As of March 31, 2011, we had an accumulated deficit of \$151.3 million.

Although we do not anticipate any material seasonal effects, given our limited operating history as a revenue generating company, our sales cycle is uncertain. Thirty-nine customers accounted for all of the revenue we recognized in 2010, with one customer accounting for 10.6 % of total revenue in 2010. A limited number of customers accounted for all of the revenue we recognized for the three months ended March 31, 2011, with Pfizer and the University of Amsterdam accounting for approximately 34% and 18%, respectively, of total revenue in three months ended March 31, 2011. If demand for our services expands as expected, we do not anticipate that the loss of any of the customers named above would have a material adverse effect on our future results of operations.

Key Financial Measures

Revenue

Our revenue is derived from selling our human genome sequencing service. We sell our service to our customers through a direct field sales and support organization. Our customers enter into purchase orders, and, in some cases, genome service contracts with us. For most arrangements, we recognize revenue upon shipment of genomic data to the customer. If the customer has a post-delivery acceptance right, which is atypical, we recognize revenue upon expiration of the acceptance period or, if sooner, customer acceptance. The per-genome price of our sequencing service is based principally on the number of genomes to be sequenced in the arrangement, with price per genome decreasing as order size increases. We anticipate periodically reducing the price per genome for our service as the costs of sequencing decreases and competitive conditions change. We expect that our primary source of revenue for the foreseeable future will be derived from our human genome sequencing service.

Operating Expenses

Cost of Revenue

Cost of revenue includes the costs related to acceptance testing of customer genomic samples, sample preparation and sequencing, the processing of data generated by our sequencing instruments and delivery of data to our customers. In 2011, we achieved full commercial production as the development of the commercial genome sequencing process was completed and employees were dedicated to the production process. Therefore, the costs we incurred sequencing genomic samples during the three months ended March 31, 2011 are included in cost of revenue in the statement of operations.

Start-up Production Costs

Prior to 2011, we had not yet achieved full commercial production. As a result, the costs that we incurred related to the sequencing of genomic samples during the periods prior to 2011 have been included in start-up production costs, which primarily consist of costs related to the acceptance testing of customer genomic samples, sample sequencing preparation, sample sequencing, the processing of data generated by the prototype sequencing instruments, continued validation of the production process and optimization of instrument performance. These costs primarily include personnel-related expenses and stock-based compensation, chemical reagents and engineering materials and supplies, consultant fees, depreciation of equipment and facilities-related costs. Prior

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to 2009, we were primarily involved in developing our sequencing technology platform, and, as a result, most of these expenses were accounted for as research and development. In 2009, we began providing our genome sequencing service to customers and accounted for these costs as start-up production costs.

Research and Development Expenses

Research and development expenses consist of costs associated with scientific research activities, software and hardware engineering development efforts and process automation. These costs primarily include personnel-related expenses, including stock-based compensation, chemical reagents and engineering materials and supplies, depreciation of equipment, consulting fees and facilities-related costs.

In 2007, we were awarded a grant from the National Institute of Science and Technology, or NIST, through which we are eligible to receive reimbursement of a portion of our research and development expenses and certain administrative expenses. In each of 2008 and 2009, we recognized a \$0.8 million reduction in research and development expenses for activities funded by NIST.

General and Administrative Expenses

General and administrative expenses consist principally of personnel-related expenses, including stock-based compensation for our finance, human resources and certain executive personnel, professional services fees, such as consulting, audit, tax and legal fees, general corporate costs and facilities-related costs. We are eligible to receive reimbursement for a portion of our administrative expenses pursuant to our NIST grant. In each of 2008 and 2009, we recognized a \$0.2 million reduction in general and administrative expenses for activities funded by NIST.

Sales and Marketing Expenses

Sales and marketing expenses consist principally of personnel-related expenses, including stock-based compensation for our sales and marketing personnel, costs related to sales and marketing activities, marketing research and facilities-related costs.

Interest Expense

Interest expense consists of interest on our notes payable and issuance costs associated with our borrowings.

Interest and Other Income (Expense), Net

Interest and other income (expense), net, consists of interest earned on our cash and cash equivalents and changes in the fair value of our convertible preferred stock warrant liability.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our financial statements that have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of our financial statements requires our management to make estimates, assumptions and judgments 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 revenues and expenses during the applicable periods. Management bases its estimates, assumptions and judgments on historical experience and on various other factors that it believes to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our financial statements, which, in turn, could materially change the results from those reported. Our management evaluates its estimates, assumptions and judgments on an ongoing basis. Historically, our critical accounting estimates have not differed materially from actual results. However, if our assumptions change, we may need to revise our estimates, or take other corrective actions, either of which may also have a material adverse effect on our statements of operations, liquidity and financial condition.

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Revenue Recognition

We generate revenue from selling our human genome sequencing services under purchase orders or contracts. Revenues are recognized when all of the following criteria are met: persuasive evidence of an arrangement exists, title has transferred, the price is fixed or determinable and collectability is reasonably assured. Upon completion of the sequencing process, we ship the research-ready genomic data to the customer. We use shipping documents and third-party evidence to verify shipment of the data. In order to determine whether collectability is reasonably assured, we assess a number of factors, including past transaction history with the customer and the creditworthiness of the customer. If we determine that collectability is not reasonably assured, we defer the recognition of revenue until collectability becomes reasonably assured. We also receive down payments from customers prior to the commencement of the genome sequencing process.

For revenue generated under purchase orders, we have established standard terms and conditions that are specified for all orders. We use the purchase order to establish persuasive evidence of an arrangement and whether there is a fixed and determinable price for the order. Revenue is recognized based upon the shipment of individual genomic data to customers and satisfaction of related terms and conditions contained in the purchase order. Any down payments received are recorded as deferred revenue until we meet all revenue recognition criteria.

For revenue generated under contracts, we consider each contract's terms and conditions to determine its obligations associated with the contract. We will defer revenue until individual genomic data has been shipped to customers and related significant obligations, as defined in the contract, have been met. Any down payments received are recorded as deferred revenue until we meet all revenue recognition criteria.

Allowance for Doubtful Accounts

Receipt of payment on our existing receivables has been reasonably assured such that we do not believe that an allowance for doubtful accounts is currently required. If our revenue increases as expected and our accounts receivable balance grows, we intend to perform regular evaluations of our customers' creditworthiness and continuously monitor collections and payments to estimate an allowance for doubtful accounts that is based on the aging of the underlying receivables and our experiences with regard to specific collection issues.

Estimated Useful Lives of Property and Equipment

We depreciate our property and equipment using a straight-line method over their estimated useful lives. Our property primarily consists of lease improvements, and our equipment primarily consists of our sequencing instruments and computer equipment used in the sequencing process. While we use our best judgment to determine the useful lives of our sequencing instruments and computer equipment, a significant change in technology or the emergence of an advanced technology could result in a shorter useful life than we initially anticipated. Our equipment represents the largest asset on our balance sheet, and a subsequent reduction in the useful lives of equipment could have a material impact on our statement of operations.

Inventory

Inventory consists of the raw materials we use in our sequencing process, work in process and finished goods. Inventories are stated at the lower of cost or market value. Cost is determined using standard costs, which approximate actual costs, on a first-in, first-out basis. Market value is determined as the lower of replacement cost or net realizable value. We regularly review inventory quantities on hand for excess and obsolete inventories, giving consideration to potential obsolescence, our product life cycle and development plans, product expiration and quality issues. To date, these factors have not been significant as our inventory amounts have been immaterial. However, we anticipate that these estimates will become more significant if our sequencing volumes increase as expected.

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Valuation of Long-Lived Assets

We assess our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of a long-lived asset may not be recoverable. These indicators may include, but are not limited to, significant decreases in the market value of an asset and significant changes in the extent or manner in which an asset is used. If these or other indicators are present, we test for recoverability by measuring the carrying amount of the assets against future net cash flows which the assets are expected to generate. If these assets are considered to be impaired, the impairment recognized is measured by the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows arising from the assets. We make estimates and judgments about future undiscounted cash flows and fair values. Although our cash flow forecasts are based on assumptions that are consistent with our plans, there is significant exercise of judgment involved in determining the cash flow attributable to a long-lived asset over its estimated remaining useful life. Our estimates of anticipated cash flows could be reduced significantly in the future. As a result, the carrying amounts of our long-lived assets could be reduced through impairment charges in the future. There have been no such impairments of long-lived assets to date. However, we anticipate that a future impairment could have a material impact on our financial statements in light of the dollar significance of the long-lived assets carried on our balance sheet.

Stock-Based Compensation

We recognize compensation expense related to the awarding of employee stock options, based on the estimated fair value of the awards granted using the Black-Scholes option-pricing model. We also use the Black-Scholes option-pricing model to determine the fair value of non-employee stock option grants. In accordance with authoritative guidance, the fair value of non-employee stock option grants is re-measured as they vest, and the resulting increase in value, if any, is recognized as expense during the period the related services are rendered.

Stock Option Modification

In January 2010, our board of directors approved a modification of outstanding unexercised stock options held by then-current employees and consultants to decrease the exercise price of these stock options to \$1.50 per share. Other than a reduced exercise price, the terms and conditions of the stock options remained the same. All 85,477 unexercised options that were granted under our 2006 Equity Incentive Plan on or before January 28, 2010 and which had an exercise price greater than \$1.50 per share were modified. The incremental stock-based compensation expense due to the modification was immaterial to our financial statements.

Income Taxes

We are subject to income taxes in the United States, and we use estimates in determining our provision for income taxes. We use the asset and liability method of accounting for income taxes. Under this method, deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect for the year in which the differences are expected to affect taxable income.

Recognition of deferred tax assets is appropriate when realization of such assets is more likely than not. We recognize a valuation allowance against our net deferred tax assets if it is more likely than not that some portion of the deferred tax assets will not be fully realizable. This assessment requires judgment as to the likelihood and amounts of future taxable income by tax jurisdiction. At December 31, 2010, we had a full valuation allowance against all of our deferred tax assets.

Effective January 1, 2007, we adopted the new authoritative guidance to account for uncertain tax positions. None of our currently unrecognized tax benefits would affect our effective income tax rate if recognized, due to the valuation allowance that currently offsets our deferred tax assets. We do not anticipate the total amount of unrecognized income tax benefits relating to tax positions existing at December 31, 2010 will significantly increase or decrease in the next 12 months.

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We assess all material positions taken in any income tax return, including all significant uncertain positions, in all tax years that are still subject to assessment or challenge by relevant taxing authorities. Assessing an uncertain tax position begins with the initial determination of the position's sustainability and is measured at the largest amount of benefit that is greater than 50% likely to be realized upon ultimate settlement. As of each balance sheet date, unresolved uncertain tax positions must be reassessed, and we will determine whether:

§ the factors underlying the sustainability assertion have changed; and

§ the amount of the recognized tax benefit is still appropriate.

The recognition and measurement of tax benefits requires significant judgment. Judgments concerning the recognition and measurement of a tax benefit might change as new information becomes available.

As of December 31, 2010, we had federal and state net operating loss carryforwards of \$108.5 million and \$107.7 million, respectively. The federal net operating loss carryforwards will begin to expire in 2026, and the state net operating loss carryforwards will begin to expire in 2016. In addition, as of December 31, 2010, we had federal and state research and development tax credit carryforwards of \$2.4 million and \$2.6 million, respectively. The federal research and development tax credit carryforwards will expire in 2026, if not used, and the state research and development tax credit carryforwards do not expire. Because of the net operating loss and credit carryforwards, all of our tax years, dating to inception in 2005, remain open to federal tax examinations. Most state tax jurisdictions have four open tax years at any point in time.

Under federal and similar state tax statutes, substantial changes in our ownership, may limit our ability to use our available net operating loss and tax credit carryforwards. The annual limitation, as a result of a change-in-control, may result in the expiration of net operating losses and credits before utilization. We conducted an analysis through December 31, 2010 to determine whether ownership changes occurred. We concluded that two ownership changes had occurred. However, as of December 31, 2010, we believe no net operating losses or tax credits will expire unused as a result of these changes.

As of December 31, 2009, we had federal and state net operating loss carryforwards of approximately \$59.7 million each and federal and state research and development tax credit carryforwards of approximately \$1.9 million and \$2.0 million, respectively. Our federal net operating loss and research and development tax credit carryforwards begin expiring in 2026 unless used prior to that date. Our state net operating loss carryforwards will begin to expire in 2016, if not used, and our state research and development tax credit carryforwards do not expire. Our ability to use net operating loss and tax credit carryforwards is subject to ownership change rules as provided under the Internal Revenue Code and similar state provisions. We have performed an analysis to determine whether an ownership change has occurred from inception to December 31, 2009. Our analysis determined that two ownership changes have occurred during that period. Due to these ownership changes, the use of these net operating losses and research and development credits are subject to annual limitation. However, we concluded that as of December 31, 2009, no net operating losses or research and development credits will expire before utilization due to these ownership changes. In the event we have a subsequent change in ownership, net operating loss and research and development credit carryovers could be further limited and may expire unutilized.

Table of Contents**Results of Operations****Comparison of Three Months Ended March 31, 2010 and 2011**

The following table shows the amounts of the listed items from our statements of operations for the periods presented, showing period-over-period changes (in thousands, except for percentages).

| | Three months ended March 31, | | First Quarter 2011 vs. First Quarter 2010 | |
|--|---------------------------------|-------------|--|----------|
| | 2010 | 2011 | \$ Change | % Change |
| | (unaudited) | | | |
| Revenue | \$ 336 | \$ 6,833 | \$ 6,497 | 1,934% |
| Costs and expenses: | | | | |
| Costs of revenue | | 6,582 | (6,582) | * |
| Start-up production costs | 4,077 | | 4,077 | * |
| Research and development | 6,169 | 6,808 | (639) | (10)% |
| General and administrative | 3,099 | 2,780 | 319 | 10% |
| Sales and marketing | 1,226 | 2,700 | (1,474) | (120)% |
| Total costs and expenses | 14,571 | 18,870 | (4,299) | (30)% |
| Loss from operations | (14,235) | (12,037) | 2,198 | 15% |
| Interest expense | (311) | (340) | (29) | (9)% |
| Interest and other income (expense), net | 210 | (84) | (294) | (140)% |
| Net loss | \$ (14,336) | \$ (12,461) | \$ 1,875 | 13% |

* result is not meaningful.

Revenue

During the three months ended March 31, 2011, we recognized \$6.8 million of revenue, compared to \$0.3 million during the same period in 2010. In the three months ended March 31, 2010, we generated limited revenue from small-scale pilot projects. The significant revenue increase in the three months ended March 31, 2011 as compared to the corresponding period in 2010 reflects an increase in sequencing orders resulting from our expanded marketing and sales activities, which have expanded our customer base over the last nine months. Our price points have decreased. Average price per genome decreased from the fourth quarter of 2010 to the first quarter of 2011. Current pricing of genome services starts at \$9,500 per genome for small order sizes and ranges to between \$5,000 to \$7,500 per genome for orders in the hundreds of genomes.

Costs of Revenue

During the three months ended March 31, 2011, we incurred \$6.6 million of costs to provide our genome sequencing service. The \$6.6 million of cost of revenue primarily consisted of \$2.0 million in salaries and benefits expense, \$1.7 million in depreciation expense and \$0.8 million in materials.

We anticipate that these costs as a percentage of revenue will fluctuate as we increase sequencing capacity and our capacity utilization changes, as the sequencing price we charge to our customers change and as we continue to improve and automate our human genome sequencing processes. However, we anticipate that our total cost of revenue will increase in absolute dollars as we sequence additional genomes and our revenue grows.

Start-up Production Costs

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During the three months ended March 31, 2010, we incurred \$4.1 million of start-up production costs to support the development of our genome sequencing service. The \$4.1 million of start-up production costs primarily consisted of \$1.4 million in salaries and benefits expense and \$0.7 million in depreciation expense.

Research and Development

Research and development expenses were \$6.8 million during the three months ended March 31, 2011, compared to \$6.2 million during the three months ended March 31, 2010, representing an increase of \$0.6 million, or 10%. The increase in research and development expenses was primarily due to an increase in salaries and benefits

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expense of \$0.5 million and an increase of \$0.8 million in genome sequencing costs due to an increase in the number of genomes sequenced for research purposes. These increases were partially offset by a decrease in bonus expense of \$0.4 million. The increase in salaries and benefits cost is a result of increased headcount and the refocusing of certain research and development resources that had been directed to start-up production activities in prior quarters.

We expect to continue to invest in research and development activities as we seek to enhance our sequencing processes, components and systems to improve the yield and throughput and reduce the cost of our sequencing service. Consequently, we believe that in the near future, our research and development expenses will increase.

General and Administrative

General and administrative expenses were \$2.8 million for the three months ended March 31, 2011, compared to \$3.1 million for the three months ended March 31, 2010, representing a decrease of \$0.3 million, or 10%. The decrease in general and administrative expenses was primarily due to a \$0.9 million reduction in stock-based compensation expense related to equity grants to two founders in the three months ended March 31, 2010. Consulting fees also decreased by \$0.2 million in the first quarter of 2011 when compared to the same period in 2010. These decreases were partially offset by increases in employee salaries and benefits and legal and accounting fees of \$0.3 million each. The increase in salaries and benefits expense was primarily due to increased headcount to support operations as a public company. In addition, outside services expense for legal and accounting support increased primarily due to operating as a public company.

We expect that general and administrative expenses will increase for the remainder of 2011 as we operate as a public company in 2011.

Sales and Marketing

Sales and marketing expenses were \$2.7 million during the three months ended March 31, 2011, compared to \$1.2 million during the three months ended March 31, 2010, representing an increase of \$1.5 million, or 120%. The increase in sales and marketing expenses is due primarily to an increase in employee salaries and benefits expense of \$0.9 million, and an increase in consulting expense and seminar expense of \$0.1 million each. The increase in expenses was primarily a result of the growth of our sales and marketing organization to support the increased sales activity and overall growth of the Company.

We expect that sales and marketing expenses will continue to increase for the remainder of 2011 as we increase our headcount for sales and marketing personnel to expand our customer base and to generate growth in terms of both complete human genomes ordered and revenues.

Interest Expense

During the three months ended March 31, 2011, we incurred interest expense of \$340,000 compared to \$311,000 during the three months ended March 31, 2010. The increase in interest expense of \$29,000 between the two periods was primarily due to higher debt balances related to our loans.

Interest and Other Income (Expense), Net

Interest and other income (expense), net, for the three months ended March 31, 2011 was an expense of \$0.1 million compared to income of \$0.2 million for the three months ended March 31, 2010. The change between the two periods was primarily due to the change in the valuation of our warrant liability.

Comparison of Years Ended December 31, 2008, 2009 and 2010

During the year ended December 31, 2009, our results of operations were impacted by the following events, which should be considered when reading the discussion of our results of operations comparing 2010 and 2009:

- § In 2009, we initiated start-up production activities using resources from our research and development organization. Using these research and development resources for production activities decreased research and development expenses during 2009 by \$2.2 million.

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§ In the second quarter of 2009, we implemented temporary cost-reduction initiatives to conserve cash in light of macroeconomic conditions. The temporary cost-reduction initiatives included a salary reduction for all company employees that averaged approximately 50%. The impact of the temporary cost-reduction initiatives on 2009 operating results was a reduction of expenses of approximately \$3.4 million, including reductions in employee salaries and benefits of approximately \$2.0 million, consulting and outside engineering services of approximately \$0.6 million and prototype equipment expenses of approximately \$0.4 million. As a result of these cost-reduction initiatives, research and development, general and administrative and sales and marketing expenses decreased \$2.7 million, \$0.5 million and \$0.2 million, respectively, during 2009.

§ During the fourth quarter of 2009, we reevaluated the expected useful lives of our equipment, and determined that for certain of our equipment, the useful life should be shortened. Accordingly, we accelerated depreciation of this equipment, resulting in an additional \$1.0 million in depreciation expense in the fourth quarter of 2009. Of this \$1.0 million charge, approximately \$0.5 million was recorded as start-up production costs and approximately \$0.5 million was recorded as research and development expense. During 2010, we did not have equipment that required acceleration of depreciation.

The following table shows the amounts of the listed items from our statements of operations for the periods presented, showing period-over-period changes (in thousands, except percentages).

| | Years ended December 31, | | | 2009 vs. 2008 | | 2010 vs. 2009 | |
|--|--------------------------|-------------|-------------|---------------|----------|---------------|----------|
| | 2008 | 2009 | 2010 | \$ Change | % Change | \$ Change | % Change |
| Revenue | \$ | \$ 623 | \$ 9,389 | \$ 623 | * | \$ 8,766 | 1,407% |
| Operating expenses: | | | | | | | |
| Start-up production costs | | 5,033 | 19,895 | 5,033 | * | 14,862 | (295)% |
| Research and development | 23,633 | 22,424 | 21,691 | (1,209) | 5% | (733) | 3% |
| General and administrative | 3,179 | 4,953 | 9,345 | 1,774 | (56)% | 4,392 | (89)% |
| Sales and marketing | 1,045 | 1,798 | 6,111 | 753 | (72)% | 4,313 | (240)% |
| Total operating expenses | 27,857 | 34,208 | 57,042 | 6,351 | (23)% | 22,834 | (67)% |
| Loss from operations | (27,857) | (33,585) | (47,653) | (5,728) | (21)% | (14,068) | (42)% |
| Interest expense | (974) | (3,465) | (2,827) | (2,491) | (256)% | 638 | 18% |
| Interest and other income (expense), net | 437 | 1,101 | (7,207) | 664 | (152)% | (8,308) | (754)% |
| Net loss | \$ (28,394) | \$ (35,949) | \$ (57,687) | \$ (7,555) | (27)% | \$ (21,738) | (61)% |

* Percentage not meaningful.

Revenue

During 2010, we recognized \$9.4 million of revenue, compared to \$0.6 million during 2009. This is the result of our revenue activities not beginning until the fourth quarter of 2009.

We recognized our first revenue of \$0.6 million in the fourth quarter of 2009, which represented sales to seven customers.

Start-up Production Costs

During 2010, we incurred \$19.9 million of start-up production costs to support our genome sequencing service, compared to \$5.0 million during 2009. These activities include the acceptance testing of customer genomic samples, sample sequencing preparation, sample sequencing, the processing of data generated by our prototype sequencing instruments, continued validation of the production process and optimization of instrument performance. The \$14.9 million increase in start-up production costs was primarily due to increases in employee salaries and benefits and stock-based compensation expenses of \$5.1 million and \$0.1 million, respectively, depreciation expense of \$3.9 million, facilities and maintenance expense of \$2.5 million and consulting expense of \$0.6 million. We continued to incur start-up costs in excess of revenue during 2010 to initiate and bring our

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human genome sequencing production process to commercial-scale. Only a portion of our production expenses varies with our service activity. Accordingly, unless we achieve significantly larger production volume and revenue, our production costs will be greater than our revenue.

During 2009, we incurred \$5.0 million of start-up production costs to support our genome sequencing service. These costs primarily consisted of employee salaries and benefits and stock-based compensation expense of \$1.7 million and \$0.1 million, respectively, depreciation expense of \$1.5 million, facilities and maintenance costs of \$0.6 million, reagents, materials and supplies expense of \$0.3 million, data communication charges of \$0.2 million, equipment expense of \$0.2 million and consulting expense of \$0.2 million. We incurred considerable start-up production costs in excess of revenue during 2009 to initiate and bring our human genome sequencing production process to commercial scale. We committed significant personnel and equipment resources to our production process in advance of our achieving full commercial production volume.

Research and Development

During 2010, we recognized \$21.7 million of research and development expenses, compared to \$22.4 million during 2009, representing a decrease of \$0.7 million, or 3%. While there was only a 3% change in research and development expenses between the two periods, there were changes in the composition of the expenses. The primary changes during 2010 compared to 2009 were a reduction in depreciation expense of \$2.4 million, an increase in salaries and benefits expense and stock-based compensation expense of \$1.3 million and \$0.7 million, respectively, and an increase in facilities and maintenance costs of \$1.1 million. The decrease in depreciation expense was primarily due to the acceleration of depreciation expense of certain equipment in 2009 and the redeployment of equipment to start-up production activities. The decrease in data center expense allocated to research and development was due to increased use of the data center in start-up production activities in 2010. The increase in salaries and benefits expense was primarily due to a charge associated with an equity grant to one of our founders in 2010 and the temporary cost-reduction initiatives implemented during the second quarter of 2009, which resulted in lower overall salaries and benefits expense for 2009. The increase in facilities and maintenance costs was associated with the expansion of our facilities during 2009. Our research and development costs should increase in 2011 as the expense related to additional headcount hired during 2010 will be included in 2011 for a full year. In addition, we expect to hire additional headcount in 2011. The headcount increase is necessary as our business matures and we strive to achieve our long term business objectives.

Research and development expenses decreased \$1.2 million, or 5%, in 2009 from 2008 as we used resources from our research organization to initiate commercial operations and implemented temporary cost-reduction initiatives in the second quarter of 2009. This decrease reflects a reduction in equipment, reagents, materials and supplies and prototype equipment expense of \$1.5 million. The reduction in equipment, reagents, materials and supplies expenses primarily reflects their usage in start-up production activities. The reduction in prototype equipment expense reflects our transition to developing production equipment as well as cost-reduction measures in the second quarter of 2009. In addition, the decrease in research and development expenses reflects a reduction in licensing arrangements expense of \$1.2 million, of which, \$1.0 million represents a one-time payment to Callida Genomics, Inc. in 2008 pursuant to our intellectual property license arrangement. The decrease in research and development expenses also reflects a reduction in consulting expense and outside engineering services of \$0.9 million and the disposal of obsolete equipment in 2008 of \$0.5 million. These decreases in research and development expenses were offset by increased equipment depreciation expense of \$0.9 million related to investments in computing and other equipment and software and acceleration of depreciation expense for certain equipment and increased employee salaries and benefits of \$0.6 million related to increased headcount. The decrease in research and development expenses were further offset by increased stock-based compensation expense of \$0.7 million, increased facilities and maintenance costs of \$0.6 million associated with the expansion of our facilities in 2009 and increased data communication costs of \$0.5 million related to the expansion of our offsite data center.

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General and Administrative

General and administrative expenses were \$9.3 million for 2010, compared to \$5.0 million for 2009, representing an increase of \$4.3 million, or 89%. In 2010 compared to 2009, employee salaries and benefits and stock-based compensation expense increased \$3.1 million and \$1.3 million, respectively. The increase in salaries and benefits expense was primarily due to the temporary cost-reduction initiatives implemented during the second quarter of 2009, which resulted in a lower overall salaries and benefits expense for 2009, increased headcount during 2010 and a charge associated with equity grants to two of our founders in 2010. In addition, outside services expense increased by \$0.9 million to support patent and litigation activities during 2010. Our general and administrative costs should increase in 2011 as we expand our business and incur the costs associated with being a public company.

General and administrative expenses increased \$1.8 million, or 56%, in 2009 from 2008 primarily reflecting increased facilities and maintenance costs of \$1.1 million. During 2009, significant portions of our facility were renovated to accommodate our genome sequencing center. During the period of renovation, the space being renovated was unoccupied, and associated costs were recorded as general and administrative expense. In addition, general and administrative expenses reflect increased employee salaries and benefits and stock-based compensation expense of \$0.1 million and \$0.2 million, respectively, legal expense of \$0.2 million, primarily related to intellectual property matters and patent prosecution, increased consulting expense of \$0.1 million related to financial and human resources consultants and increased payroll and benefits servicing fees of \$0.1 million.

Sales and Marketing

Sales and marketing expenses were \$6.1 million during 2010, compared to \$1.8 million during 2009, representing an increase of \$4.3 million, or 238%. The increase in sales and marketing expenses was primarily due to an increase in employee salaries and benefits of \$2.6 million and an increase in outside services of \$0.1 million. The increase in sales and marketing expenses was also impacted by increases in travel expenses and allocation of facilities and maintenance costs of \$0.4 million each. The increase in expenses was primarily a result of the growth of our sales and marketing organization to support the increased sales activity and overall order growth in 2010. We expect that sales and marketing expenses will continue to increase in 2011 as we increase our headcount for sales and marketing personnel to support our expected growth in revenue and the expansion of our customer base.

Sales and marketing expenses increased \$0.8 million, or 72%, in 2009 from 2008 reflecting increased employee salaries and benefits and stock-based compensation expense of \$0.7 million and \$0.1 million, respectively, related to increased headcount, increased facilities and maintenance costs of \$0.1 million and increased travel expenses \$0.1 million. The increase in sales and marketing expenses was partially offset by decreased marketing research and public relations expense of \$0.3 million. Our sales and marketing expenses in 2008 reflect our initial investment in marketing activities and primarily consist of marketing research and public relations activities.

Interest Expense

During 2010, we incurred interest expense of \$2.8 million, compared to \$3.5 million during 2009. The decrease in interest expense was primarily a result of lower amortization of the debt discount related to the common stock warrants we issued in 2010, compared to amortization of the debt discount related to the Series D preferred stock warrants issued in 2009. The Series D preferred stock warrants we issued in the first quarter of 2009 while the common stock warrants were issued during the second quarter of 2010, resulting in a shorter period of amortization during 2010 versus 2009.

Interest expense increased by \$2.5 million, or 256%, in 2009 from 2008 primarily due to \$1.0 million of interest expense on higher loan balances under our new credit facility and \$1.5 million of interest charges related borrowings under convertible notes issued in 2009.

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Interest and other income (expense), net, for 2010 was an expense of \$7.2 million compared to income of \$1.1 million for 2009. The change between the two periods was due to the change in the valuation of our preferred stock warrant and purchase right liabilities.

The increase in interest and other income (expense), net, of \$0.7 million in 2009 from 2008 was primarily due to the change in valuation of our convertible preferred stock warrants in 2009, offset by lower interest income due to lower cash and cash equivalents balances, as well as lower effective rates of interest earned on our cash equivalents balance.

Selected Quarterly Results of Operations

The following table presents our unaudited quarterly results of operations for the eight fiscal quarters ended March 31, 2011. This unaudited quarterly information has been prepared on the same basis as our audited financial statements and includes all adjustments, consisting of only normal recurring adjustments, necessary for the fair statement of the information for the quarters presented. You should read this table in conjunction with our financial statements and the related notes thereto included in this prospectus. The results of operations for any quarter are not necessarily indicative of the results of operations for any future period.

| | Fiscal 2009, quarter ended | | | Fiscal 2010, quarter ended | | | Fiscal 2011, quarter ended | |
|--|----------------------------|------------|-------------|----------------------------|-------------|-------------|----------------------------------|------------------------|
| | Jun. 30 | Sept. 30 | Dec. 31 | Mar. 31 | Jun. 30 | Sept. 30 | Dec. 31 | Mar. 31 (unaudited) |
| (in thousands) | | | | | | | | |
| Statements of Operations | | | | | | | | |
| Data: | | | | | | | | |
| Revenue | \$ | \$ | \$ 623 | \$ 336 | \$ 1,089 | \$ 4,161 | \$ 3,803 | \$ 6,833 |
| Cost and expenses: | | | | | | | | |
| Cost of revenues | | | | | | | | 6,582 |
| Start-up production costs | 687 | 1,258 | 2,762 | 4,077 | 4,908 | 6,007 | 4,903 | |
| Research and development | 3,703 | 5,638 | 6,337 | 6,169 | 4,928 | 4,954 | 5,640 | 6,808 |
| General and administrative | 822 | 1,352 | 1,481 | 3,099 | 1,763 | 2,330 | 2,153 | 2,780 |
| Sales and marketing | 193 | 366 | 812 | 1,226 | 1,313 | 1,591 | 1,981 | 2,700 |
| Total operating expenses | 5,405 | 8,614 | 11,392 | 14,571 | 12,912 | 14,882 | 14,677 | 18,870 |
| Loss from operations | (5,405) | (8,614) | (10,769) | (14,235) | (11,823) | (10,721) | (10,874) | (12,037) |
| Interest expense | (1,372) | (1,073) | (341) | (311) | (833) | (908) | (775) | (340) |
| Interest and other income (expense), net | (48) | 439 | 732 | 210 | 25 | (8,827) | 1,385 | (84) |
| Net loss | \$ (6,825) | \$ (9,248) | \$ (10,378) | \$ (14,336) | \$ (12,631) | \$ (20,456) | \$ (10,264) | \$ (12,461) |
| Basic and diluted net loss per share attributed to common shareholders | \$ (72.78) | \$ (98.10) | \$ (110.08) | \$ (51.15) | \$ (13.92) | \$ (21.87) | \$ (0.69) | \$ (0.48) |
| Shares used to compute basic and diluted net loss per share attributed to common shareholders | 93,770 | 94,268 | 94,278 | 280,283 | 907,075 | 954,022 | 14,820,022 | 25,959,929 |

Liquidity and Capital Resources

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Since our inception, we have generated operating losses in every quarter, resulting in an accumulated deficit of \$151.3 million as of March 31, 2011. We have financed our operations to date primarily through private placements of preferred stock and promissory notes, borrowings under our credit facilities, proceeds from our initial public offering and term debt. As of March 31, 2011, we had working capital of \$64.7 million, consisting of \$80.2 million in current assets and \$15.5 million in current liabilities. As of December 31, 2010, working capital was \$61.3 million, consisting of \$79.0 million in current assets and \$17.7 million in current liabilities.

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Our cash is invested primarily in money market funds. Cash in excess of immediate operating requirements is invested in accordance with our investment policy, primarily with the goals of capital preservation and liquidity maintenance.

Summary Statement of Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2008, 2009 and 2010 and the three months ended March 31, 2010 and 2011.

| | Years ended December 31, | | | Three months ended March 31, | |
|--|--------------------------|-------------|-------------|---------------------------------|------------|
| | 2008 | 2009 | 2010 | 2010 | 2011 |
| | (in thousands) | | | | |
| Net cash used in operating activities | \$ (24,303) | \$ (26,662) | \$ (35,018) | \$ (4,225) | \$ (8,902) |
| Net cash used in investing activities | (7,419) | (9,654) | (18,802) | (10,172) | (3,120) |
| Net cash provided by financing activities | 33,648 | 37,895 | 114,973 | 9,003 | 11,895 |
| Net increase (decrease) in cash and cash equivalents | \$ 1,926 | \$ 1,579 | \$ 61,153 | \$ (5,394) | \$ (127) |

Cash Flows for the Three Months Ended March 31, 2010 and 2011*Operating Activities*

Net cash used in operating activities was \$8.9 million during the three months ended March 31, 2011 and consisted of a net loss of \$12.5 million, offset by noncash items of \$3.2 million and a net increase in operating assets and liabilities of \$0.4 million. Noncash items for the three months ended March 31, 2011 consisted primarily of the change in valuation of our warrant liability of \$0.1 million, depreciation expense of \$2.5 million and stock-based compensation expense of \$0.5 million. The significant items in the change in operating assets and liabilities include an increase in accounts receivable of \$2.4 million partially offset by a decrease in prepaid expenses and inventory of \$0.3 million and \$0.8 million, respectively, and increases in deferred revenue and accounts payable of \$1.3 million and \$0.1 million, respectively. The increase in accounts receivable and deferred revenue were due to increased revenue and advance billing arrangements during the first three months of 2011. The increase in accounts payable was due to purchases and expenses incurred as a result of the growth of the Company during the first three months of 2011.

Net cash used in operating activities was \$4.2 million during the three months ended March 31, 2010 and consisted of a net loss of \$14.3 million, offset by noncash items of \$3.6 million and a net increase in operating assets and liabilities of \$6.5 million. Noncash items for the three months ended March 31, 2010 consisted primarily of depreciation expense of \$1.3 million, noncash compensation expense related to stock grants to our founders and stock-based compensation expense of \$1.8 million and \$0.5 million, respectively. The significant changes in operating assets and liabilities include increases in prepaid expenses and deferred revenues of \$4.6 million and \$1.5 million, respectively, offset by a decrease in inventory of \$0.4 million.

Investing Activities

Net cash used in investing activities was \$3.1 million and \$10.2 million for the three months ended March 31, 2011 and 2010, respectively. The amounts related entirely to purchases of property and equipment and a patent. The purchases of property and equipment during the first three months of 2011 and 2010 were primarily for sequencing equipment used in production.

Financing Activities

Net cash provided by financing activities during the three months ended March 31, 2011 of \$11.9 million consisted primarily of \$20.0 million in proceeds from our term loan with Oxford. These proceeds were partially offset by repayments on term loans of \$8.2 million.

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Net cash provided by financing activities during the three months ended March 31, 2010 of \$9.0 million consisted primarily of \$10.1 million in net proceeds from the issuance and sale of Series D preferred stock. These proceeds were partially offset by repayment of notes payable of \$1.1 million.

Cash Flows for the Years Ended December 31, 2008, 2009 and 2010***Operating Activities***

Net cash used in operating activities was \$35.0 million during the year ended December 31, 2010 and consisted of a net loss of \$57.7 million, offset by noncash items of \$21.0 million and a net change in operating assets and liabilities of \$1.5 million. Noncash items for the year ended December 31, 2010 consisted primarily of the change in valuation of our preferred stock warrant and purchase right liability of \$7.2 million, depreciation expense of \$8.0 million, expenses related to issuance of common stock to our founders of \$1.8 million and stock-based compensation expense of \$1.8 million. The significant items in the change in operating assets and liabilities include a decrease in prepaid expenses of \$4.0 million, an increase in deferred revenue of \$3.8 million and increases in inventory and accounts receivable of \$3.8 million and \$3.0 million, respectively. The decrease in prepaid expenses was due to the use of fully refundable short-term deposits to order components used in the construction of sequencers whose specifications were validated during 2010. The increase in inventory was due to inventory purchases and work-in-process needed to support customer orders. The increase in deferred revenue was due to advance billing arrangements during 2010. The increase in accounts receivable was due to increased revenue and advance billing arrangements during 2010.

Net cash used in operating activities was \$26.7 million during the year ended December 31, 2009 and consisted of a net loss of \$35.9 million, offset by noncash items of \$8.0 million and a net decrease in operating assets and liabilities of \$1.3 million. Noncash items for the year ended December 31, 2009 consisted primarily of depreciation expense of \$5.2 million, noncash interest expense related to our promissory notes and notes payable of \$2.1 million and stock-based compensation expense of \$1.4 million, partially offset by the change in valuation of our preferred stock warrant liability of \$1.1 million. The significant changes in operating assets and liabilities include increases in deferred rent of \$5.0 million, accounts payable of \$1.1 million and deferred revenue of \$1.3 million, partially offset by an increase in prepaid expenses of \$4.7 million and an increase in accounts receivable of \$1.3 million. The significant change in deferred rent was due to the difference between rent amounts paid and amounts expensed during 2009 on our facility, while the significant increase in prepaid expenses is due to making fully refundable short-term deposits for components used in the construction of sequencers whose specifications were undetermined. The increase in accounts payable during 2009 was due to increased purchases associated with the start-up of our production facilities during the fourth quarter of 2009. The increases in accounts receivable and deferred revenue were due to revenue recognized in the fourth quarter of 2009 and advance billing arrangements with customers.

Net cash used in operating activities was \$24.3 million for the year ended December 31, 2008 and consisted of a net loss of \$28.4 million, offset by noncash items of \$3.8 million and net increases in operating assets and liabilities of \$0.3 million. Noncash items for the year ended December 31, 2008 consisted mainly of depreciation and amortization expense of \$2.8 million, a loss on the disposal of property and equipment of \$0.5 million and stock-based compensation expense of \$0.3 million. Changes in operating assets and liabilities consisted of an increase in accrued liabilities of \$0.7 million, offset by increases in prepaid expenses of \$0.2 million and other current assets of \$0.2 million.

Investing Activities

Net cash used in investing activities were \$18.8 million, \$9.7 million and \$7.4 million for the years ended December 31, 2010, 2009 and 2008, respectively. The amounts related entirely to purchases of property and equipment. The purchases of property and equipment during 2010 were primarily for sequencing equipment used in production, while the purchases of property and equipment during 2009 were for equipment used in our start-up production and research and development activities and leasehold improvements related to our facilities. Purchases of property and equipment during 2008 were primarily for equipment to support our research and development activities.

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Financing Activities

Net cash provided by financing activities during the year ended December 31, 2010 of \$115.0 million consisted primarily of net proceeds from our IPO of common stock of \$47.2 million, net proceeds from the issuance of convertible preferred stock of \$39.4 million and net proceeds from the issuance of promissory notes and notes payable of \$36.2 million offset by repayment of notes payable of \$8.6 million.

Net cash provided by financing activities during the year ended December 31, 2009 of \$37.9 million consisted primarily of net proceeds from the issuance of convertible preferred stock and proceeds from the issuance of promissory notes of \$27.2 million and \$14.7 million, respectively, offset by repayment of notes payable of \$4.0 million.

Net cash provided by financing activities during the year ended December 31, 2008 of \$33.6 million consisted primarily of net proceeds from the issuance of convertible preferred stock of \$25.4 million and proceeds from notes payable of \$13.2 million, offset by repayment of notes payable of \$5.0 million.

Operating and Capital Expenditure Requirements

To date, we have not achieved profitability on a quarterly or annual basis. We expect our cash expenditures to increase significantly in the short-term. We plan to fund our short-term liquidity requirements using cash on hand at March 31, 2011. Our principal short-term liquidity needs are:

§ to fund our working capital for commercial operations, including personnel costs and other operating expense;

§ to expand the sequencing and computing capacity in our Mountain View and Santa Clara leased facilities;

§ to finance the further development of our sequencing technology and services;

§ to finance sales and marketing activities; and

§ to service our debt obligations.

The cost of expansion of our current sequencing and supporting computing capacity in our Mountain View and Santa Clara, California leased facilities California in 2011 is estimated to be approximately \$20.0 million. In addition, as a public company we also incur significant legal, accounting and other expenses that we did not incur as a private company. We anticipate that we will continue to incur net losses for the foreseeable future as we continue to expand our business and build our infrastructure. We believe that, based on our current level of operations and anticipated growth, the net proceeds from our initial public offering, our cash and cash equivalent balances, including interest income we earn on those balances, when taken together with the proceeds from this offering, will be sufficient to meet our anticipated cash requirements beyond the 12 months from the date of this filing.

In addition to our continued expenditures for the expansion of our Mountain View sequencing facility, further development of our sequencing technology and services and expansion of our sales and marketing activities, our principal long-term liquidity needs are:

§ to fund our working capital for commercial operations, including any growth in working capital required by growth in our business;

§ to finance the possible development of additional sequencing centers; and

§ to service our debt obligations.

Our current cash resources, without giving effect to the proceeds from this offering, are insufficient to satisfy our long-term liquidity requirements. Based on our current operating projections and without giving effect to the proceeds from this offering, we will need to raise additional capital to fund our operations in 2012 and expand our business to meet our long-term business objectives. Additional financing, which is not in place at this time, may be from the sale of equity or convertible or other debt securities in a public or private offering, from an

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additional credit facility or strategic partnership coupled with an investment in our company or a combination of both. If we raise additional funds through the issuance of convertible debt securities, or other debt securities, these securities could have rights senior to those of our common stock and could contain covenants that restrict our operations. The issuance of any equity securities will also dilute the interest of our current stockholders.

We may be unable to raise sufficient additional financing on terms that are acceptable, if at all. Given the risks associated with our business, including our limited operating history and our new business model in an emerging industry, and recent difficulties for life sciences companies raising funds in the capital markets, we may be unable to raise additional capital in the amounts we require, if at all. Our failure to raise additional capital and in sufficient amounts will severely impact our ability to operate our business in 2012 and meet our long-term business objectives. The timing and amount of our future capital requirements will depend on many factors, including, but not limited to, the following:

- § the financial success of our genome sequencing business;
 - § our ability to increase the genome sequencing capacity in our Mountain View facility;
 - § whether we are successful in obtaining payments from customers;
 - § whether we can enter into collaborations and establish a recurring customer base;
 - § the progress and scope of our research and development projects;
 - § the filing, prosecution and enforcement of patent claims;
 - § the rate at which we establish possible additional genome sequencing centers and whether we can find suitable partners with which to establish those centers;
 - § the effect of any joint ventures or acquisitions of other businesses or technologies that we may enter into or make in the future; and
 - § the costs associated with lawsuits brought against us by third parties, including our current litigation with Illumina, Inc.
- Our forecast of the period of time through which our financial resources will be adequate to support our operations and the costs to support our general and administrative, sales and marketing and research and development activities are forward-looking statements and involve risks and uncertainties. Actual results could vary materially and negatively as a result of a number of factors, including the factors discussed under the caption Risk Factors. We have based these estimates on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect.

Contractual Obligations and Commitments

The following summarizes the future commitments arising from our contractual obligations at December 31, 2010 (in thousands):

| Contractual Obligations | Total | Payment Due by Period | |
|-------------------------|-------|-----------------------|-----------|
| | | 1-3 years | 3-5 years |

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| | | Less than 1 year | | | More than 5 years |
|--|------------------|---------------------|------------------|-----------------|----------------------|
| Debt obligations ⁽¹⁾ | \$ 13,583 | \$ 5,885 | \$ 7,698 | \$ | \$ |
| Interest ⁽²⁾ | 1,611 | 904 | 707 | | |
| Operating lease obligations ⁽³⁾ | 15,364 | 2,599 | 5,256 | 5,573 | 1,936 |
| Purchase obligations ⁽⁴⁾ | 5,914 | 5,213 | 488 | 213 | |
| Total | \$ 36,472 | \$ 14,601 | \$ 14,149 | \$ 5,786 | \$ 1,936 |

(1) Represents our outstanding debt under our term loans as of December 31, 2010.

(2) Represents interest payments on our outstanding debt under our term loans as of December 31, 2010 using rates at December 31, 2010.

(3) Consists of contractual obligations under non-cancellable office space operating leases.

(4) Consists of purchase obligations related to our data center and non-cancellable orders for sequencing components. The table above also includes agreements to purchase goods or services that have cancellation provisions requiring little or no payment. The amounts under

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these contracts are included in the table above because we believe that cancellation of these contracts is unlikely and we expect to make future cash payments according to the contract terms or in similar amounts for similar materials.

Term Loans

On December 17, 2010, we entered into a loan and security agreement with Atel Ventures, Inc., or Atel. On March 25, 2011, we entered into a new loan and security agreement with Oxford Finance Corporation, or Oxford.

Atel Loan Agreement

The loan and security agreement with Atel, or the Atel loan agreement, consists of a \$6.0 million term loan for equipment purchases, which is collateralized to secure the term loan. Under the terms of the Atel loan agreement, the term loan balance is being repaid in 36 equal monthly payments of principal and interest. Interest accrues on the term loan at a rate of 11.26% per annum. The outstanding borrowings under the term loan are collateralized by a senior priority interest in certain of our current property and equipment, and all property and equipment that was purchased during the term of the Atel loan agreement. In connection with entering into the loan and security agreement with Oxford, we and Atel made certain administrative and technical amendments to the Atel loan agreement.

In connection with the Atel loan agreement, we issued to Atel a warrant to purchase 49,834 shares of our common stock at an exercise price of \$7.224 per share. The Atel warrant expires on the 10th anniversary of the issuance date.

The Atel loan agreement contains customary representations and warranties, covenants, including closing and advancing conditions, events of defaults and termination provisions. The affirmative covenants include, among other things, that we maintain certain cash account balances and liability and other insurance, and that we pledge security interests in any ownership interest of a future subsidiary. The negative covenants preclude us from, among other things, disposing of certain assets, engaging in any merger or acquisition, incurring additional indebtedness, encumbering any collateral, paying dividends or making prohibited investments, in each case without the prior consent of Atel. As of March 31, 2011, we were in compliance with all the covenants in the Atel Loan Agreement.

Oxford Loan Agreement

On March 25, 2011, we entered into a loan and security agreement, or the Oxford loan agreement, with Oxford Finance Corporation, or Oxford. The Oxford loan agreement provides for a term loan of \$20.0 million. The outstanding balance of the term loan must be repaid in full by October 1, 2014, which we refer to as the maturity date. Under the terms of the Oxford loan agreement, the outstanding balance accrues interest at a rate of 9.80% per annum. Until the amortization date, which is, May 1, 2012, we must make monthly payments equal to the accrued interest on the outstanding loan balance, and, following the amortization date through the maturity date, the outstanding loan balance will be repaid in thirty (30) equal monthly payments of principal and interest.

As a condition to the Oxford loan agreement, a portion of the term loan was used to repay the remaining balance of \$7.4 million on our existing term loan agreement with Comerica. Following repayment of the outstanding indebtedness, our Comerica loan agreement was terminated. We intend to use the remainder of the Oxford term loan to fund our working capital requirements.

The term loan is secured by a senior priority on all of our assets, excluding our intellectual property and those assets securing borrowings under the Atel loan agreement. In addition, we have agreed not to pledge our intellectual property to another entity without Oxford's approval or consent.

In connection with the entry into the Oxford loan agreement, we issued to Oxford warrants to purchase an aggregate of 160,128 shares of our common stock at an exercise price of \$7.495 per share. The warrants expire on the seventh anniversary of the issuance date. We also agreed to provide Oxford certain registration rights covering the shares underlying these warrants.

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The Oxford loan agreement contains customary representations and warranties, covenants, closing and advancing conditions, events of defaults and termination provisions. The affirmative covenants include, among other things, that we timely file taxes, maintain certain operating accounts subject to control agreements in favor of Oxford, maintain liability and other insurance and pledge security interests in any ownership interest of a future subsidiary. The negative covenants preclude us from among other things, disposing of certain assets, engaging in any merger or acquisition, incurring additional indebtedness, encumbering any collateral, paying dividends or making prohibited investments, in each case without the prior consent of Oxford. The Oxford loan agreement provides that an event of default will occur if (1) there is a material adverse change in our business, operations or condition (financial or otherwise), (2) there is a material impairment in the prospects of us repaying any portion of our obligations under the term loan, (3) there is a material impairment in the value of the collateral pledged to secure our obligations under the agreement or in Oxford's perfection or priority over the collateral, (4) we default in the payment of any amount payable under the agreement when due, or (5) we breach any negative covenant or certain affirmative covenants in the agreement (subject to a grace period in some cases). The repayment of the term loan is accelerated following the occurrence of an event of default or otherwise, which would require us to immediately pay an amount equal to the sum of: (i) all outstanding principal plus accrued but unpaid interest, (ii) the prepayment fee, (iii) the final payment, plus (iv) all other sums, that shall have become due and payable but have not been paid, including interest at the default rate with respect to any past due amounts. As of March 31, 2011, we were in compliance with all the covenants.

Indemnification

In the normal course of business, we enter into contracts and agreements that contain a variety of representations and warranties and provide for general indemnifications. Our exposure under these agreements is unknown because it involves claims that may be made against us in the future, but have not yet been made. To date, we have not paid any claims or been required to defend any action related to our indemnification obligations. However, we may record charges in the future as a result of these indemnification obligations.

In accordance with our certificate of incorporation and bylaws, we have indemnification obligations to our officers and directors for specified events or occurrences, subject to some limits, while they are serving at our request in those capacities. There have been no claims to date, and we have director and officer insurance that may enable us to recover a portion of any amounts paid for future potential claims.

Off-Balance Sheet Arrangements

Since our inception, we have not engaged in any off-balance sheet arrangements, including the use of structured finance, special purpose entities or variable interest entities.

Recent Accounting Pronouncements

In October 2009, the Financial Accounting Standards Board, or FASB, issued a new accounting standard that changes the accounting for revenue arrangements with multiple deliverables. Specifically, the new accounting standard requires an entity to allocate arrangement consideration at the inception of an arrangement to all of its deliverables based on their relative selling prices. In addition, the new standard eliminates the use of the residual method of allocation and requires the relative-selling-price method in all circumstances in which an entity recognizes revenue for an arrangement with multiple deliverables. We adopted this standard effective in the first quarter of 2011, and the adoption did not have a significant impact on our financial statements.

In October 2009, the FASB also issued a new accounting standard that changes revenue recognition for tangible products containing software and hardware elements. Specifically, if certain requirements are met, revenue arrangements that contain tangible products with software elements that are essential to the functionality of the products will be accounted for under these new accounting standards, rather than the existing software revenue recognition accounting guidance. We adopted this standard effective in the first quarter of 2011, and the adoption did not have a significant impact on our financial statements.

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In January 2010, the FASB issued an amendment to an accounting standard which requires new disclosures for fair value measurements and provides clarification for existing disclosure requirements. Specifically, this amendment requires an entity to disclose separately the amounts of significant transfers in and out of Level 1 and Level 2 fair value measurements and to describe the reasons for the transfers and to disclose separately information about purchases, sales, issuances and settlements in the reconciliation for fair value measurements using significant unobservable inputs, or Level 3 inputs. This amendment clarifies existing disclosure requirements for the level of disaggregation used for classes of assets and liabilities measured at fair value and requires disclosure about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements using Level 2 and Level 3 inputs. We have adopted this guidance and have provided the additional disclosures.

In April 2010, the FASB issued an accounting standard update which provides guidance on the criteria to be followed in recognizing revenue under the milestone method. The milestone method of recognition allows a vendor who is involved with the provision of deliverables to recognize the full amount of a milestone payment upon achievement if, at the inception of the revenue arrangement, the milestone is determined to be substantive as defined in the standard. We adopted this standard effective in the first quarter of 2011, and the adoption did not have a significant impact on our financial statements.

Quantitative and Qualitative Disclosures About Market Risk

As of March 31, 2011, our investment portfolio consists of money market funds. The primary objectives of our investment are to preserve capital and maintain liquidity. Our primary exposures to market risk are interest rate income sensitivity, which is affected by changes in the general level of U.S. interest rates, and conditions in the credit markets, including default risk. However, since all of our investments are in money market funds, we do not believe we are subject to any material market interest rate risk exposure. We do not have any foreign currency or any other material derivative financial instruments.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with original maturities of three months or less to be cash equivalents. Cash and cash equivalents are deposited in a demand account at two financial institutions and a money market fund. At times, such deposits may be in excess of federally insured limits.

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Business

Overview

We are a life sciences company that has developed and commercialized an innovative DNA sequencing platform, and our goal is to become the preferred solution for complete human genome sequencing and analysis. Our Complete Genomics Analysis Platform, or CGA Platform, combines our proprietary human genome sequencing technology with our advanced informatics and data management software and our innovative, end-to-end, outsourced service model to provide our customers with data that is immediately ready to be used for genome-based research. We believe that our solution provides academic and biopharmaceutical researchers with complete human genomic data and analysis at an unprecedented combination of quality, cost and scale without requiring them to invest in in-house sequencing instruments, high-performance computing resources and specialized personnel. By removing these constraints and broadly enabling researchers to conduct large-scale complete human genome studies, we believe that our solution has the potential to significantly advance medical research and expand understanding of the basis, treatment and prevention of complex diseases. Since launching our service in May 2010, we have sequenced over 1,400 complete human genomes, including over 600 in the first quarter of 2011, and, as of March 31, 2011, we had an order backlog of over 2,000 genomes.

We believe that our complete human genome sequencing technology, which is based on our proprietary DNA arrays and ligation-based read technology, is superior to existing commercially available complete human genome sequencing methods in terms of quality, cost and scale. In the DNA sequencing industry, complete human genome sequencing is generally deemed to be coverage of at least 90% of the nucleotides in the genome. Because we have optimized our technology platform and our operations for the unique requirements of high-throughput complete human genome sequencing, we are able to achieve accuracy levels of 99.999% at a total cost that is significantly less than the total cost of purchasing and using commercially available DNA sequencing instruments and the necessary information processing technology, and then performing all the required sequence data assembly and analysis. We believe that we will be able to further improve our accuracy levels and reduce the total cost of sequencing and analysis, enabling us to maintain significant competitive advantages over the next several years. Because our technology resides only in our centralized facilities, we can quickly and easily implement enhancements and provide their benefits to our entire customer base. Our goal is to be the first company to sequence and analyze high-quality complete human genomes, at scale, for a total cost of under \$1,000 per genome.

From the earliest days of the field of genomic sequencing to the present, companies and organizations that have achieved sequencing milestones in quality, cost and scale have immediately announced and/or published these sequencing results. We regularly and actively monitor publications and have compared the parameters of our sequencing process and the sequencing results of competitive commercially available technologies announced in these various publications. We are currently unaware of any scientific publications by competitors publicly announcing superior sequencing results. Based on this public data, we believe that our complete human genome sequencing technology provides a superior combination of quality, cost and scale when compared to existing commercially available complete genome sequencing methods, when taking into consideration the total cost of purchasing, operating and maintaining the instruments and information systems necessary for complete human genome sequencing.

While our competitors primarily sell DNA sequencing instruments and reagents that produce raw sequenced data, requiring their customers to invest significant additional resources to process that raw data into a form usable for research, we offer our customers an end-to-end, outsourced solution that delivers research-ready genomic data. As the cost of complete human genome sequencing declines, we believe the basis of competition in our industry will shift from the cost of sequencing to the value of the entire sequencing solution. We believe that our integrated advanced informatics and data management services will emerge as a key competitive advantage as this shift occurs.

Our genome sequencing center, which began commercial operations in May 2010, combines a high-throughput sample preparation facility, a collection of our proprietary high-throughput sequencing instruments and a large-

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scale data center. Our customers ship us their samples via common carrier services such as Federal Express and United Parcel Service. We then sequence and analyze these samples and provide our customers with finished, research-ready data, enabling them to focus exclusively on their single highest priority, discovery.

Our customers include some of the leading global academic and government research centers and biopharmaceutical companies. At present, our facility has the capacity to sequence and analyze over 400 complete human genomes per month. We expect this capacity to increase between two- and three-fold by the end of 2011 as we deploy additional sequencers and increase the throughput of our sequencing process through software refinements and component upgrades. In future years, we plan to construct additional genome centers in the United States and international strategic markets to accommodate an expected growing global demand for high-quality, low-cost complete human genome sequencing on a large scale.

For genomes sequenced in the first quarter of 2011, an average of over 97% of the genome was read at ten-fold or greater coverage and we delivered data results to our customers with a median turnaround time of 70 days. In addition, our median call rate was over 96% of the genome and over 95% of the exome.

In April 2011, we announced that we had completed the release of 69 complete human genome sequences into the public domain. These high-quality data sets can provide the research community with both a valuable resource for scientific investigation and also serve to further validate our sequencing technology, as many of these samples have been previously analyzed as part of the International HapMap Project or the 1000 Genomes Project. Since the launch of this initiative in February 2011, over 50 terabytes of data have been downloaded from our website by more than 750 unique IP addresses and as of the date of this prospectus.

Market Overview

Background

Every organism has a genome that contains the full set of biological instructions required to build and maintain a living example of that organism. The information contained in a genome is stored, or encoded, in deoxyribonucleic acid, or DNA, a nucleic acid that is found in each cell of the organism. DNA is divided into discrete units called genes, which carry specific information necessary to perform a particular biological function, such as instructions for making proteins. The chemical building blocks that make up each gene are the molecules adenine, cytosine, guanine and thymine, commonly labeled as A, C, G and T, respectively, which are known as nucleotide bases. Human DNA has approximately three billion nucleotide bases, and their precise order is commonly known as the DNA or genetic sequence.

Studying how genes and proteins differ between species and among individuals within a species, or genetic variations, helps scientists to determine their functions and roles in health and disease. These genetic variations can have important medical consequences. Genetic variations may, for example, cause an individual to have a predisposition to certain diseases or to respond differently to certain drug treatments. Accordingly, improving our understanding of the genome and its functions has driven and, we expect, will continue to drive advancements in medical research and diagnostics.

Genetic Analysis Market

Genetic analysis products comprise instruments and consumables, as well as associated hardware, software and services directly involved in the study of DNA and ribonucleic acid, or RNA. Scientia Advisors, a third-party research firm, estimated genomic revenue in 2009 to be approximately \$5.8 billion and projects the market to grow to approximately \$9.0 billion by 2014. Scientia Advisors further estimates that human genomics research will grow from \$4.6 billion in 2009 to \$7.3 billion in 2014. The medical research market consists of laboratories generally associated with universities, medical research centers and government institutions, as well as biotechnology and pharmaceutical companies. In the longer term, we believe genetic analysis tools will likely play a critical role in molecular diagnostics. By detecting small, individual genetic differences, we believe molecular diagnostic tests could be used to identify predisposition to or the presence of a disease, to select appropriate medication and dosage and to monitor disease progression and response to treatment.

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Genetic Analysis Technologies

Since the development of the first genetic engineering techniques in the 1970s, there has been an ongoing evolution toward more accurate, faster and less expensive methods to conduct genetic analysis. The primary analytical methods traditionally used by genetic researchers fall into three categories:

- § ***DNA Sequencing.*** DNA sequencing is the process of determining the exact order, or sequence, of the individual nucleotides in a DNA strand so that this information can be correlated to the genetic activity influenced by that segment of DNA. Complete human genome sequencing is currently the most comprehensive form of genetic analysis, in which every base is compared to a reference genome to determine possible mutations or variations.

- § ***Genotyping.*** Genotyping is the process of examining certain known mutations or variations in the DNA sequence of genes to determine whether the particular variant can be associated with a specific disease susceptibility or drug response.

- § ***Gene Expression Analysis.*** Gene expression analysis is the process of examining the molecules that are produced when a gene is activated, or expressed, to determine whether a particular gene is expressed in a specific biological tissue.

The first major breakthrough in genetic technology was the development of the automated DNA sequencer in 1986. Subsequent versions of commercial first-generation DNA sequencers improved on speed and throughput, eventually becoming powerful enough to enable the first mapping of the human genome through the Human Genome Project, which was completed in 2003 at an overall cost of over \$3 billion. The prohibitive cost of first-generation sequencing technologies forced scientists to use the other primary genetic analysis technologies, genotyping and gene expression analysis. While these targeted genetic analysis technologies address the cost constraints of DNA sequencing, they generally provide only limited information to the user.

More recently, innovations in DNA sequencing have led to the development of high-throughput sequencing technologies, commonly referred to as next-generation or second-generation sequencing, which produce thousands to millions of sequences at once. These high-throughput sequencing technologies have led to a significant reduction in the time and cost required for DNA sequencing. Next-generation sequencing technologies are supplanting not only the older sequencing methods but also less comprehensive methods for assessing gene expression, protein binding and other biological information. Scientia Advisors estimated that the next-generation sequencing companies had sales approaching \$600 million for 2009, with an installed base in the neighborhood of 1,300 to 1,500 instruments. Scientia Advisors expects these suppliers to generate more than \$1.5 billion in sales in 2014.

The Importance of Complete Human Genome Sequencing and the Limitations of General Purpose Sequencing Technologies

One of the most difficult challenges facing the genetic research and analysis industry is the need to improve our understanding of how genes contribute to diseases that have a complex pattern of inheritance. For many diseases, multiple genes each make a subtle contribution to a person's predisposition or susceptibility to a disease or response to a drug treatment protocol. Accordingly, we believe that unraveling this complex network will be critical to understanding human health and disease. We believe that sequencing complete human genomes is the most comprehensive and accurate method by which to achieve these objectives and improve our understanding of human disease. However, the cost and complexity associated with complete human genome sequencing have been prohibitively high for researchers and have slowed our progress in understanding the genetic underpinnings of disease.

Although second-generation sequencing technologies have led to dramatic reductions in cost and improvements in quality and throughput for complete human genome sequencing, they were designed as general-purpose instruments for sequencing the DNA or RNA of plants, animals, bacteria and viruses. In particular, these second-generation sequencing technologies were not designed for sequencing large numbers of complete human

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genomes. We believe the key limitations of the model of purchasing and using second-generation technologies to sequence large numbers of complete human genomes include the following:

§ **High Cost.** Commercially available DNA sequencing instruments cannot sequence complete human genomes at a price low enough to make large-scale complete human genome sequencing projects affordable to researchers.

§ **Insufficient Scale and Speed.** Laboratories using commercially available DNA sequencing instruments typically require months to sequence all of the genomes for large projects. While the timeline can be accelerated by purchasing and operating multiple DNA sequencing instruments in parallel, the capital cost is prohibitive for all but the largest research centers. Many researchers are unable to generate the complete human genome data they need from in-house instruments in an acceptable period of time.

§ **Difficulty of Data Management.** Sequencing a large number of complete human genomes generates a substantial amount of data that must be managed, stored and analyzed. Many users of commercially available DNA sequencing instruments lack the costly computing resources, storage capacity, network bandwidth and specialized personnel to process and analyze these massive data sets.

Due to these limitations, many researchers have been using an alternative approach in which a small portion of the genome, referred to as the exome, is targeted, enriched and sequenced. Exome sequencing is a selective sequencing strategy focusing on approximately 1.5% of the complete human genome. However, important areas of the genome lie outside of the exome, such as the promoter regions that control gene expression and other conserved regions of the genome that are believed to perform regulatory functions. Moreover, current exome selection technologies are inefficient, typically sequencing a lower percentage of the exome than can be sequenced by complete human genome sequencing. Within the next several years, we believe advances in complete human genome sequencing, including further decreases in cost, will drive increased adoption of complete human genome sequencing.

Complete Genomics Solution

Although other sequencing technologies have led to dramatic reductions in cost and improvements in quality and throughput for complete human genome sequencing, these technologies were designed as general-purpose instruments for sequencing the DNA or RNA of plants, animals, bacteria and viruses. More specifically, these technologies were not designed solely for sequencing large numbers of complete human genomes.

We have developed a novel approach focused on complete human genome sequencing. We combine our proprietary human genome sequencing technology, which achieves accuracy levels of 99.999%, with our advanced informatics and data management software and our innovative, end-to-end service model, to deliver research-ready genomic data at a total cost that is significantly less than the total cost of purchasing and using commercially available DNA sequencing instruments and the required information management hardware and software. We believe this novel outsourced solution overcomes the key limitations of other sequencing technologies and addresses the unmet needs of the complete human genome research market.

Proprietary Sequencing Technology

There are two primary components of our proprietary human genome sequencing technology: DNA nanoball, or DNB, arrays and combinatorial probe-anchor ligation, or cPAL, reads. Our patterned DNB arrays, due to their small size and biochemical characteristics, enable us to pack DNA very efficiently on a silicon chip. We have developed a proprietary process that causes the DNA to adhere to desired spots on the chip, while conversely preventing the DNA from adhering to the area between these spots. This enables us to affix individual particles of DNA to over 90% of these spots, leading to increased efficiency in nanoarray assembly. In addition, we have developed a highly accurate cPAL read technology, which enables us to read the DNA fragments efficiently using small concentrations of low-cost reagents while retaining extremely high single-read accuracy.

We believe this unique combination of our proprietary DNB and cPAL technologies is superior in both quality and cost to other commercially available approaches and provides us with significant competitive advantages. As

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reported in the January 2010 edition of *Science*, we sequenced a complete human genome at a consumables cost of approximately \$1,800 and with a consensus error rate of approximately 1 error in 100,000 nucleotides. Our read accuracy was further validated by one of our customers, the Institute for Systems Biology, or ISB, as published in *Science Express* in March 2010. We have continued to reduce our costs of consumables, and, currently, our consumables costs are under \$1,000 per genome. To our knowledge, based on our review of scientific publications in the genome sequencing field announcing sequencing results, there are no commercially available technologies that have achieved quality and cost comparable to our sequencing results. We have identified and are developing additional performance enhancements to our core technologies that we believe will enable us to maintain significant competitive advantages over the next several years. As we implement these technological enhancements, our goal is to be the first company to sequence and analyze high-quality complete human genomes, at scale, for a total cost of under \$1,000 per genome.

Advanced Informatics and Data Management Software

Sequencing complete human genomes generates substantial amounts of data that must be managed, stored and analyzed. Many users of sequencing systems have historically conducted their own in-house data analysis on a limited number of genomes and lack the computing, storage and network bandwidth necessary to manage the massive data sets generated by larger scale complete human genome studies. In response to this need by our customers, we have built a genomic data processing facility with computing infrastructure for managing both small- and large-scale genomic sequencing projects.

There are two major components of our complete data management solution: assembly software and analysis software. Assembly is the process of using computers to organize all of the overlapping 70-base nucleotide sequences to reconstruct the complete human genome. Our proprietary assembly software uses advanced data analysis algorithms and statistical modeling techniques to accurately reconstruct over 90% of the complete human genome from approximately two billion 70-base reads. After assembling the genomic data, we use our analysis software to identify and annotate key differences, or variants, in each genome.

By using our analytical tools and data management software, our customers can significantly reduce their investments in computing infrastructure. Our customers are provided with reliable access to assembled and annotated sequence data in multiple formats to ease their need for data sharing and comparative analyses. In addition, our data storage options provide flexibility and allow customers to customize their data management strategy based on their particular business, operational and scientific requirements. We have also developed a suite of open source analytical tools, called CGA Tools, designed to enable our customers to rapidly analyze the data we generate from their samples. As the reagent cost of sequencing declines, we believe that the cost and complexity of data analysis and management will emerge as the primary constraint on complete human genome analysis.

Innovative, End-to-End, Outsourced Solution

While our competitors primarily sell DNA sequencing instruments and reagents that produce raw sequenced data, requiring their customers to invest significant additional resources to process that raw data into a form usable for research, we offer our customers an end-to-end, outsourced solution that delivers research-ready genomic data. Our genome sequencing center combines a high-throughput sample preparation facility, a collection of our proprietary high-throughput sequencing instruments and a large-scale data center. Our customers ship us their samples via common carrier services such as Federal Express and United Parcel Service. We then sequence and analyze these samples and provide our customers with finished, research-ready genomic data, enabling them to focus exclusively on their single highest priority, discovery.

Our customers can avoid purchasing expensive sequencing instruments and high-performance computing resources to sequence and analyze large sets of complete human genomes. Our outsourced service model enables our customers to offload to us the complex processes of sample preparation, sequencing, computing and data storage and management. We believe our services will expand the potential addressable market by enabling a broad base of researchers who may lack sufficient capital and the specialized personnel necessary to build and

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operate a sequencing laboratory, or who have historically been constrained by the high total cost of sequencing, to conduct large-scale complete human genome studies.

Customer Benefits

We believe our end-to-end solution provides the following advantages to our customers:

- § ***High-Quality Data.*** Our technology delivers what we believe is the industry's highest quality complete human genome data.
- § ***Cost Savings.*** Our customers can avoid purchasing expensive sequencing instruments and high-performance computing resources or hiring the necessary specialized personnel to sequence and analyze large sets of complete human genome data.
- § ***Speed at Scale.*** Our customers can often complete their large-scale projects more quickly by using our services than by using commercially available sequencing instruments.
- § ***Ease of Use.*** We believe our customers can avoid the difficult and time-consuming process of purchasing and operating their own sequencing instruments and can outsource the entire process to us, from sample preparation to delivery of research-ready data.
- § ***Operational Flexibility.*** By outsourcing their large-scale complete human genome sequencing projects to us, our customers can free up the capacity of in-house instruments to run smaller or more targeted sequencing projects and applications.
- § ***Technological Flexibility.*** As DNA sequencing technology improves, our customers will have available to them the latest technology that we have implemented, and they avoid the risk of their expensive instruments becoming technologically obsolete.
- § ***Enables Customers to Focus on Discovery.*** Outsourcing offloads the operational burdens of managing large-scale genome sequencing projects and enables our customers to focus their resources on their strengths in research, which can reduce the time to discovery.

Competitive Strengths

We believe that our competitive strengths are as follows:

- § ***Proprietary Human Genome Sequencing Technology.*** Our proprietary sequencing technology achieves accuracy levels of 99.999% at a total cost that is significantly less than the total cost of purchasing and using commercially available DNA sequencing instruments and the necessary information processing technology and then performing all the required sequence data assembly and analysis. We believe that our quality improvement and cost-reduction initiatives will allow us to maintain our quality and cost advantages over competing sequencing technologies for the next several years.
- § ***Fully Integrated Advanced Informatics and Data Management Software.*** Our solution incorporates powerful informatics, analysis and data management software that enable our customers to manage and gain useful information from the massive data sets generated in complete human genome sequencing. Our informatics software allows us to provide research-ready data from the billions of nucleotide sequences we identify and is optimized to reflect the characteristics of the genomic data our sequencers generate. Unlike software solutions offered by instrument manufacturers or third-party providers, we are able to continuously refine our informatics and data management software because of our significant experience in sequencing and analyzing large numbers of complete human

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genomes for our customers. As the reagent cost of sequencing declines, we believe that the cost and complexity of in-house data analysis and management will emerge as the primary constraint for researchers conducting complete human genome analysis.

§ ***Highly Scalable and Capital-Efficient Business Model.*** Consolidating volume across our entire customer base enables us to run a large number of genomes through our sequencing process while avoiding the cost

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and complexity of employing a large field installation and support organization. By implementing a high degree of automation, we have reduced the possibility of human errors that could adversely affect quality and increase costs. Our service-based model allows us to reduce cost and improve quality as volume increases.

§ **Unique Insight into Customer Needs.** Because of our unique, end-to-end service model, we interact directly with our customers on their discovery projects. This interaction enables us to develop and enhance our analysis software to meet our customers' specific needs while expanding our understanding of variation in the human genome.

§ **Fast and Efficient Deployment of Operational and Technological Enhancements.** Because our sequencing operations and data center are centralized, we can rapidly upgrade our technology and deliver the benefits to our customers. In addition, our access to genomic data allows our software engineers to continually refine and improve our software with each genome we sequence.

§ **Expanded Market Opportunity.** We believe our outsourced model will expand the potential addressable market by providing academic and biopharmaceutical researchers who lack sufficient budgets or the specialized personnel necessary to build and operate a sequencing laboratory with access to high-quality, low-cost complete human genome data. In addition, we believe we will be able to service customers who require rapid sequencing of large numbers of complete human genomes.

Customers and Applications**Customers**

Since launching our service in May 2010, we have sequenced over 1,400 complete human genomes, including over 600 in the first quarter of 2011, and, as of March 31, 2011, we had an order backlog of over 2,000 genomes. We have more than 40 past and current customers, including the following:

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|---|---|---|
| § Academic Medical Center University of Amsterdam | § Erasmus Medical Centre in Rotterdam, the Netherlands | § Institute for Systems Biology |
| § Brigham & Women's Hospital | § Flanders Institute for Biotechnology | § Pfizer Inc. |
| § Broad Institute of MIT and Harvard | § Genentech, Inc. | § SAIC-Frederick, Inc., National Cancer Institute |
| § Children's Hospital of Boston | § Institute of Cancer Research United Kingdom | § Stanford University |
| § Children's Hospital of Philadelphia | § Institute of Molecular Medicine at the University of Texas Health Science Center at Houston | § Scripps Translational Science Institute |
| § Eli Lilly and Company | | § University of North Carolina |
| | | § University of Texas Southwestern Medical Center |

Selected Customer Examples*SAIC-Frederick, Inc., National Cancer Institute Pediatric Cancer Study*

SAIC-Frederick, under a National Cancer Institute (NCI) prime contract, is using our sequencing, bioinformatics and scientific services to sequence and analyze 50 tumor-normal pairs. This analysis could enable researchers to identify patterns of tumorigenesis and ultimately lead to improved diagnosis and treatment of pediatric cancers. We are identifying and validating mutations found in the pediatric tumor genomes under this program. These could include somatic single nucleotide polymorphisms, insertion/deletions, copy number variations and somatic variations. The sequenced data, as well as the assembled and validated data sets are expected to be submitted to the National Center for Biotechnology Information's Short Read Archive database, as well as the TARGET Database. Upon successful completion of this project, the contract contains

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a provision for SAIC-Frederick to engage us, at its option, to sequence more than 500 additional cancer cases (more than 1,000 genomes) over an 18-month period.

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Institute for Systems Biology Miller Syndrome Study

Our project with Dr. Leroy Hood of the ISB involved sequencing the complete genomes of a four-member nuclear family, including two healthy parents and their two children who suffer from two genetic disorders: Miller Syndrome and primary ciliary dyskinesia. The data we provided allowed ISB researchers to pinpoint the causal gene and subsequently confirm that gene's role in Miller Syndrome, a disease in which the genetic basis had previously evaded detection. The results were published in *Science Express* in March 2010 and have led to two follow-on projects with the ISB to sequence an additional 122 and 615 genomes, respectively.

Genentech, Inc. Non-Small Cell Lung Cancer Study

Our project with Genentech, Inc. (a member of the Roche Group) compared the complete human genome sequences of a primary non-small cell lung tumor with nearby non-tumorous tissue taken from the lung of a long-term smoker. This project was the first complete human genome sequence of a primary non-small cell lung tumor and matched normal tissue. Comparison of these sequences revealed both known (KRAS G12C) and novel mutations in numerous oncogenes and led to the discovery of numerous somatic mutations. The data we delivered allowed Genentech to measure the rate of smoking-induced mutations accumulated over time and resulted in a publication in *Nature* in May 2010.

University of Texas Southwestern Medical Center Hypercholesterolemia Study

Our project with Dr. Jonathan Cohen of University of Texas Southwestern involved sequencing the complete genome of an 11-month-old breast-fed girl with cholesterol-laden deposits and very high blood cholesterol levels. Doctors ruled out a diagnosis of a disease called sitosterolemia, based on certain blood test results. However, sequencing of the girl's genome revealed a mutation in a relevant gene. This finding indicated that the infant definitely has sitosterolemia, despite the prior contradictory test results. The major finding of this study is that complete genome sequencing identified the culprit mutations and provided a definitive diagnosis in a patient who did not have the classical hallmark features of the disease in question. This finding demonstrates that complete genome sequencing can be a valuable aid in diagnosing and treating genetic diseases, even in individual patients. These results were published by the *Oxford University Press* in August 2010.

Applications

Potential applications for our complete human genome sequencing service include:

- § **Cancer Research.** Researchers are sequencing cancer genomes and comparing them to normal genomes, which are referred to as tumor-normal pairs, to identify the mutations in cancer genomes. We believe understanding these mutations will guide development of new cancer therapeutics and diagnostics and ultimately enable doctors to select the best course of therapy based on the specific mutations found in a tumor.
- § **Mendelian Disease Research.** There are thousands of Mendelian diseases, or diseases that have been found to run in families, and are accordingly likely to have a significant genetic component. However, the genetic cause of most of these diseases is currently unknown. By sequencing the complete genomes of the affected families, we believe the genetic causes of these Mendelian diseases can be discovered, which could lead to the development of novel diagnostics and therapeutics.
- § **Rare Variant Disease Research.** Diseases such as central nervous system disorders, cardiac disease and certain metabolic disorders that appear broadly in the population are thought to be caused by rare genetic variants. Large-scale studies of affected individuals may help to identify the disrupted pathways and lead to the development of novel diagnostics and therapeutics.
- § **Clinical Trial Optimization.** We believe that selecting or stratifying patients on the basis of their genetic profiles could enable the preferential admission of high responders into a clinical trial. This stratification could enable the trial to reach its conclusion with fewer patients and lower costs and result in faster clinical trials and drug commercialization.

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In addition to these research studies, we expect future clinical applications to include:

- § ***Companion Diagnostics.*** We believe that therapeutics that are not first-line treatments for the general population may be elevated to first-line treatments or used in combination therapies for subsets of the population that share a common genetic profile. Complete human genome studies may unlock new market opportunities for these therapies or combination therapies.
- § ***Cancer Pathology.*** We believe that analyzing complex cancer genomes that involve large and unpredictable structural changes will be most reliably and economically implemented using complete human genome sequencing. According to the National Cancer Institute SEER Cancer Statistics, there are approximately 1.5 million new cases of cancer diagnosed each year in the United States.
- § ***Universal Diagnostics.*** As medical records technology and public health policy advance, we believe that large numbers of people will have their complete human genomes sequenced and stored in their electronic medical records for use by their physicians in managing their health care decisions.

Our Strategy

We intend to become the leading complete human genome sequencing and analysis company and the preferred platform for human genome discovery by:

- § ***Continuing to Deliver the Highest Quality Genomic Data and Analysis at a Low Total Cost.*** By continuing to deliver the highest quality research-ready data and by enabling our customers to avoid the cost, complexity and risks associated with purchasing and operating the instruments and computing resources required to undertake complete human genome sequencing, our goal is to become the preferred solution for our customers.
- § ***Maintaining and Strengthening our Technology.*** We plan to continue to conduct research and product development activities to further improve quality, reduce costs, increase throughput and reduce our turnaround time. We plan to further develop the biochemistry, informatics, instrumentation and software that we believe together make up the industry's most robust solution. We will also seek to continually improve our operational processes and analysis software.
- § ***Capitalizing on our Scalable Model.*** Due to the highly scalable nature of our service model, we believe we are well positioned to serve customers looking to sequence a small number of genomes as well as customers who are looking to rapidly sequence a very large number of genomes.
- § ***Establishing Ourselves as the Leader in Outsourced Complete Human Genome Sequencing.*** We intend to continue to focus exclusively on human genome sequencing. We believe that this focus will put us in a strong position to become the preferred platform for human genome sequencing.
- § ***Expanding Globally to Increase Capacity and Reach New Markets.*** We expect to enter into partnership agreements with domestic and international organizations to build additional genome sequencing centers around the world. These genome sequencing centers will increase our sequencing capacity, provide us with improved access to global markets and expand our revenue opportunities.
- § ***Exploring Strategic Partnerships and Collaborations.*** We expect to explore opportunities for strategic partnerships and collaborations with commercial and research organizations to leverage our genome sequencing technology with the strengths of these organizations to further develop and expand the applications for our sequencing technology.

§ ***Expanding Applications for the Use of our Technology.*** While our current focus is on providing complete human genome solutions primarily to academic and biopharmaceutical researchers, we believe that as we sequence and deliver more complete human genomes to our customers, our growing understanding of the genetic basis of human disease may lead to future applications in areas such as cancer pathology.

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Our Human Genome Sequencing Platform Technology

Our proprietary human genome sequencing platform consists of three major technologies: our proprietary human genome sequencing technology, our high-throughput process automation technology and our complete data management solution.

Proprietary Sequencing Technology

There are two primary components of our proprietary human genome sequencing technology: DNB arrays and cPAL reads.

DNB Arrays

We have developed a novel approach to preparing fragmented DNA for reading on our sequencing instruments. Using a biochemical process for copying DNA, we reproduce each DNA fragment in a manner that connects all of the copies together in a head-to-tail configuration, forming a long single molecule of connected nucleotides. We have developed proprietary techniques for causing each long single molecule to consolidate, or ball up, into a small particle of DNA that we call a DNB. The DNBs are approximately 200-300 nanometers in average diameter. Each DNB contains hundreds of copies of the 70 bases of DNA we are seeking to read in each fragment.

The small size and biochemical characteristics of our DNBs enable us to pack them together very tightly on a silicon chip. We use established photolithography processes developed in the semiconductor industry to create a silicon chip that has a grid pattern of small spots. The small spots are approximately 300 nanometers in diameter, and the center of each spot is separated by approximately 700 nanometers from neighboring spots. Each silicon chip has approximately 2.8 billion spots in an area 25 millimeters wide and 75 millimeters long. We have developed a proprietary process that causes the DNA to adhere to these spots, which we refer to as sticky spots, while conversely preventing the DNA from adhering to the area between the sticky spots. When a solution of DNBs is spread across the chip, the DNBs adhere to the sticky spots, with one DNB per spot. We have also developed proprietary techniques to fill over 90% of the sticky spots with exactly one DNB. We refer to a silicon chip filled with DNA as a DNA nanoball array. Each completed DNA nanoball array contains over 200 billion bases of genomic DNA prepared for imaging.

cPAL Read

To read the sequence of nucleotides in each DNB, we have developed a highly accurate proprietary ligase-based DNA reading technology called cPAL. Our cPAL technology uses the naturally occurring ligase enzyme, which accurately distinguishes between the A, C, T and G nucleotides, to attach fluorescent molecules that light up with a different color for each of the four nucleotides. By imaging the color lights of a DNB array and decoding the color images, we can determine the sequence of nucleotides in each DNB. A key characteristic of our cPAL technology is its high accuracy of reading very short five-base sequences of DNA. We have developed a proprietary technique for preparing the DNA fragments so that we can read seven five-base segments from each of the two ends of the DNA fragment for a total of 70 bases from each fragment. We have also developed proprietary software that generally reconstructs over 90% of the complete human genomes from these 70 base reads from each fragment.

Advantages of our DNB arrays and our cPAL technology over other commercially available DNA sequencing technologies include:

§ **High Accuracy.** Our cPAL technology has very high single-read accuracy due to the intrinsic nature (high accuracy) of the ligase enzyme. By reading each nucleotide multiple times, we achieve a consensus error rate equal to approximately 1 error in 100,000 nucleotides.

§ **No Accumulation of Errors.** Many other DNA sequencing methods employ sequential processes that cause errors to accumulate as each successive nucleotide is read, which results in a higher potential error rate for each successive nucleotide. Our cPAL technology reads each nucleotide independently, and as a result there is no accumulation of errors, which enables us to read successive bases without increasing our error rate.

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§ **Low Reagent Cost.** Our cPAL technology uses low concentrations of low-cost commodity reagents. Our DNB arrays achieve a very high density of DNA on each array, which reduces the quantity, or volume, of reagents we use compared to other DNA array approaches. The combination of low concentration of low-cost reagents and smaller quantities results in lower reagent costs compared to other commercially available DNA sequencing methods.

High Throughput Process Automation

There are five major components of our high-throughput process automation technology: high-throughput sample preparation, high-throughput sequencing instruments, high-performance computing infrastructure, workflow automation software and service delivery technology.

High-Throughput Sample Preparation

Our high-throughput sample preparation technology consists of step-by-step protocols for preparing DNA for sequencing and pipetting robots that automatically execute these protocols. We prepare genome samples in batches of 170 by loading the samples into two 96-well plates (the other eleven wells in each plate contain known, or reference, DNA that we use to monitor the quality of the sample preparation process). We currently have capacity to start a sample preparation batch weekly, and our sample preparation capacity can be scaled by adding additional sample preparation instruments and staff as needed.

High-Throughput Sequencing Instruments

Our sequencing instruments consist of a fluidics robot that pipettes multiple types of chemical reagents (including fluorescent molecules) onto the flow slides and an imaging system that records images of the fluorescent molecules attached to the DNA. Each sequencing instrument processes 18 flow slides at a time. The 18 flow slides are robotically moved back-and-forth from the fluidics robot to the imaging system. While one flow slide is being imaged, the other 17 flow slides are prepared with reagents or waiting for the imager to become available. A sequencing run takes approximately 11 days. Currently, our sequencing instruments can generate between 85 and 115 gigabases of usable data per flow slide, or 1.5-2.1 terabases per run. To sequence a complete human genome at an average coverage of 40 times requires 120 gigabases of usable data. We expect to make continued enhancements in our technology to further increase the amount of usable data we get from each flow slide.

High-Performance Computing Infrastructure

We have built a genomic data processing facility that consists of approximately 7,500 core processors and 2,250 terabytes (a terabyte is one thousand gigabytes) of high-speed disk storage. Our sequencing instruments are connected to our data center by a network connection that transfers data at a rate of 30 gigabits per second. Our data center has the capacity to perform all of the required computation for several hundred genomes per month. We plan to expand our data center as needed, and we expect to make continued enhancements to our software to further increase the efficiency of our data center.

Workflow Automation Software

Our workflow automation software tracks each sample from arrival at our facility to delivery of research-ready data to the customer. Sample tracking is accomplished through bar codes. Each 96-well plate of samples has a bar code, and each flow slide has a bar code. The instruments that process plates and flow slides have bar code readers attached to them. User interfaces to our workflow automation software allow us to track the progress of each sample throughout sample preparation, sequencing and computing. We are also developing a web-based customer portal to enable customers to track their projects real-time throughout the sequencing process.

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Service Delivery Technology

Our cloud-based data delivery system is based on our vendor relationship with Amazon Web Services, or AWS. We upload our customers finished genomic data to AWS, which AWS then copies to hard disks and ships the hard disks to our customers. Our customers also can pay AWS to store their data on an ongoing basis.

Complete Data Management Solution

There are two major components of our complete data management solution: assembly software and analysis software.

Assembly Software

Assembly is the process of using computing methods to organize the overlapping 70-base nucleotide sequences to reconstruct the complete genome. We have developed a proprietary approach to assembly that uses a combination of advanced data analysis algorithms and statistical modeling techniques to reconstruct over 90% of the complete human genome from approximately two billion 70-base reads. We have designed our assembly software to run in parallel across our large network of Linux computers.

As reported in an article in *Science* published in January 2010, we generated high-quality base calls in as much as 95% of the genome, identifying between 3.2 million and 4.5 million genomic variants. Detailed validation of one genome data set demonstrated a consensus error rate of approximately 1 error in 100,000 nucleotides. For genomes sequenced in the first quarter of 2011, an average of over 97% of the genome was read at ten-fold or greater coverage and we delivered data results to our customers with a median turnaround time of 70 days. In addition, our median call rate was over 96% of the genome and over 95% of the exome.

Analysis Software

After assembling the genomic data, we use our analysis software to identify key variants in each genome and automatically annotate the genomic data. We have developed a suite of open source analytical tools, called CGA Tools, designed to enable our customers to rapidly analyze the data we generate from their samples. For example, we offer a tool facilitating the comparison of two genomes, enabling the quick determination of where the genomes differ. We are also developing additional analytical tools, such as a tumor-normal comparison tool designed to allow cancer researchers to compare a cancer genome to the normal genome from which it was derived, a family analysis tool designed to enable researchers to compare parental genomes with the genomes of their children and a large-scale genome browser designed to allow researchers to compare the hundreds of genomes sequenced in a large-scale study.

Technology Strategy

We plan to continue to advance our complete human genome sequencing and analysis technology in four major areas:

- § ***Array Density.*** Our unique grid patterned arrays currently consist of a 700 nanometer grid. We may reduce the grid size to 500 nanometers and correspondingly reduce the diameter of the sticky spots and DNA nanoballs. If successful, this improvement will increase the density of the DNA on an array, which will decrease the reagent cost of sequencing.
- § ***Instrument Speed.*** Our unique grid patterned arrays enable us to align the grid pattern of the DNA on the array with the grid pattern of the pixels in the detector, allowing us to image our arrays with very short exposure times. We may increase the speed of our instruments by acquiring and deploying new cameras that take images and transfer data at approximately six times the speed of our existing cameras. We may also increase the number of cameras per sequencing instrument from two to four.
- § ***Process Automation.*** As our instruments get faster, we intend to improve our sample preparation, process automation and data management technologies to process and deliver an increasing number of genomes to our customers with reduced turnaround time.

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§ *Assembly and Analysis Software.* We continue to improve and extend our analytic capabilities through the development of software designed to decrease genome assembly time and address specific application requirements of our customers. For instance, in December 2010, we started providing copy number variation and structural variation results to our customers. We expect to augment our assembly and analysis software with capabilities to provide our customers with additional classes of genomic variation detection, with a specific focus on variations found in cancer genomes.

As we implement a combination of these technology enhancements, our goal is to be the first company to sequence and analyze high-quality complete human genomes, at scale, for a total cost of under \$1,000 per genome.

Sales, Marketing and Customer Support

We sell our complete human genome sequencing service through our direct field sales and support organizations. Our sales process with each new customer typically involves undertaking a small project, or pilot program, which enables the customer to become familiar with our outsourced solution and research-ready data. We then work with our customers to expand the relationship to larger projects.

Sales

We have assembled a highly experienced and technically qualified field sales team, many of whom hold a Ph.D. or other advanced degree in a relevant scientific field. Each of these sales managers brings a network of extensive contacts in our targeted customer segments. The sales group develops business opportunities and obtains orders for our complete human genome sequencing service by proactively identifying, qualifying and visiting well-funded prospects at major companies, institutions and universities. As we have increased commercial sequencing capacity, we have continued to expand our field sales teams.

Marketing

Our marketing group has developed and maintains the Complete Genomics brand, increases market awareness and generates demand for our solution through a variety of methods. First, we have created and continue to maintain a clear media presence via our website, press releases, interviews and articles that reinforce our market presence and scientific credibility. Second, we generate demand by promoting the company via marketing programs and by attending and exhibiting at relevant tradeshows and conferences. Third, we continue to evolve our marketing strategy by tracking market trends, understanding customer needs and developing appropriate products and programs. The marketing group also fulfills traditional product management requirements, such as defining our service and application strategy and roadmap, including partnering strategies, and developing sales tools, training materials and competitive analyses for the sales group.

Customer Support

We are committed to supporting our customers through a network of scientific applications staff based in both Mountain View and locations near our most concentrated customer bases. This team currently consists mostly of Ph.D.-level scientists with extensive bioinformatics experience. Our scientific applications team works with customers to address technical questions related to our service offering and provide detailed training and support.

Most of the training and support efforts are focused on helping customers understand and use the large amounts of data that are delivered as part of multi-human genome sequencing projects. We supplement these efforts with a team of Mountain View-based bioinformatics support specialists.

Research and Development

Our research and development team brings together a variety of technical disciplines required for the development of a high-throughput sequencing system for commercial human genome sequencing services and includes DNA engineers, biochemists, molecular biologists, chemists, mathematicians, statisticians and

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electrical, mechanical, optical and software engineers. As of March 31, 2011, we had approximately 79 employees engaged in research and development, many with Ph.D.s. These professionals apply their skills in disciplines including:

§ biochemistry (sample preparation, DNA array preparation, DNA sequencing assay);

§ hardware (optics, fluidics, mechanical design, flow slides);

§ software (algorithms, instrument software, genome sequencing software, bioinformatics);

§ information technology (high-performance data center management);

§ semiconductors (mask design, surface chemistry); and

§ process automation.

The research and development teams are engaged in optimization and automation of our human genome sequencing processes, components and systems to improve the performance of our human genome sequencing technologies, including increasing accuracy and completeness, reducing cost and increasing throughput. Notable research and development accomplishments in this area include:

§ DNA engineering of four directional adapters inserted in genomic DNA segments, providing DNA substrates for unchained DNA sequencing of 35+35 mate-pair bases;

§ clonal DNA replication in solution to create concatamers with 300-500 DNA copies folded in DNBs of approximately 200-300 nanometers in diameter;

§ high density (700 nanometer pitch) patterned DNB arrays on a 25mm x 75mm silicon slide with over 2.8 billion spots and a single DNB on over 90% of the spots;

§ reaction flow slide suitable for gravity loading sequencing chemistry by direct pipetting without using pressure or tubing that enables the processing of up to 18 slides per run on one instrument;

§ unchained DNA sequencing chemistry using cPAL technology that allows reading 10 bases from each adapter end, or up to 80 bases per DNA spot, using a four-adapter library;

§ high-throughput, two-camera DNA sequencing instrument that processes 18 flow slides in parallel by robotic transfer of slides from biochemistry station to imaging station that employs TDI imaging at 30 frames per second;

§

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probability-based primary DNA base calling, read mapping and genome sequence and sequence variants determination algorithms and software for fast and accurate sequence analysis of a large number of human genomes using up to 200 gigabases of unchained base reads per genome; and

§ long fragment read technology for phasing the two parental chromosomes and reducing the final error rate by one to two orders of magnitude.

Our research and development teams are engaged in developing new applications for our technologies, including:

§ **Cancer Genomes.** We are developing new methods for sequencing the complex structural variations found in cancer genomes, such as duplications, deletions and translocations in tumor genomes. We believe these methods will enable the research community to better understand the genetic basis for cancer.

§ **Diploid Sequencing.** We have invented and are developing a method for independently sequencing the maternal and paternal chromosomes. We believe this independent chromosome sequencing will be required for many molecular diagnostics, because multiple variants within a gene may or may not affect both copies of the gene.

§ **Human Methylomes.** We are researching possible methods of sequencing the human methylome, which we believe will be important in understanding cancer genomes.

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§ *Human Transcriptomes*. We are researching possible methods of sequencing the human transcriptome, which, when combined with complete human genomes, we believe will shed light on the genetic basis of human disease and drug response. In the years ended December 31, 2008, 2009 and 2010, we spent \$23.6 million, \$22.4 million and \$21.7 million, respectively, on company-sponsored research and development activities, as we prepared to launch our commercial operations.

Intellectual Property

Our success depends in part upon our ability to obtain and maintain intellectual property rights with respect to our products, technology and know-how, to prevent others from infringing these intellectual property rights and to operate without infringing the proprietary rights of others. Our policy is to seek to protect our proprietary position by, among other methods, filing patent applications related to our proprietary technology, inventions and improvements that are important to the development and conduct of our business. We also rely on trade secrets and know-how to develop and maintain our proprietary position.

Our patent strategy is to seek broad patent protection on new developments in genome sequencing technology, and also file patent applications covering new implementations of our technology. Additionally, we file new patent applications directed at equipment and software that are used in conjunction with our genome sequencing technology.

Our core genome sequencing technology originated at Callida Genomics, Inc., or Callida, in the laboratory of Radoje (Rade) Drmanac, Ph.D., our Chief Scientific Officer and one of our co-founders. Dr. Drmanac played an important role in high-throughput sequencing of whole genomes using ligation-based sequencing reactions performed on microarrays. In March 2006, we entered into a license agreement with Callida pursuant to which we exclusively licensed from Callida the relevant patent filings relating to the use of the technology in random arrays, or arrays of genomic DNA fragments wherein the position of any specific fragment on the array is not predetermined, and probe anchor ligation, which we utilize in our commercial sequencing technology. Under this license agreement, we also obtained a nonexclusive license under additional patent filings owned by Callida that permits us to use the random array technology without infringing such additional patents. In exchange for the licenses, we issued to Callida 13,333 shares of our common stock, paid \$1.0 million in cash for repayment of certain promissory notes held by Callida and agreed to pay \$250,000 each year until the earlier of (a) March 28, 2012 and (b) such time as our common stock is traded on a national exchange and the shares issued to Callida are freely tradeable and have a minimum fair market value of \$2.0 million. The license agreement remains in effect until each of the licensed patents has either expired or has been abandoned or ruled invalid. Either party may terminate the agreement for a material breach upon 120 days' notice (or 30 days' notice if the breach is due to failure to make a payment under the license agreement). Pursuant to the license agreement, Callida retains the rights to use the exclusively licensed technology for research purposes only.

As of May 9, 2011, we have licensed from Callida eight issued U.S. patents and six issued international patents that will expire between 2014 and 2027, and we own four issued U.S. patents that will expire between 2027 and 2028. As of May 9, 2011, we own or have licensed 100 pending patent applications, including 55 in the United States, 38 international applications and seven applications filed under the Patent Cooperation Treaty.

In addition to pursuing patents on our technology, we have taken steps to protect our intellectual property and proprietary technology by entering into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, corporate partners and, when needed, our advisors.

The patent positions of companies like ours are generally uncertain, and the validity and breadth of claims in DNA sequencing technology patents may involve complex factual and legal issues for which no consistent policy exists. Our patents and licenses may not enable us to obtain or keep any competitive advantage. Our pending U.S. and foreign patent applications may not issue as patents or may not issue in a form that will be advantageous to us. Patents we have obtained or do obtain in the future may be challenged by re-examination, opposition or other administrative proceeding, or may be challenged in litigation, and such challenges could result in a determination that the patent is invalid.

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Our licensed patents may be successfully circumvented by competitors. In addition, the patent laws of foreign countries differ from those in the United States, and the degree of protection afforded by foreign patents may be different from the protection offered by U.S. patents.

Our commercial success depends in part on our non-infringement of the patents or proprietary rights of third parties. For a description of the risks we face relating to intellectual property, please see [Risk Factors](#) [Risks Related to Intellectual Property](#).

Competition

Competition among organizations developing or commercializing sequencing instruments and services is intense. The sequencing industry is dominated by large, established companies that provide instruments and reagents for sequencing, expression analysis and genotyping. These companies include Illumina, Inc., Life Technologies Corporation and Roche Diagnostics Corporation. These competitors are large and well-established, and each maintains a significant market share. Although historically these companies have sold instruments and reagents, some of these competitors have made recent forays into the sequencing services market. For example, Illumina started providing whole genome sequencing services in-house and through its Illumina Genome Network in mid-2010 and announced in January 2011 that it has a backlog of over 1,000 genomes for its sequencing services. Additionally, Life Technologies recently announced a collaboration to build a genome sequencing facility. New competitors may also enter the whole genome sequencing market, either by providing sequencing services as we do or by selling less expensive and more powerful sequencing instruments. We expect to face more intense competition if our service-based model is successful. In addition, future competitors may include other companies, like NABsys, Inc., Oxford Nanopore Technologies, Ltd. and Pacific Biosciences, Inc., which have developed or are developing sequencing technologies or services that may compete with ours in the future. Large, established companies may acquire smaller companies with emerging technologies and use their extensive resources to develop and commercialize or incorporate these technologies into their instruments and services. For example, in 2010, Life Technologies acquired Ion Torrent Systems, Inc., a chip-based sequencing technology company.

A number of these and other organizations are developing methods for DNA sequencing using single molecule or long-read sequencing technologies. To date, the developers of single molecule technologies have not demonstrated that single molecule sequencing can achieve the quality required for complete human genome discovery projects at a reasonable cost. While long-reads are critically important for *de novo* sequencing, or sequencing organisms which have not previously been sequenced, we believe they are not required for sequencing high quality complete human genomes.

In addition to commercial companies, there are large, government-funded or research-sponsored organizations, such as the Broad Institute of MIT and Harvard, the Genome Center at Washington University, the Baylor College of Medicine Human Genome Sequencing Center, the Wellcome Trust Sanger Institute and BGI (formerly known as Beijing Genome Institute), that purchase commercial DNA sequencing instruments and offer DNA sequencing services to academic and commercial customers.

For a description of the risks we face related to competition, please see [Risk Factors](#) [Risks Related to Our Business](#). We face significant competition. Our failure to compete effectively could adversely affect our sales and results of operations and [The emergence of competitive genome sequencing technologies](#) may impact our business.

Operations

We have established laboratory operations for our first genome center in Mountain View, California, and we have additional laboratory operations in Sunnyvale, California. Our Tier III certified data center is located in Santa Clara, California. We expect to deploy additional sequencing centers in the future, and it is likely that these will be located in other regions, including outside of the United States.

Genomic samples arrive at our facilities by common carrier, such as Federal Express or United Parcel Service, and are tested for a number of pre-defined quality acceptance criteria. Samples that pass acceptance testing are

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prepared for sequencing, loaded on a flow slide and sequenced on a sequencing instrument. After the sequencing process, data generated by the sequencing instrument is processed in our high performance computing center to generate the final customer data deliverable. We upload our customers' finished genomic data to AWS, which copies the data to hard disks and ships the hard disks to our customers. Our customers also can pay AWS to store their data on an ongoing basis.

Our genome sequencing center has a finite capacity, and time to delivery will increase if demand exceeds our capacity. In the future, we expect to reduce time to delivery through technical and procedural improvements. Our sequencing capacity is primarily determined by the equipment, automation and personnel we deploy.

Facilities

We lease approximately 67,000 square feet of office and laboratory space at our headquarters in Mountain View, California, under a lease that expires in August 2016. We lease approximately an additional 11,000 square feet of office and laboratory space in Sunnyvale, California, under a lease that expires in August 2016. These facilities contain laboratory and non-laboratory personnel. We also recently signed a lease for 20,000 square feet of additional space in Mountain View, California that expires in March 2013. We believe that our current facilities are adequate for our first genome center over the next two years. We may need to acquire additional space as we deploy additional genome centers, either in Mountain View or in other locales, and we may need to expand our Mountain View non-laboratory space for other uses. We believe additional non-laboratory expansion space near our Mountain View facility is readily available.

We also lease approximately 2,200 square feet of data center space in Santa Clara, California, under a contract that expires in June 2011. Our computing capabilities are principally located in this facility, which is sufficient for our current operations. As our operations expand, we will need to acquire additional data center space, either at this location, or in other regional facilities.

Manufacturing and Supply

We have adopted a manufacturing strategy of purchasing most components we use to conduct our sequencing services, including silicon wafers, optical microscopes and various other imaging components, sophisticated cameras and chemicals and reagents, from third party suppliers. This allows us to maintain a more flexible infrastructure while focusing our expertise on deploying these components and supplies to provide high-quality, lower-cost whole genome sequencing services on a large scale.

Although alternative suppliers exist, we currently use single suppliers for certain key materials used in our sequencing process. In particular, we use SVTC Technologies L.L.C. to provide us with the silicon chips that are the base of the flow slide used in our sequencing process and Hamamatsu Corporation for the cameras used in our sequencing instruments. We are in the process of identifying and qualifying additional suppliers, although we cannot predict how long that qualification process will last, and the time needed to establish a relationship can be lengthy.

Delays, quality issues or interruptions by our suppliers may harm our business, and we may be forced to establish relationships with new suppliers. However, because the lead time needed to engage a new supplier can be lengthy, we may experience delays in meeting demand if we must switch to a new supplier. For more information regarding risks related to our supply chain, please see **Risk Factors** **Risks Related to Our Business**. We depend on a limited number of suppliers, including single-source suppliers, of various critical components for our sequencing process. The loss of these suppliers, or their failure to supply us with the necessary components on a timely basis, could cause delays in the current and future capacity of our sequencing center and adversely affect our business.

Government Regulations

We believe our sequencing service is not currently subject to FDA regulation, clearance or approval. However, if we expand our service to encompass products that are intended to be used for the diagnosis of disease, such as

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molecular diagnostic products, regulation by governmental authorities in the United States and other countries will be a significant factor in the development, testing, production, and marketing of such products.

Our laboratory is subject to federal, state, regional and local regulations relating to the handling and disposal of hazardous materials and biohazardous waste, including chemicals, biological agents and compounds and blood and other human tissue. We utilize qualified third party vendors for waste disposal and handling, and these vendors are contractually obligated to comply with any applicable regulations. Our cost of waste disposal has historically not been material, and we expect this to be true in the future.

Due to the nature of our current operations, we have not sought accreditation for our facilities under the Clinical Laboratory Improvement Amendments, or CLIA. In addition, because the genomic data we provide generally neither identifies nor provides a reasonable basis to identify an individual, we are not currently subject to the Health Insurance Portability and Accountability Act of 1996, or HIPAA. However, once provided to certain of our customers, the genomic data and the activities of those customers may be regulated under both HIPAA and the Genetic Information Nondiscrimination Act of 2008.

Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulation or expand existing regulation to include our service. For example, in the future, our service could be subject to FDA regulation or we may be required to seek CLIA accreditation for our facilities. Changes to the current regulatory framework, including the imposition of additional or new regulations, could arise at any time, and we may be unable to obtain or maintain FDA or comparable regulatory approval or clearance of our service, if required. These regulations and restrictions may materially and adversely affect our business, financial condition and results of operations. For more information regarding the risks of future government regulation, please see **Risk Factors Risks Related to Our Business**. Because the market for genome sequencing is relatively new and rapidly evolving, we may become subject to additional future governmental regulation, which may place additional cost and time burdens on our operations.

Backlog

We define order backlog as the number of genomes for which customers have placed sequencing orders that we believe are firm and for which we have not yet recognized revenue. Estimating the dollar value of backlog that will be fulfilled within the current fiscal year, or any other particular period, requires significant judgments and estimates, as the mix of customer orders and pricing terms varies between arrangements depending on the number of genomes covered by the arrangement. It also requires estimating the timing of the receipt of qualified samples from our customers, over which we have no control, and the timing of the sequencing of the genomes. Unanticipated delays in obtaining and fulfilling sequencing orders would result in a delay in recognizing associated revenue.

Given the revenue variance resulting from this mix and the rapidly evolving nature of the sequencing industry, we do not believe that backlog as of any particular date is necessarily indicative of future results. However, we do believe that order backlog is an indication of our customers willingness to utilize our solution. As of March 31, 2011, we had a backlog of over 2,000 genomes, which we believe could result in approximately \$15.0 million in additional revenue over the next twelve months. Our backlog at March 31, 2010 was not significant. See **Risk Factors Risk Related to Our Business**. Our order backlog may never be completed, and we may never earn revenue on backlogged contracts to sequence genomes.

Segment and Geographical Information

We operate in one reportable business segment, and we derived a majority of our revenue from customers located in the United States. Our total revenue from customers outside of the United States for fiscal years 2009 and 2010 was \$0.1 million and \$2.7 million, respectively, or approximately 16% and 29%, respectively, of our total revenue. We had no revenue in 2008. Sales to customers located outside of the United States are denominated in U.S. dollars. We expect that sales to international customers will be an important and growing source of revenue, particularly as we construct additional genome sequencing centers outside of the United States. All of our long-lived assets are located in the United States.

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Employees

As of March 31, 2011, we had a total of 202 employees, 54 of whom hold Ph.D. degrees and 79 of whom are engaged in full-time research and development activities. We plan to expand our production, our sales and marketing and our research and development programs, and we plan to hire additional staff as these initiatives are implemented. None of our employees is represented by a labor union, and we consider our employee relations to be in good standing.

Legal Proceedings

On August 3, 2010, a patent infringement lawsuit was filed by Illumina, Inc. and Solexa, Inc. (an entity acquired by Illumina), or the plaintiffs, against us in the U.S District Court in Delaware. The case caption is *Illumina, Inc. and Solexa, Inc. v. Complete Genomics, Inc.*, Civil Action No. 10-649. The complaint alleges that our Complete Genomics Analysis Platform, and in particular our combinatorial probe anchor ligation technology, infringes upon three patents held by Illumina and Solexa. The plaintiffs seek unspecified monetary damages and injunctive relief. If we are found to infringe one or more valid claims of a patent-in-suit and if the district court grants an injunction, we may be forced to redesign portions of our sequencing process, seek a license or cease the infringing activity. On September 23, 2010, we filed our answer to the complaint as well as our counterclaims against the plaintiffs. On November 9, 2010, the U.S. District Court in Delaware granted our motion to transfer the case to the Northern District of California. On May 5, 2011, the Court entered a stipulated order to dismiss two patents from the lawsuit. The dismissal is without prejudice but includes conditions on the ability to file lawsuits on these patents, including a limitation that Illumina may not re-file such lawsuits against us until the later of (1) August 1, 2012, or (2) the exhaustion of all appeal rights in both (a) the pending reexaminations in the U.S. Patent and Trademark Office and (b) the pending civil litigation in which these patents are also asserted, *Life Technologies Corp. v. Illumina*, Case No. 11-CV703 (S.D. Cal.). Accordingly, there is now only one patent asserted against us in this lawsuit. We believe that we have substantial and meritorious defenses to the plaintiffs' claims and intend to vigorously defend our position. However, a negative outcome in this matter could have a material adverse effect on our financial position, results of operations, cash flows and business. For more information regarding the risk of this litigation and future litigation, please see [Risk Factors](#). We currently are, and could in the future be, subject to litigation regarding patent and other proprietary rights that could harm our business and We may incur substantial costs as a result of our current, or future, litigation or other proceedings relating to patent and other proprietary rights. We are not currently able to estimate the potential loss, if any, that may result from this litigation.

From time to time, we may become involved in other legal proceedings and claims arising in the ordinary course of our business. Other than as described above, we are not currently a party to any legal proceedings the outcome of which, if determined adversely to us, we believe would individually or in the aggregate have a material adverse effect on our business, operating results, financial condition or cash flows.

Table of Contents**Management****Executive Officers, Key Employees and Directors**

The following table sets forth certain information about our executive officers, key employees and directors, as of March 31, 2011.

| Name | Age | Position |
|--|------------|---|
| <i>Executive Officers</i> | | |
| Clifford A. Reid, Ph.D. | 52 | Chairman, President and Chief Executive Officer |
| Ajay Bansal | 49 | Chief Financial Officer |
| Radoje Drmanac, Ph.D. | 53 | Chief Scientific Officer |
| Bruce Martin | 46 | Senior Vice President of Product Development |
| Mark J. Sutherland | 53 | Senior Vice President of Business Development |
| <i>Key Employees</i> | | |
| Dennis Ballinger, Ph.D. | 56 | Vice President of Genomics |
| William Banyai, Ph.D. | 56 | Vice President of Hardware |
| R. John Curson | 68 | Vice President of Financial Operations |
| Alan Dow, Ph.D. | 55 | Vice President of Intellectual Property and Legal Affairs |
| Ken Prokuski | 61 | Vice President of Operations |
| Aaron Solomon | 46 | Vice President of Sales |
| Jennifer Turcotte | 41 | Vice President of Marketing |
| <i>Directors</i> | | |
| Clifford A. Reid, Ph.D. | 52 | Chairman, President and Chief Executive Officer |
| Alexander E. Barkas, Ph.D. ⁽¹⁾⁽²⁾ | 63 | Director |
| C. Thomas Caskey, M.D. | 72 | Director |
| Carl L. Gordon, Ph.D., CFA ⁽³⁾ | 46 | Director |
| Andrew E. Senyei, M.D. ⁽³⁾ | 61 | Director |
| Lewis J. Shuster ⁽³⁾ | 55 | Director |
| Charles P. Waite, Jr. ⁽¹⁾⁽²⁾ | 55 | Director |
| Robert T. Wall ⁽¹⁾⁽²⁾ | 65 | Director |

(1) Member of the compensation committee.

(2) Member of the nominating and corporate governance committee.

(3) Member of the audit committee.

Executive Officers and Key Employees

Clifford A. Reid, Ph.D., is our co-founder and Chairman and has served as our President and Chief Executive Officer since July 2005 and as a member of our board of directors since July 2005. From March 2003 to September 2005, Dr. Reid was Vice President of Collaborative Solutions at Open Text Corporation, a software company. In 1995, Dr. Reid co-founded Eloquent, Inc., a digital video communications company, and served as its Chief Executive Officer until 1999 and as its Chairman until 2003, when it was acquired by Open Text. In 1988, Dr. Reid co-founded Verity, Inc., an enterprise text search engine company, and served as its Vice President of Engineering from 1988 to 1992 and as its Executive Vice President from 1992 to 1993. Dr. Reid received a B.S. in Physics from the Massachusetts Institute of Technology, an M.B.A. from Harvard University and a Ph.D. in Management Science and Engineering from Stanford University. As our President, Chief Executive Officer and co-founder, Dr. Reid brings expertise and knowledge regarding our business and operations to our board of directors. He also brings to our board of directors an extensive background in the technology industry and in leadership roles, providing both strategic and operational vision and guidance.

Ajay Bansal has served as our Chief Financial Officer since May 2010. From June 2009 to January 2010, Mr. Bansal served as Chief Financial Officer and Executive Vice President of Business Development at Lexicon

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Pharmaceuticals, Inc., a biopharmaceutical company. From December 2007 to October 2008, Mr. Bansal served as Chief Financial Officer and Executive Vice President of Finance of Tercica, Inc., a biopharmaceutical company acquired by the Ipsen Group in October 2008. He also served as Chief Financial Officer and Senior Vice President of Finance of Tercica from March 2006 until December 2007. From February 2003 to January 2006, Mr. Bansal served as Vice Present of Finance and Administration and Chief Financial Officer of Nektar Therapeutics, a biopharmaceutical company. From July 2002 to February 2003, Mr. Bansal served as Director of Operations Analysis at Capital One Financial, a bank holding company. From August 1998 to June 2002, Mr. Bansal was at Mehta Partners LLC, a financial advisory firm, where he was named partner in January 2000. Prior to joining Mehta Partners, Mr. Bansal spent more than ten years in management roles at Novartis, a pharmaceuticals company, and in consulting at Arthur D. Little, Inc., McKinsey & Company, Inc. and ZS Associates. Mr. Bansal received a B.S. in Mechanical Engineering from the Indian Institute of Technology (Delhi) and an M.S. in Operations Management and an M.B.A. from Northwestern University.

Radoje Drmanac, Ph.D., is our co-founder and has served as our Chief Scientific Officer since July 2005. In 2001, Dr. Drmanac co-founded Callida Genomics, Inc., a DNA sequencing company, and served as Callida's Chief Scientific Officer from 2001 to 2004 and has served as its President since 2004. In 1994, Dr. Drmanac co-founded Hyseq, Inc., a DNA array technology company that became Hyseq Pharmaceuticals, Inc. and later merged with Variagenics, Inc. to become Nuvelo, Inc., and served as its Senior Vice President of Research from 1994 to 1998 and as its Chief Scientific Officer from 1998 to 2001. Prior to that, Dr. Drmanac served as a group leader at Argonne National Laboratory. Dr. Drmanac received a B.S., M.S. and Ph.D. in Molecular Biology from the University of Belgrade.

Bruce Martin has served as our Senior Vice President of Product Development since March 2010. From May 2007 to March 2010, Mr. Martin was our Vice President of Product Development. From 2005 to May 2007, Mr. Martin served as Vice President of Product Strategy at PSS Systems, Inc., an internet software company. From 2002 to 2003, Mr. Martin served as Chief Technical Officer of Openwave Systems Inc., a software company. Mr. Martin received a B.S. in Computer Science and Electrical Engineering from the University of California, Davis.

Mark J. Sutherland has served as our Senior Vice President of Business Development since March 2010. From October 2008 to November 2009, Mr. Sutherland served as Senior Vice President of Business Development at GenVault Corporation, a DNA storage company. From November 2005 to September 2007, Mr. Sutherland served as Chief Business Officer for Flashpoint Technology, Inc., a digital content management company. Beginning in August 1988, Mr. Sutherland served for 17 years in roles of increasing responsibility at Molecular Dynamics, a manufacturer of molecular biology and genetic engineering equipment, and its successor companies, Amersham Biosciences and GE Healthcare. Mr. Sutherland served as Vice President of Genomics at Amersham from 1998 to 2001 and as VP, Strategic Alliances, at Amersham and for the Discovery Systems business of GE Healthcare from 2001 to 2005. Mr. Sutherland received a B.S. in Chemistry with Honors from Stanford University.

Dennis Ballinger, Ph.D., has served as our Vice President of Genomics since October 2008. From 2002 to 2008, Dr. Ballinger served as Vice President of Genomics at Perlegen Sciences, Inc., a developer of genetic tests. From 1999 to 2001, he served as Director of Product Development at Ingenuity Systems, Inc., a software company. From 1998 to 1999, he served as Senior Director of Functional Genomics at Hyseq, Inc. From 1994 to 1998, he served as Director of Cardiovascular Disease Research at Myriad Genetics, a developer of molecular diagnostic products. From 1989 to 1994, Dr. Ballinger was an Assistant Professor of molecular biology at the Sloan-Kettering Institute and Cornell University Graduate School. Dr. Ballinger received a B.S. in molecular cell biology from University of Colorado, Boulder and a Ph.D. in cellular and developmental biology from the Massachusetts Institute of Technology and completed his postdoctoral training at the California Institute of Technology.

William Banyai, Ph.D., has served as our Vice President of Hardware since July 2006. From March 2000 to February 2006, Dr. Banyai was a founder and the Chief Technical Officer of Glimmerglass Networks, an optical networking company. From February 1996 to February 2000, Dr. Banyai served as a staff physicist at the

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Lawrence Livermore National Lab. From November 1994 to November 1995, Dr. Banyai served as the Chief Technologist of Silicon Light Machines, a high-resolution display company. From September 1992 to October 1994, Dr. Banyai served as a research engineer at Stanford University's Ginzton Laboratory. From January 1991 to August 1992, Dr. Banyai served as a research scientist at the Sandia National Laboratories Compound Semiconductor Research Facility. Dr. Banyai received a B.S. in physics and an M.S. in electrical science from the University of Michigan, an Engineer of Electrical Engineering from the University of Southern California and a Ph.D. in optical sciences from the University of Arizona.

R. John Curson is our co-founder and has served as our Vice President of Financial Operations since May 2010. From July 2005 to May 2010, he served as our Chief Financial Officer. From April 2003 to July 2005, Mr. Curson was a partner of Neon Partners, an investment partnership focusing on special turn-around situations. From July 1999 until its acquisition by Open Text Corporation in April 2003, Mr. Curson served as Chief Financial Officer of Eloquent, Inc., a digital video communications company. From July 1993 to July 1999, Mr. Curson served as Chief Financial Officer of RasterOps Inc., a digital imaging and peripherals company which, during Mr. Curson's tenure, was re-incorporated as Truevision Inc., a digital video company. Mr. Curson received a B.S. in Mechanical Engineering and an M.A. in Operations Research and Economics from the University of Leeds, U.K., and an M.B.A. from the University of California, Los Angeles.

Alan Dow, Ph.D., has served as our Vice President of Intellectual Property and Legal Affairs since September 2008. From September 2004 to September 2008, Dr. Dow worked as an attorney in private practice at BioTechnology Law Group in San Diego, California, specializing in patent prosecution and intellectual property-related transactions. From June 2001 to July 2004, Dr. Dow served as Vice President and General Counsel of Vical Incorporated, a biopharmaceutical company. Dr. Dow received a B.S. in Chemistry from the University of Maine at Orono, a Ph.D. in Genetics from Harvard University and a J.D. from Stanford Law School.

Ken Prokuski has served as our Vice President of Operations since January 2010. From August 2009 to January 2010, Mr. Prokuski served as an independent consultant to us. From October 1993 to January 2009, Mr. Prokuski served as Senior Director of Manufacturing Operations at Applied Biosystems, a life sciences company and a division of Life Technologies. From September 1992 to September 1993, Mr. Prokuski served as Material Manager at Arico Coating Technology, a thin film deposition equipment manufacturer. From September 1991 to September 1992, Mr. Prokuski served as Director of Materials at Toshiba America, Inc., an electronics company. From January 1990 to August 1991, Mr. Prokuski served as Operations Manager at Millipore Corporation, a life sciences company. Mr. Prokuski received a B.A. in Psychology from Northeastern Illinois University and an Executive M.B.A. from Golden Gate University.

Aaron Solomon, has served as our Vice President of Sales since March 2009. From April 2008 to March 2009, Mr. Solomon served as Vice President of Business Development at Tethys Bioscience, a developer of diagnostic tests. From October 2005 to April 2008, Mr. Solomon served as Director of Western Region Industrial Sales and later as Vice President of Industrial Sales at Affymetrix, a leading DNA microarray company. From February 2004 until its acquisition by Affymetrix in October 2005, Mr. Solomon served as Vice President of Business Development at ParAllele, a targeted genotyping company. Mr. Solomon received a B.S. in Biological Sciences from the University of California, Irvine.

Jennifer Turcotte has served as our Vice President of Marketing since September 2008. From November 2007 to August 2008, she served as our Senior Director of Product Marketing. From June 2007 to October 2007, Ms. Turcotte served as Senior Director, Marketing Solutions, at SAP, Inc., a business management software company. From March 2004 to May 2007, Ms. Turcotte served as Senior Director of Product Marketing at Siperian, Inc., a software company acquired by Informatica in March 2010. Prior to joining Siperian, Ms. Turcotte held senior product marketing positions at Rearden Commerce, a technology-based personal assistance company, Ariba, Inc., a software and information technology company, Nuance Communications, a software company, and BEA Systems, Inc., a software company that was acquired by Oracle Corporation. Ms. Turcotte received a B.Eng. in mechanical engineering from Carleton University in Ottawa, Canada.

Table of Contents**Directors**

Alexander E. Barkas, Ph.D., has served as a member of our board of directors since March 2007. In 1997, Dr. Barkas co-founded Prospect Venture Partners, a venture capital firm, and currently serves as a Managing Director at that firm. From 1991 to 1997, Dr. Barkas was a Partner at Kleiner Perkins Caufield & Byers, a venture capital firm. Prior to that, Dr. Barkas was a Founder and Chief Executive Officer of BioBridge Associates, a healthcare industry consulting firm. Dr. Barkas has served as Chairman of Geron Corporation, a biopharmaceutical company, since 1993 until early 2011 and as a member of the board of directors since 1992. Dr. Barkas has also served as a director of Amicus Therapeutics, Inc., a biotechnology company, since 2004. From May 2002 to October 2008, Dr. Barkas served as a director of Tercica, and as its Chairman from August 2003 to October 2008. Dr. Barkas received a Ph.D. in Biology from New York University and a B.A. in Biology from Brandeis University, where he currently is Chairman of the University Science Advisory Council and serves on the Board of Trustees. As a venture capitalist, Dr. Barkas brings to our board of directors broad experience in advising and managing life science and biotechnology companies from early-stage to mature companies, including expertise in capital raising, strategic transactions, financial budgeting and reporting, strategy and operations, recruiting and compensation. In addition, Dr. Barkas brings insight on compensation-related matters to the compensation committee based on his breadth of exposure to life science companies.

C. Thomas Caskey, M.D., has served as a member of our board of directors since August 2009. Since January 2006, Dr. Caskey has served as Director and Chief Executive Officer of the Brown Foundation Institute of Molecular Medicine for the Prevention of Human Diseases, part of the University of Texas Health Science Center at Houston. Since 2003, Dr. Caskey has served as an Adjunct Partner at Essex Woodlands Health Ventures, a venture capital firm. Dr. Caskey served as Managing Director of Cogene Biotech Ventures, Ltd., a venture capital firm, from March 2005 to October 2005 and as President and Chief Executive Officer from April 2000 to March 2005. He served as Senior Vice President, Research, at Merck Research Laboratories, a division of Merck & Co., Inc., a pharmaceutical company, from 1995 to 2000 and as President of the Merck Genome Research Institute from 1996 to 2000. Before joining Merck, Dr. Caskey served 25 years at Baylor College of Medicine in a series of senior positions, including Chairman, Department of Human and Molecular Genetics, and Director, Human Genome Center. He is a member of the National Academy of Sciences. Dr. Caskey served as a director of Lexicon Genetics Incorporated, a biopharmaceutical company, from April 2000 to April 2006 and as Chairman from April 2000 to March 2005. Dr. Caskey served as a director of Luminex Corporation, a developer of biological testing technologies, from January 2001 to May 2005. Dr. Caskey received a B.A. from the University of South Carolina and an M.D. from Duke University. Dr. Caskey brings to the board an extensive scientific and operational background gained as a research scientist, executive and venture capital advisor focused on life science and pharmaceutical companies.

Carl L. Gordon, Ph.D., CFA, has served as a member of our board of directors since August 2009. In 1998, Dr. Gordon co-founded OrbiMed Advisors LLC, an asset management firm, and has served as a General Partner since that time. From 1995 to 1997, Dr. Gordon served as a Senior Biotechnology Analyst at Mehta & Isaly, the predecessor firm to OrbiMed. From 1993 to 1995, Dr. Gordon served as a Fellow at The Rockefeller University. Since May 2008, Dr. Gordon has served as a director of Amarin Corporation, a biopharmaceutical company. From March 2004 to May 2007, Dr. Gordon served as a director of Biocryst Pharmaceuticals, Inc., a pharmaceutical company. Dr. Gordon received an A.B. from Harvard University and a Ph.D. in molecular biology from the Massachusetts Institute of Technology. As a venture capitalist focused on life science companies who sits on numerous boards, Dr. Gordon provides financial and operational expertise regarding our industry. In addition, Dr. Gordon provides substantial expertise in the particularly relevant scientific field of molecular biology.

Andrew E. Senyei, M.D., has served as a member of our board of directors since March 2006. Since 1987, Dr. Senyei has served as a Managing Director and a General Partner of Enterprise Partners, a venture capital firm. In 1989, Dr. Senyei co-founded Molecular Biosystems, Inc., a biotechnology company acquired by Alliance Pharmaceutical Corp. in 2000. Prior to joining Enterprise Partners, Dr. Senyei served as a practicing clinician and Adjunct Associate Professor of Obstetrics and Gynecology at the University of California, Irvine. Dr. Senyei has served as Chairman of Genoptix, Inc., a specialized medical laboratory service provider, since

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April 2000. Dr. Senyei served as a director of Adeza Biomedical Corporation, a healthcare products company, from 1987 until Adeza was acquired by Cytoc Corporation in April 2007. Dr. Senyei has served on the Board of Trustees of Northwestern University since 2005 and on the Advisory Council of the Jacobs School of Engineering at the University of California, San Diego, since 2002. Dr. Senyei received a B.S. from Occidental College and an M.D. from Northwestern University Medical School, and he completed his residency training at the University of California, Irvine, Medical Center. Dr. Senyei's medical and business expertise, including his experience as a venture capitalist building and serving on the board of directors of more than 25 public and private emerging life sciences and healthcare companies, combined with his extensive prior experience as an inventor and practicing clinician, give him valuable insight into our industry. His experience provides the seasoned business judgment and broad strategic vision which enables him to serve as an effective and valuable director and to have the qualifications and leadership and other skills to serve on our board of directors.

Lewis J. Shuster has served as a member of our board of directors since April 2010. In 2002, Mr. Shuster founded Shuster Capital, a strategic and operating advisor to life science companies, and has served as its Chief Executive Officer since that time. From June 2003 to November 2007, Mr. Shuster served as Chief Executive Officer of Kemia, Inc., a drug discovery and development company. From February 2000 to December 2001, Mr. Shuster held various operating executive positions at Invitrogen Corporation, a biotechnology company that merged with Applied Biosystems Inc. and became Life Technologies Corporation. From 1994 to 1999, Mr. Shuster served as Chief Financial Officer of Pharmacoepia, Inc., a drug discovery product and service company, and later as Chief Operating Officer of Pharmacoepia Labs, a division of Pharmacoepia, Inc. Mr. Shuster joined Human Genome Sciences as its first employee in September 1992, and as Executive Vice President of Operations and Finance, helped guide the development and operation of what was the world's leading gene sequencing operation in 1994. Mr. Shuster served as a director and Chairman of the Audit Committee of Epitomics, Inc., a private monoclonal antibody firm, from 2002 until May 2010, and a director and Chairman of the Audit Committee of Sorrento Therapeutics, Inc., a biopharmaceutical company, from September 2009 to February 2010, and a director of Retrotope, a privately held biotechnology company, since April 2008, and as a member of the Board of Managers and Chairman of the Audit Committee of MSN Health, LLC, a privately held nurse and professional health care staffing firm, since September 2010, and as a director of ADVENTRX Pharmaceuticals, Inc., a biopharmaceutical company, since April 2011. Mr. Shuster received a B.A. in Economics from Swarthmore College and an M.B.A. from Stanford University. Mr. Shuster provides the board with an extensive background in financial and strategic planning, auditing and accounting and financial leadership expertise. As Chairman of the Audit Committee, Mr. Shuster also keeps the board abreast of current audit issues and collaborates with our independent registered public accounting firm and senior management team.

Charles P. Waite, Jr., has served as a member of our board of directors since March 2006. Mr. Waite has been a General Partner of OVP Venture Partners II and a Vice President of Northwest Venture Services Corp. since 1987, a General Partner of OVP Venture Partners III since 1994, a General Partner of OVP Venture Partners IV since 1997, a General Partner of OVP Venture Partners V since 2000 and a General Partner of OVP Venture Partners VI since 2001, all of which are venture capital firms. He currently serves on the board of directors of eight private companies. Mr. Waite received an A.B. in History from Kenyon College and an M.B.A. from Harvard University. Mr. Waite brings to the board significant operational and leadership experience as a venture capital investor who sits on a number of boards. Mr. Waite's investment focus on life science companies also provides substantial expertise in our industry.

Robert T. Wall has served as a member of our board of directors since September 2010. Since August 1984, Mr. Wall has been the Founder and President of On Point Developments, LLC, a venture management and investment company. Mr. Wall was a founder and, from November 2000 to December 2006, the Chairman of the Board of Directors of Airgo Networks, Inc., a Wi-Fi wireless networking systems company that was acquired by QUALCOMM, Inc. in December 2006. From June 1997 to November 1998, he was Chief Executive Officer and a member of the board of directors of Clarity Wireless, Inc., a broadband wireless data communications company that was acquired by Cisco Systems, Inc., a network and communications company, in November 1998. Mr. Wall was Chairman of the Board, President and Chief Executive Officer of Theatrix Interactive, Inc., a consumer

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educational software publisher, from April 1994 to August 1997. Mr. Wall has also served as a director of NetApp, Inc., an enterprise storage and data management company, since January 1993. Mr. Wall has been a member of the Board of Trustees of the Fine Arts Museums of San Francisco since June 2007 and a member of the Visiting Committee, Arts of Africa, Oceania and the Americas at the Metropolitan Museum of Art in New York since March 2007. He received an AB degree in economics from DePauw University and an M.B.A. degree from Harvard Business School. Mr. Wall brings to the board over 30 years of experience leading and founding several technology companies. As a result of Mr. Wall's service on the boards of other public companies and varied strategic mergers and acquisition experience, he is familiar with a full range of corporate and board functions. Additionally, Mr. Wall's service as chairman of the compensation committee of another public company provides our board with valuable experience and leadership in developing and implementing our compensation policies.

Scientific Advisory Board

We maintain a scientific advisory board consisting of members with experience and expertise in the field of genomics and genetics who provide us with consulting services. Our scientific advisory board consists of the following members:

Mark Chee, Ph.D., is an internationally recognized expert in genomics. He presently serves as Chief Executive Officer and Chief Scientific Officer of Prognosys Biosciences, Inc. Previously, he co-founded Illumina, Inc., and was Director of Genetics Research at Affymetrix, Inc. He has published scientific papers on microarray technology and applications and is an inventor on over 40 issued patents. He also serves on the External Scientific Committee of The Cancer Genome Atlas project. Dr. Chee received his B.Sc. in Biochemistry from the University of New South Wales and his Ph.D. in Molecular Biology from the University of Cambridge.

George Church, Ph.D., is Professor of Genetics at Harvard Medical School and Director of the Center for Computational Genetics. With degrees from Duke University in Chemistry and Zoology, he co-authored research on 3D-software & RNA structure with Sung-Hou Kim. His 1984 Ph.D. from Harvard in Biochemistry & Molecular Biology with Wally Gilbert included the first direct genomic sequencing method. He co-initiated the Human Genome Project a few months later as a Research Scientist at newly formed Biogen Inc. and was a Monsanto Life Sciences Research Fellow at UCSF. He invented the broadly applied concepts of molecular multiplexing and tags, homologous recombination methods and array DNA synthesizers. Technology transfer of automated sequencing and software to Genome Therapeutics Corp. resulted in the first commercial genome sequence (the human pathogen, *H. pylori*, 1994). He has served in advisory roles for 12 journals, five granting agencies and 22 biotechnology companies. His current research focuses on integrating biosystems-modeling with personal genomics and synthetic biology.

Leroy Hood, M.D., Ph.D., is currently President of the Institute for Systems Biology. His research has focused on the study of molecular immunology, biotechnology and genomics. His professional career began at the California Institute of Technology where he and his colleagues pioneered four instruments, the DNA gene sequencer and synthesizer and the protein synthesizer and sequencer, which comprise the technological foundation for contemporary molecular biology. In particular, the DNA sequencer has revolutionized genomics by allowing the rapid, automated sequencing of DNA, which played a crucial role in contributing to the successful mapping of the human genome during the 1990s. In 1992, he moved to the University of Washington as founder and Chairman of the cross-disciplinary Department of Molecular Biotechnology. In 2000, he co-founded the Institute for Systems Biology in Seattle, Washington to pioneer systems approaches to biology and medicine. He is a member of the National Academy of Sciences, the American Philosophical Society, the American Association of Arts and Sciences and the Institute of Medicine. He has also played a role in founding numerous biotechnology companies, including Amgen, Inc., Applied Biosystems, Inc., Systemix Institute, Darwin Molecular Corp. and Rosetta Inpharmatics LLC. Dr. Hood received an M.D. from Johns Hopkins School of Medicine and a Ph.D. in Biochemistry from the California Institute of Technology. He has published more than 600 peer-reviewed papers, is listed as an inventor on 14 issued patents and has co-authored textbooks in biochemistry, immunology, molecular biology and genetics.

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Douglas A. Lauffenburger, Ph.D., is the Uncas & Helen Whitaker Professor of Bioengineering and Director of the Biological Engineering Division at the Massachusetts Institute of Technology and also holds appointments in the Department of Biology and the Department of Chemical Engineering. Dr. Lauffenburger received B.S. and Ph.D. degrees in chemical engineering from the University of Illinois in 1975 and the University of Minnesota in 1979, respectively. His major research interests are in cell engineering, the fusion of engineering with molecular cell biology. A central focus of his research program is in receptor-mediated cell communication and intracellular signal transduction, with emphasis on development of predictive computational models derived from quantitative experimental studies, on cell cue/signal/response relationships. These models have applications in drug discovery and development.

Larry Smarr, Ph.D., is the founding Director of the California Institute for Telecommunications and Information Technology, a partnership between the University of California, San Diego, and University of California, Irvine, created in 2000. Dr. Smarr also holds the Harry E. Gruber professorship in the Jacobs School's Department of Computer Science and Engineering at the University of California, San Diego. Dr. Smarr was the founding director of the National Center for Supercomputing Applications, a position he held until 2000. From 1997 until 2005, Dr. Smarr served on the Advisory Committee to the Director of the National Institutes of Health. Previously, he was a professor in the Astronomy and Physics departments of the University of Illinois at Urbana-Champaign from 1979 until March 2000. Dr. Smarr received a B.A. and a M.S. in physics from the University of Missouri, a M.S. in physics from Stanford University and a Ph.D. in physics for the University of Texas, Austin. Dr. Smarr was a member of the Fisher Scientific Biotechnology Council from 1993 through 1998, has been a member of the InterWest MedTech Advisory Committee since 1999 and has been Advisor to the CEO, MedExpert International, Inc. since 2000. Dr. Smarr is a pioneer in the field of biomedical computing and has numerous publications in the field, including publications and quotations in *Science*, *Nature*, the *New York Times*, *Wall Street Journal*, *Time*, *Newsweek*, *Wired*, *Fortune*, *Business Week*, the *Sydney Morning Herald*, the *Age* and the *Australian Broadcasting Company*.

Leadership Structure of the Board

Our board of directors is currently chaired by the President and Chief Executive Officer of the Company, Dr. Reid. Our board has combined the positions of Chief Executive Officer and Chairman to help ensure that the board and management act with a common purpose and to facilitate the flow of information between management and the board. Our board believes that the combination of the Chairperson and Chief Executive Officer position will provide a single, clear chain of command to continue to develop our business and execute our strategic and business plans. In addition, our board also believes that it is advantageous to have a Chairman with an extensive history with and knowledge of the company and our industry, as is the case with Dr. Reid, who was one of our founders.

Board Composition

Independent Directors

Our board of directors currently consists of eight members. Our board of directors has determined that all of our directors, other than Dr. Reid, qualify as independent directors in accordance with the NASDAQ listing requirements. Dr. Reid is not considered independent because he is an employee of Complete Genomics. The NASDAQ independence definition includes a series of objective tests, such as that the director is not, and has not been for at least three years, one of our employees and that neither the director nor any of his family members has engaged in various types of business dealings with us. In addition, as required by NASDAQ rules, our board of directors has made a subjective determination as to each independent director that no relationships exist, which, in the opinion of our board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In making these determinations, our board of directors reviewed and discussed information provided by the directors and us with regard to each director's business and personal activities and relationships as they may relate to us and our management.

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Classified Board of Directors

Our board of directors is divided into three classes with staggered, three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Effective upon the completion of this offering, our directors will be divided among the three classes as follows:

- § the Class I directors are Carl L. Gordon, Ph.D., CFA, Lewis J. Shuster and Charles P. Waite, Jr., and their terms will expire at the annual meeting of stockholders to be held in 2011;
- § the Class II directors are Alexander E. Barkas, Ph.D. and Andrew E. Senyei, M.D., and their terms will expire at the annual meeting of stockholders to be held in 2012; and
- § the Class III directors are C. Thomas Caskey, M.D., Clifford A. Reid, Ph.D. and Robert T. Wall, and their terms will expire at the annual meeting of stockholders to be held in 2013.

Our amended and restated certificate of incorporation provide that the authorized number of directors may be changed only by resolution of the board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change-in-control of our company.

Board Diversity

Our nominating and corporate governance committee will be responsible for reviewing with the board of directors, on an annual basis, the appropriate characteristics, skills and experience required for the board of directors as a whole and its individual members. In evaluating the suitability of individuals candidates (both new candidates and current members), the nominating and corporate governance committee, in recommending candidates for election, and the board of directors, in approving (and, in the case of vacancies, appointing) such candidates, will take into account many factors, including the following:

- § personal and professional integrity;
- § ethics and values;
- § experience in corporate management, such as serving as an officer or former officer of a publicly held company;
- § experience in the industries in which we compete;
- § experience as a board member of another publicly held company;
- § diversity of expertise and experience in substantive matters pertaining to our business relative to other board members;
- § conflicts of interest; and

§ practical and mature business judgment.

Our board of directors evaluates each individual in the context of the board of directors as a whole, with the objective of assembling a group that can best maximize the success of the business and represent stockholder interests through the exercise of sound judgment using its diversity of experience in these various areas.

Board Committees

Our board of directors has an audit committee, a compensation committee and a nominating and corporate governance committee. Our board of directors may establish other committees to facilitate the management of our business. The composition and functions of each committee are described below.

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Audit Committee

Our audit committee oversees our corporate accounting and financial reporting process. Among other matters, the audit committee:

- § appoints our independent registered public accounting firm;
- § evaluates the independent registered public accounting firm's qualifications, independence and performance;
- § determines the engagement of the independent registered public accounting firm;
- § reviews and approves the scope of the annual audit and the audit fee;
- § discusses with management and the independent registered public accounting firm the results of the annual audit and the review of our quarterly financial statements;
- § approves the retention of the independent registered public accounting firm to perform any proposed permissible non-audit services;
- § monitors the rotation of partners of the independent registered public accounting firm on our engagement team as required by law;
- § is responsible for reviewing our financial statements and our management's discussion and analysis of financial condition and results of operations to be included in our annual and quarterly reports to be filed with the SEC;
- § reviews our critical accounting policies and estimates; and
- § annually reviews the audit committee charter and the committee's performance.

The current members of our audit committee are Carl Gordon, Ph.D., CFA, Andrew E. Senyei, M.D. and Lewis J. Shuster. Mr. Shuster serves as the chairman of the committee. All members of our audit committee meet the requirements for financial literacy under the applicable rules and regulations of the SEC and NASDAQ. Our board of directors has determined that Mr. Shuster is an audit committee financial expert as defined under the applicable rules of the SEC and has the requisite financial sophistication as defined under the applicable rules and regulations of The NASDAQ Stock Market. Under the rules of the SEC, members of the audit committee must also meet heightened independence standards. However, a minority of the members of the audit committee may be exempt from the heightened audit committee independence standards for one year from the date of effectiveness of the registration statement filed in connection with our initial public offering. Our board has determined that each of Dr. Senyei and Mr. Shuster meet these heightened independence standards. Due to his relationship with OrbiMed Advisors LLC and its affiliated funds, which may be deemed to be an affiliate of us due to the size of its holdings in our securities, Dr. Gordon does not currently meet the heightened independence requirements under Rule 10A-3 of the Exchange Act. If necessary, our board intends to appoint a new director meeting these heightened independence standards to replace Dr. Gordon as a member of our audit committee in reliance on the phase-in exemption pursuant to Rule 10A-3(b)(1)(iv)(A)(2) under the Exchange Act. Upon expiration of this phase-in exemption in November 2011, each of our audit committee members must meet the heightened independence requirements under Rule 10A-3(b)(1) under the Exchange Act. The audit committee operates under a written charter that satisfies the applicable standards of the SEC and NASDAQ.

Compensation Committee

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Our compensation committee reviews and recommends policies relating to compensation and benefits of our officers and employees. The compensation committee reviews and approves corporate goals and objectives relevant to compensation of our Chief Executive Officer and other executive officers, evaluates the performance of these officers in light of those goals and objectives and sets the compensation of these officers based on such evaluations. The compensation committee also recommends to our board of directors the issuance of stock options and other awards under our stock plans. The compensation committee will review and evaluate, at least annually, the performance of the compensation committee and its members, including compliance by the

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compensation committee with its charter. The current members of our compensation committee are Alexander E. Barkas, Ph.D., Charles P. Waite, Jr. and Robert T. Wall. Mr. Wall serves as the chairman of the committee. Each of the members of our compensation committee is independent under the applicable rules and regulations of The NASDAQ Global Market, is a non-employee director as defined in Rule 16b-3 promulgated under the Exchange Act and is an outside director as that term is defined in Section 162(m) of the U.S. Internal Revenue Code of 1986, as amended, or Section 162(m). The compensation committee operates under a written charter.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee is responsible for making recommendations to our board of directors regarding candidates for directorships and the size and composition of our board of directors. In addition, the nominating and corporate governance committee is responsible for overseeing our corporate governance policies and reporting and making recommendations to our board of directors concerning governance matters. The current members of our nominating and corporate governance committee are Alexander E. Barkas, Ph.D., Charles P. Waite, Jr. and Robert T. Wall. Dr. Barkas serves as the chairman of the committee. Each of the members of our nominating and corporate governance committee is an independent director under the applicable rules and regulations of The NASDAQ Global Market relating to nominating and corporate governance committee independence. The nominating and corporate governance committee operates under a written charter.

There are no family relationships among any of our directors or executive officers.

Oversight of Risk Management

Our board of directors has an active role, as a whole and also at the committee level, in overseeing the management of our risks. The board of directors is responsible for general oversight of risks and regularly reviews information regarding our risks, including credit risks, liquidity risks and operational risks. Our compensation committee is responsible for overseeing the management of risks relating to our company's executive compensation plans and arrangements. Our audit committee is responsible for overseeing the management of our risks relating to accounting matters and financial reporting and legal and regulatory compliance. Our nominating and corporate governance committee is responsible for overseeing the management of our risks associated with the independence of our board of directors and potential conflicts of interest. While each committee is responsible for evaluating certain risks and overseeing the management of such risks, our entire board of directors is regularly informed through committee reports about such risks. Our board of directors believes its administration of its risk oversight function has not affected the board of directors' leadership structure.

Compensation Committee Interlocks and Insider Participation

During 2010, our compensation committee consisted of Alexander E. Barkas, Ph.D., Carl L. Gordon, Ph.D., CFA, and Charles P. Waite, Jr. Dr. Barkas served as Chairman of the Compensation Committee. None of the members of the compensation committee is currently, or has been at any time, one of our officers or employees. None of our executive officers currently serves, or has served during the last completed three fiscal years, as a member of the board of directors or compensation committee of any other entity that has or had one or more executive officers serving as a member of our board of directors or compensation committee. In July 2010, Dr. Gordon resigned from the compensation committee.

Corporate Governance Guidelines

We believe in sound corporate governance practices and have adopted formal Corporate Governance Guidelines to enhance our effectiveness. Our Board adopted these Corporate Governance Guidelines in order to ensure that it has the necessary practices in place to review and evaluate our business operations as needed and to make decisions that are independent of our management. The Corporate Governance Guidelines are also intended to align the interests of directors and management with those of our stockholders. The Corporate Governance Guidelines set forth the practices our Board follows with respect to Board and committee composition and selection, Board meetings, Chief Executive Officer performance evaluation and management development and

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succession planning for senior management, including the Chief Executive Officer position. A copy of our Corporate Governance Guidelines is available on our website at www.completegenomics.com.

Code of Business Conduct and Ethics

We adopted a Code of Business Conduct and Ethics applicable to all of our employees, officers and directors, including those officers responsible for financial reporting as required by applicable NASDAQ listing standards, which is a code of ethics as defined by applicable SEC rules. The Code of Business Conduct and Ethics is publicly available on our website at <http://ir.completegenomics.com/governance.cfm>. The Code of Business Conduct and Ethics includes an enforcement mechanism, and if we make any amendments to the Code of Business Conduct and Ethics other than technical, administrative, or other non-substantive amendments, or grant any waivers, including implicit waivers, from a provision of this Code of Business Conduct and Ethics to our Chief Executive Officer, Chief Financial Officer or certain other finance department executives, we will disclose the nature of the amendment or waiver, its effective date, and to whom it applies, on our website at <http://ir.completegenomics.com/governance.cfm> or in a current report on Form 8-K filed with the SEC. There were no waivers of the Code of Business Conduct and Ethics during 2010.

Director Compensation

The following table sets forth certain information with respect to compensation awarded to, paid to or earned by each of Complete Genomics non-employee directors during 2010.

Fees Earned or Paid in Cash

Commencing upon our initial public offering in November 2010, each non-employee director received an annual retainer of \$30,000 that was prorated to reflect our initial public offering date. Our Chairman of the Board is an employee director and does not receive fees for his service. Each board member received committee fees for each committee on which he served, as follows:

| Committee | Chair \$(1) | Members \$(1) |
|-------------------------------------|--------------------|----------------------|
| Audit | \$ 15,000 | \$5,000 |
| Compensation | \$ 10,000 | \$5,000 |
| Nominating and Corporate Governance | \$ 10,000 | \$5,000 |

(1) Amounts shown are for a full year. Directors were paid 14% of these amounts as a proration for 2010 to reflect our initial public offering date of November 10, 2010.

Our Board retained the same levels of cash compensation for 2011.

Equity Awards

In April 2010, our Board granted each of Dr. Caskey and Mr. Shuster an option to purchase 10,000 shares of our common stock for \$1.50 per share, which our Board determined to be the fair market value of our common stock on the date of grant. In July 2010, our Compensation Committee amended each of the option grants to Dr. Caskey and Mr. Shuster to increase the exercise price of these stock options to \$2.43 per share, which our Compensation Committee determined to be the fair market value of our common stock on the date of grant following a valuation of our common stock as of March 31, 2010. At a subsequent meeting of our Board in July 2010, our Board granted each of Dr. Caskey and Mr. Shuster an option to purchase 2,500 shares of our common stock for \$2.69 per share, which our Board determined to be the fair market value of our common stock on the date of grant. Each of the stock options vest in 12 equal monthly installments measured from the respective vesting commencement dates of August 12, 2009 for Dr. Caskey and April 8, 2010 for Mr. Shuster, which correspond to their dates of appointment to our Board.

In September 2010, our Board granted Mr. Wall an option to purchase 12,500 shares of our common stock for \$6.85 per share, which our Board determined equaled the fair market value of our common stock on the date of grant. The option vests with respect to one-third of the shares subject thereto on each of the first three anniversaries of September 13, 2010, which corresponds to the date Mr. Wall was appointed to our Board.

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Pursuant to our non-employee director compensation policy, upon initial election or appointment to our board of directors, each non-employee director is automatically granted a stock option to purchase 10,000 shares of our common stock with an exercise price equal to the closing trading price of our common stock on the date of grant, for which one-third of the shares underlying the stock option vest on the one-year anniversary of the date of grant, and the remaining shares vest on a monthly basis over the following 24 months. Upon initial election or appointment, each non-employee director is also automatically granted 5,000 restricted stock units, for which one-third of the restricted stock units vest on each anniversary of the date of grant such that the award will be fully vested on the third anniversary of the date of grant. In December 2010, each non-employee director who was serving on our board of directors upon the consummation of our initial public offering on November 10, 2010 who had not previously received an option grant in connection with his appointment to our Board, received an initial stock option and restricted stock unit grant in accordance with this policy at the first meeting of our board of directors following our initial public offering. Dr. Caskey and Messrs. Shuster and Wall were each granted 2,500 restricted stock units in lieu of the initial stock option and restricted stock unit grant made to other non-employee directors in December 2010, since each had received an initial stock option grant in connection with his appointment to our Board. Consistent with the restricted stock units granted to other non-employee directors, the restricted stock units vest in substantially equal installments on each of the first three anniversaries of the date of grant.

Effective in connection with our annual meeting of stockholders in 2012, each non-employee director who has served as director since the preceding year's annual meeting of stockholders will be granted a stock option to purchase 8,000 shares of our common stock with an exercise price equal to the closing trading price of our common stock on the date of grant, which will vest in equal monthly installments over three years, and 4,000 restricted stock units, which will vest in equal annual installments on each anniversary of the date of grant such that the award and will be fully vested on the third anniversary of the date of grant.

Expenses

We reimburse our directors for their travel and related expenses in connection with attending Board and committee meetings, as well as costs and expenses incurred in attending director education programs and other Complete Genomics-related seminars and conferences.

Compensation of Directors

The following table provides information concerning the compensation paid by us to each of our non-employee directors for 2010 board service. Dr. Reid, who is our employee, does not receive additional compensation for his services as director.

| Non-employee Director | Fees Earned or Paid in Cash (\$)(1) | Stock Awards (\$)(2)(3) | Option Awards (\$)(2)(3) | All Other Compensation (\$) | Total (\$) |
|------------------------------|--|--|---|--|-------------------|
| Alexander E. Barkas, Ph.D. | 6,288 | 38,750 | 51,265 | | 96,303 |
| Thomas Caskey, M.D. | 4,192 | 19,375 | 23,030 | | 46,597 |
| Carl L. Gordon, Ph.D., CFA | 4,890 | 38,750 | 51,265 | | 94,905 |
| Andrew Senyei, M.D. | 4,890 | 38,750 | 51,265 | | 94,905 |
| Lewis J. Shuster | 6,288 | 19,375 | 23,030 | | 48,693 |
| Charles P. Waite, Jr. | 5,589 | 38,750 | 51,265 | | 95,604 |
| Robert T. Wall | 6,288 | 19,375 | 56,688 | | 82,351 |

(1) Amounts reflect 14% of the annual retainers as a proration for 2010 to reflect our initial public offering date of November 10, 2010.

(2) Reflects the aggregate grant date fair value options and restricted stock units granted in 2010 calculated in accordance with FASB ASC Topic 718. The assumptions used in the valuation of these awards are set forth in Note 11 to our financial statements, included elsewhere in this prospectus.

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(3) The following table sets forth restricted stock units and stock options outstanding as of December 31, 2010.

| | Number of Shares of Our Common Stock subject to Option Awards | Number of Restricted Stock Units |
|----------------------------|--|---|
| Alexander E. Barkas, Ph.D. | 10,000 | 5,000 |
| Thomas Caskey, M.D. | 12,500 | 2,500 |
| Carl L. Gordon, Ph.D., CFA | 10,000 | 5,000 |
| Andrew Senyei, M.D. | 10,000 | 5,000 |
| Lewis J. Shuster | 12,500 | 2,500 |
| Charles P. Waite, Jr. | 10,000 | 5,000 |
| Robert T. Wall | 12,500 | 2,500 |

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Executive Compensation

Compensation Discussion and Analysis

This section discusses the principles underlying our policies and decisions with respect to the compensation of our executive officers and the most important factors relevant to an analysis of these policies and decisions. These officers, whom we refer to as our named executive officers, consist of Clifford A. Reid, Ph.D., President and Chief Executive Officer, Ajay Bansal, Chief Financial Officer, Bruce Martin, Senior Vice president, Product Development, Mark J. Sutherland, Senior Vice President, Business Development, Radoje Drmanac, Ph.D., Chief Science Officer and Robert J. Curson, Former Chief Financial Officer. We did not have any executive officers other than the named executive officers during 2010.

Objectives and Philosophy Regarding our Executive Compensation

We recognize that the ability of our business to excel depends on the integrity, knowledge, imagination, skill, diversity and teamwork of our employees. To this end, we strive to create an environment of mutual respect, encouragement and teamwork that rewards commitment and performance and that is responsive to the needs of our employees, including our named executive officers. The principles and objectives of our compensation and benefits programs for our named executive officers are to:

- § attract, engage and retain individuals of superior ability, experience and managerial talent to lead our Company;
- § align compensation decisions with our corporate strategies, business and financial objectives and the long-term interests of our stockholders;
- § motivate and reward executives whose knowledge, skills and performance are the foundation for our continued collective success;
- § ensure that the elements of compensation, individually and in the aggregate, do not encourage excessive risk-taking; and
- § ensure that total compensation is fair, reasonable and competitive.

The compensation components described below are designed to simultaneously fulfill one or more of these principles and objectives.

Components of our Executive Compensation

The individual components of our executive compensation consist primarily of:

- § base salary;
- § performance bonuses;
- § equity incentives;
- § post-termination benefits; and

§ various other employee benefits.

We view each of these components as related but distinct, reviewing them each individually, as well as collectively, to ensure that the total compensation paid to our named executive officers meets the objectives as set forth above. Not all elements are provided to all named executive officers. For example, only three of our named executive officers have change in control benefits. Instead, we determine the appropriate level for each compensation component based in part, but not exclusively, on our understanding of the market based on the experience of our compensation committee and consistent with our recruiting and retention goals, our view of internal equity and consistency, the length of service of our named executive officers, our overall performance and other considerations we deem relevant.

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Historically, we have not adopted any formal or informal policies or guidelines for allocating compensation between long-term and currently paid out compensation, between cash and noncash compensation or among different forms of noncash compensation. However, our philosophy is to make a significant percentage of our executive officer compensation tied to stockholder returns and to keep cash compensation to a nominally competitive level while providing the opportunity to be well-rewarded through equity if we perform well over time. To this end, we use stock options as a significant component of compensation because we believe that they best tie an individual's compensation to the creation of stockholder value. While we offer competitive base salaries, we believe stock-based compensation is a significant motivator in attracting employees in our field.

Each of the primary elements of our executive compensation is discussed in more detail below. While we have identified particular compensation objectives that each element of executive compensation serves, our compensation programs are designed to be flexible and complementary and to collectively serve all of the executive compensation objectives described above. Accordingly, whether or not specifically mentioned below, we believe that, as a part of our overall executive compensation policy, each individual element, to a greater or lesser extent, serves each of our objectives.

Compensation Determination Process

Our compensation committee is responsible for recommending executive compensation for all of our named executive officers, and our board of directors will retain primary authority regarding the determination and approval of compensation. The compensation committee also relies on our President and Chief Executive Officer, based on his experience, to provide an evaluation of each named executive officer, other than himself, to the compensation committee. The evaluation is given in light of the Company's performance and focuses on the named executive officer's leadership qualities, operational performance, business responsibilities, career with us, current compensation arrangements and long-term potential to enhance stockholder value.

Our compensation committee in turn reviews the performance of each named executive officer, including our President and Chief Executive Officer. This process generally occurs on an annual basis, though we do not set a predetermined time for such review. The compensation committee begins with a review of the primary aspects of our compensation programs for our named executive officers, including base salaries, performance bonuses and equity incentive targets. As part of this process, the compensation committee directly engaged Radford, an Aon Hewitt Consulting Company, to provide compensation surveys and a general understanding of current compensation practices. In determining the compensation of the named executive officers for 2010, the Company used the 2009 Radford Global Life Sciences Pre-IPO Survey compiled compensation data from global life sciences companies without publicly traded securities that have raised at least \$80 million in invested capital. The survey provided by Radford reported statistics on the total compensation, position and responsibilities of executives. While our compensation committee reviewed the statistical compensation data, the surveys did not include, nor was our compensation committee aware of, the identity of any of the surveyed companies. As a result, our compensation committee did not benchmark executive compensation against any single company or an identifiable select group of companies.

Changes to Named Executive Officers

In March 2010, we hired Mark Sutherland as our Senior Vice President, Business Development. Mr. Sutherland's annual base salary is \$250,000, which was established following arms length negotiations but in light of other senior executive base salaries and which our Compensation Committee determined to be below the 25 percentile of executives in similar positions in companies included in the compensation surveys we reviewed. For 2010, Mr. Sutherland was also eligible for a target performance bonus of up to \$70,000 based on our Compensation Committee's subjective assessment of the Company's progress towards its commercial milestones and his contributions to the development of the Company's strategy and staffing of the commercial organization.

In March 2010, Bruce Martin was promoted to Senior Vice President, Product Development. In connection with his promotion, Mr. Martin's annual base salary was increased to \$250,000 to be consistent with other senior executive base salaries we determined that to be below the 25 percentile of executives in similar positions in

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companies included in the compensation surveys we reviewed. For 2010, Mr. Martin was also eligible for a target performance bonus of up to \$70,000 based on our Compensation Committee's subjective assessment of the Company's progress towards its production and development milestones and his contributions to the development of the Company's strategy and staffing of the production and development organizations.

In May 2010, Robert J. Curson assumed the position of Vice President of Financial Operations. His expertise was needed in this role as we were beginning our commercial operations. No adjustments were made to his compensation.

In May 2010, we hired Ajay Bansal as our Chief Financial Officer replacing Robert J. Curson. Mr. Bansal's annual base salary is \$250,000, which was established following arms length negotiations but in light of other senior executive base salaries and which our Compensation Committee determined to be below the 25 percentile of executives in similar positions in companies included in the compensation surveys we reviewed. Mr. Bansal also received a \$20,000 signing bonus in connection with his hiring. For 2010, Mr. Bansal was also eligible for a target performance bonus of up to \$70,000 based on our Compensation Committee's subjective assessment of our Series E Preferred Stock financing, our initial public offering, and his contributions to the development of the Company's strategy and staffing of the finance organization.

Base Salaries

In general, base salaries for our executive officers are initially established through arm's-length negotiation at the time the executive is hired, taking into account such executive's qualifications, experience and prior salary. Our compensation committee has responsibility for conducting reviews of the base salaries of our named executive officers and making adjustments based on the scope of the executive's responsibilities, individual contribution, prior experience, sustained performance and internal pay equity among named executive officers. Decisions regarding salary increases may take into account the named executive officer's current salary and equity ownership. In making decisions regarding salary increases, we may also draw upon the experience of members of our board of directors or compensation committee with other companies and may also consider internal equity. Base salaries are also reviewed in the case of significant changes in responsibility. No formulaic base salary increases are provided to our named executive officers. This strategy is consistent with our intent of offering compensation that is cost-effective, competitive and linked to performance.

In March 2010, our Compensation Committee reviewed the 2009 Radford Global Life Sciences Pre-IPO Survey provided by Radford which indicated that our named executive officers received base salaries at levels below the 25 percentile of executives in similar positions at the companies included in this survey.

In March 2010, in connection with his promotion to Senior Vice President, Product Development, Mr. Martin base salary was increased from \$200,000 to \$250,000. Our compensation committee determined that the base salary increase was appropriate in light of Mr. Martin's experience, his increased responsibilities and the base salaries paid to our other named executive officers. None of our other named executive officers received a base salary increase in 2010.

For 2010, the base salaries of our named executive officers were as follows:

| | 2010 Base Salary |
|-----------------------------------|-------------------------|
| Clifford A. Reid, Ph.D. | \$ 320,000 |
| Ajay Bansal ⁽¹⁾ | \$ 250,000 |
| Bruce Martin | \$ 250,000 |
| Mark J. Sutherland ⁽²⁾ | \$ 250,000 |
| Radoje Drmanac, Ph.D. | \$ 250,000 |
| R. John Curson | \$ 230,000 |

(1) Mr. Bansal's employment with us commenced on May 10, 2010.

(2) Mr. Sutherland's employment with us commenced on March 22, 2010.

Table of Contents**Performance Bonuses**

Historically, our named executive officers have not participated in a performance bonus program. Instead, we have relied on stock option grants to provide performance-based incentives to our named executive officers.

In November 2009, upon the recommendation of our compensation committee following its review of all aspects of our executive compensation program, our board of directors approved a target performance bonus amount for each of our named executive officers serving as executive officers at that time. For 2010, the annual target amount for Dr. Reid, Dr. Drmanac and Mr. Curson was \$100,000, \$70,000 and \$70,000, respectively. Our compensation committee recommended the level of the target bonus amounts based on its review of the Radford 2009 compensation survey and based on the experience of the members of the compensation committee with similar bonus programs.

In March 2010, our compensation committee established target performance bonus amount equal to \$70,000 for each of Messrs. Sutherland and Martin in connection with Mr. Sutherland's hiring and Mr. Martin's promotion. The level of target performance bonus was determined following our compensation committee's review of the Radford surveys and in light of the target performance bonus amounts of other named executive officers. Each performance bonus was discretionary and the amount of such bonus was to be based on our compensation committee's subjective assessment of, with respect to Mr. Sutherland, our company's progress towards its commercial milestones and his contributions to the development of company's strategy and staffing of the commercial organization and, with respect to Mr. Martin, our company's progress towards its production and development milestones and his contributions to the development of company's strategy and staffing of the production and development organizations.

In May 2010, our compensation committee established a target performance bonus amount equal to \$70,000 for Mr. Bansal in connection with his hiring. The level of target performance bonus was determined following our compensation committee's review of the Radford surveys and in light of the target performance bonus amounts of other named executive officers. The performance bonus was discretionary and the amount of such bonus was to be based on our compensation committee's subjective assessment of our Series E Preferred Stock financing, our initial public offering, and his contributions to the development of company's strategy and staffing of the finance organization.

In March 2010, Dr. Reid, Dr. Drmanac and Mr. Curson each agreed to forgo these target bonus amounts and instead receive cash payments to offset taxes in connection with the stock grants described under "Long-Term Equity Incentives" below.

In March 2011, upon the compensation committee's recommendation, our board of directors approved the payment of performance bonuses as follows:

| | 2010 | Percent of Target Performance Bonus Amount |
|--------------------|--------------------------|---|
| | Performance Bonus | |
| Ajay Bansal | \$ 70,000 | 100% |
| Bruce Martin | \$ 70,000 | 100% |
| Mark J. Sutherland | \$ 28,000 | 40% |

Mr. Bansal received 100% of his target performance bonus amount based on our compensation committee's and our board of directors' subjective assessment of his performance in guiding our company through the successful completion of our Series E Preferred Stock financing and our initial public offering and his contributions to the development of company's strategy and staffing of the finance organization.

Mr. Martin received 100% of his target performance bonus amount based on our compensation committee's and our board of directors' subjective assessment of his performance and the successful transition to commercial operations in 2010 and his contributions to the development of company's strategy and staffing of the production and development organizations.

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Mr. Sutherland received 40% of his target performance bonus amount based on our compensation committee's and our board of directors' subjective assessment that only partial progress was made regarding our commercial milestones including the number of genomes sequenced in 2010. Additionally, only partial progress was made in building and staffing the commercial organization.

Long-Term Equity Incentives

The goal of our long-term, equity-based incentive awards is to align the interests of our named executive officers with the interests of our stockholders by focusing our executives on long-term stock performance. In addition, because vesting is based on continued employment, our equity-based incentives also encourage the retention of our named executive officers through the vesting period of the awards.

Our compensation committee oversees our long-term equity incentive program and our board of directors approves all equity grants to our named executive officers. In determining the number of shares of our common stock to be subject to long-term equity incentives awarded to our named executive officers, our compensation committee has taken into account a number of internal factors, such as the relative job scope, the value of existing long-term incentive awards, individual performance history, prior contributions to us and the size of prior grants. Based on these factors, our compensation committee determines the size of the long-term equity incentives at levels it considers appropriate to create a meaningful opportunity for reward based on the creation of long-term stockholder value.

We use stock options to compensate our named executive officers both in the form of initial grants in connection with the commencement of employment and periodic grants aimed at both rewarding exceptional performance and continuing to incentivize our named executive officers. To date, there has been no set program for the award of these periodic grants, and our compensation committee has used its discretion to make stock option awards to employees at any time, including in connection with the promotion of an employee, to reward an employee, for retention purposes or in other circumstances. Going forward, our compensation committee expects to adopt a more regular process for determining and awarding stock grants to all employees.

The exercise price of each stock option grant is the fair market value of our common stock on the grant date, as determined by our board of directors prior to our initial public offering and using the closing trading price of our common stock on the date of grant following our initial public offering. Initial stock options granted to our named executive officers typically vest over a four-year period as follows:

§ 25% of the shares underlying the option vest on the first anniversary of the date of the vesting commencement date, which is typically the date of hire; and

§ the remainder of the shares underlying the option vest in equal monthly installments over the next 36 months.

Our periodic grants will typically vest in equal monthly installments over four years from the date of grant. On occasion, the vesting schedules will be altered as part of the incentive process. We believe these vesting schedules appropriately encourage long-term employment with our Company while allowing our executives to realize compensation in line with the value they have created for our stockholders.

In February 2010, our board of directors approved additional equity grants to our named executive officers serving as executive officers at that time to partially offset the dilutive effect of our Series D preferred stock financing. Dr. Reid, Dr. Drmanac and Mr. Curson were granted options to purchase 341,667, 218,501 and 59,001 shares of our common stock, respectively, for a per share exercise price equal to \$1.50, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. These stock options vest with respect to 1/48 of the total number of shares subject to the options on each monthly anniversary of August 12, 2009. In addition, in March 2010, Dr. Reid, Dr. Drmanac and Mr. Curson received 285,867, 395,333 and 105,333 fully vested shares of our common stock, respectively, to partially offset the dilutive effect of the Series D preferred stock financing. Our board of directors also approved cash payments to Dr. Reid,

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Dr. Drmanac and Mr. Curson in the amounts of \$361,615, \$500,087 and \$133,244, respectively, to reimburse the incremental taxes incurred by our named executive officers in connection with the stock grants and the cash payments.

As a result of our board of directors' assessment of the fair market value of our common stock following the Series D preferred stock financing, our board of directors approved a stock option modification in January 2010. The exercise price of all outstanding stock options granted before January 28, 2010 that were held by then-current employees and consultants and had a per share exercise price greater than \$1.50 per share were modified to decrease the exercise price to \$1.50 per share, which our board of directors determined to be the fair market value of our common stock on January 28, 2010. Other than a reduced exercise price, the terms and conditions of the stock options remained the same. Our board of directors determined that the modification was appropriate in light of the significant decrease in the fair market value of our common stock.

In January 2010, our board of directors granted Mr. Martin an option to purchase 4,333 shares of our common stock for a per share exercise price equal to \$1.50, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. These options vested 25% in January 2011 and the remainder of the shares underlying the option vest in equal monthly installments over the next 36 months.

In March 2010, in connection with his commencement of employment with us, our board of directors granted Mr. Sutherland an option to purchase 128,000 shares of our common stock for a per share exercise price equal to \$1.50, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. These options vested 25% in March 2011 and the remainder of the shares underlying the option vest in equal monthly installments over the next 36 months. The number of shares subject to Mr. Sutherland's option was determined by the internal benchmark of 0.8% of total shares outstanding at the time of grant.

In July 2010, in connection with his commencement of employment with us, our board of directors granted Mr. Bansal an option to purchase 128,000 shares of our common stock for a per share exercise price equal to \$2.69, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. These options vest 25% in May 2011 and the remainder of the shares underlying the option vest in equal monthly installments over the next 36 months. The size of Mr. Bansal's grant was determined after our compensation committee's and our board of directors' review of the Radford survey and in light of Mr. Sutherland's new hire grant.

In July 2010, in connection with his promotion that occurred in March 2010, our board of directors granted Mr. Martin an option to purchase 42,922 shares of our common stock for a per share exercise price equal to \$2.69, which our board of directors determined to be the per share fair market value of our common stock on the date of grant. These options vest 25% in July 2011 and the remainder of the shares underlying the option vest in equal monthly installments over the next 36 months.

After our initial public offering in November 2010, our board of directors adopted a formal policy regarding the timing of stock option grants. Stock option grants cannot be made at times coinciding with the release of material non-public information.

Severance Arrangements

Our compensation committee has provided post-termination severance benefits to some of our named executive officers, as it determined that such benefits were necessary to retain such named executive officers. Our termination benefits are intended and designed to partially alleviate the financial impact of an involuntary termination and maintain a stable work environment. In determining the severance benefits to be payable pursuant to the agreements entered into with our named executive officers, we relied on the experience of the members of our compensation committee to determine the level of severance benefits sufficient to retain our named executive officers. The severance payments and benefits payable to our named executive officers pursuant to their respective severance agreements, are further described in Executive Compensation Severance Arrangements below.

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Under our equity incentive plans, if outstanding stock options are not assumed or otherwise substituted for in the change in control of our company, then the vesting of all outstanding stock options is fully accelerated as of immediately prior to the change in control.

Employee Benefits

We provide standard employee benefits to our full-time employees in the United States, including our named executive officers, including health, disability and life insurance and a 401(k) plan, as a means of attracting and retaining our employees.

Tax Considerations

Section 162(m) of the Internal Revenue Code of 1986, as amended, or the Code, generally disallows a tax deduction for compensation in excess of \$1.0 million paid to our named executive officers, other than our Chief Financial Officer. Qualifying performance-based compensation is not subject to the deduction limitation if specified requirements are met. We generally intend to structure the performance-based portion of our executive compensation, when feasible, to comply with exemptions in Section 162(m) so that the compensation remains tax deductible to us. However, our board of directors may, in its judgment, authorize compensation payments that do not comply with the exemptions in Section 162(m) when it believes that such payments are appropriate to attract and retain executive talent.

Summary Compensation Table

The following table sets forth certain information regarding the compensation for services performed during the years ended December 2010 and 2009 awarded to, paid to or earned by our named executive officers, or NEO s.

| Name and Principal Position | Year | Salary | Bonus (\$) | Stock | Option | Non-Equity | All Other | Total |
|--|------|---------|---------------|-------------------------------|-------------------------------|------------------------------|------------------------|-----------|
| | | (\$) | | Awards (\$) ⁽¹⁾ | Awards (\$) ⁽¹⁾ | Plan Compensation (\$) | Compensation (\$) | (\$) |
| Clifford A. Reid, Ph.D. <i>President and Chief Executive Officer</i> | 2010 | 320,000 | | 668,929 | 580,740 | | 367,465 ⁽²⁾ | 1,937,134 |
| | 2009 | 215,783 | | | 96,711 | | 5,400 | 317,894 |
| Ajay Bansal ⁽³⁾ | 2010 | 153,291 | 20,000 | | 230,493 | 70,000 | 1,500 ⁽⁴⁾ | 475,284 |
| Bruce Martin <i>Chief Financial Officer</i> | 2010 | 227,604 | | | 80,120 | 70,000 | 5,550 ⁽⁴⁾ | 383,274 |
| Mark J. Sutherland ⁽⁵⁾ <i>Senior Vice President of Product Development</i> | 2010 | 184,253 | | | 228,925 | 28,000 | 3,975 ⁽⁴⁾ | 445,153 |
| Radoje Drmanac, Ph.D. <i>Senior Vice President of Business Development</i> | 2010 | 239,582 | | 925,079 | 371,392 | | 505,637 ⁽⁶⁾ | 2,041,690 |
| R. John Curson <i>Chief Scientific Officer</i> | 2010 | 220,416 | | 246,479 | 100,285 | | 138,794 ⁽⁷⁾ | 705,974 |
| | 2009 | 171,496 | | | 96,005 | | 5,400 | 272,901 |

(1)

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Reflects the aggregate grant date fair value dollar of awards and options granted during the applicable year and incremental fair value of options modified during the applicable year, in each case, as calculated in accordance with FASB ASC Topic 718. The assumptions used in the valuation of these awards are set forth in Note 11 to our financial statements included elsewhere in this prospectus.

- (2) *Includes \$361,615 paid to Dr. Reid to reimburse the taxes incurred in connection with Dr. Reid's February 2010 stock grant and the taxes incurred in connection with such reimbursement as further described in Compensation Discussion and Analysis Long-Term Equity Incentives above and \$5,850 in a benefit supplement to cover the cost of general health care expenses.*

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- (3) Mr. Bansal's employment with us commenced on May 10, 2010.
- (4) Benefit supplement to cover the cost of general health care expenses.
- (5) Mr. Sutherland's employment with us commenced on March 22, 2010.
- (6) Includes \$500,087 paid to Dr. Drmanac to reimburse the taxes incurred in connection with Dr. Drmanac's February 2010 stock grant and the taxes incurred in connection with such reimbursement as further described in Compensation Discussion and Analysis Long-Term Equity Incentives and \$5,550 in a benefit supplement to cover the cost of general health care expenses.
- (7) Includes \$133,244 paid to Mr. Curson to reimburse the taxes incurred in connection with Mr. Curson's February 2010 stock grant and the taxes incurred in connection with such reimbursement as further described in Compensation Discussion and Analysis Long-Term Equity Incentives and \$5,550 in a benefit supplement to cover the cost of general health care expenses.

Grants of Plan-Based Awards For 2010

| Name | Grant Date | Estimated Future Payouts Under Non-Equity Incentive Plan Awards Target (\$) ⁽¹⁾ | All Other Stock Awards: Number of Shares of Stock or Units (#) | Option Awards | | |
|-------------------------|--------------------------|--|--|--|--|--|
| | | | | All Other Option Awards; Number of Securities Underlying Options (#) | Exercise or Base Price of Option Awards (\$/Share) | Grant Date Fair Value of Stock and Option Awards (\$) ⁽²⁾ |
| Clifford A. Reid, Ph.D. | 3/10/2010 | 100,000 | 285,867 | 341,667 | 1.50 | 668,929 |
| | 2/24/2010 ⁽³⁾ | | | | | 580,740 |
| Ajay Bansal | 7/16/2010 ⁽⁴⁾ | 70,000 | | 128,000 | 2.69 | 230,493 |
| | | | | | | |
| Bruce Martin | 1/28/2010 ⁽⁵⁾ | 70,000 | | 4,333 | 1.50 | 2,829 |
| | 7/16/2010 ⁽⁶⁾ | | | | | 77,291 |
| Mark J. Sutherland | 3/22/2010 ⁽⁷⁾ | 70,000 | | 128,000 | 1.50 | 228,925 |
| | | | | | | |
| Radoje Drmanac, Ph.D. | 3/10/2010 | 70,000 | 395,333 | 218,501 | 1.50 | 925,079 |
| | 2/24/2010 ⁽³⁾ | | | | | 371,392 |
| R. John Curson | 3/10/2010 | 70,000 | 105,333 | 59,001 | 1.50 | 246,479 |
| | 2/24/2010 ⁽³⁾ | | | | | 100,285 |

- (1) Represents the target amount payable under our performance bonus plan. Our performance bonus plan does not include a maximum or threshold amount.
- (2) Reflects the aggregate grant date fair value of options granted during 2010 and incremental fair value of options modified during 2010, in each case, as calculated in accordance with FASB ASC Topic 718. The assumptions used in the valuation of these awards are set forth in Note 11 to our financial statements included elsewhere in this prospectus.
- (3) This award vests over a four-year period in equal monthly installments following the vesting commencement date, August 12, 2009.
- (4) This award vests over a four-year period with 25% of the shares vesting one year after the vesting commencement date and 1/48 of the shares vesting on a monthly basis thereafter; the vesting commencement date is May 10, 2010.
- (5) The original grant date of this stock option was September 21, 2007. The exercise price of this stock option was reduced from \$16.50 per share to \$1.50 per share on January 28, 2010 based on a modification approved by the board of directors. This award vests over a four-year period with 25% of the shares vesting one year after the vesting commencement date and 1/48 of the shares vesting on a monthly basis thereafter; the vesting commencement date is May 17, 2007.
- (6) This award vests over a four-year period with 25% of the shares vesting one year after the vesting commencement date and 1/48 of the shares vesting on a monthly basis thereafter; the vesting commencement date is March 29, 2010.
- (7) This award vests over a four-year period with 25% of the shares vesting one year after the vesting commencement date and 1/48 of the shares vesting on a monthly basis thereafter; the vesting commencement date is March 22, 2010.

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We do not currently have employment agreements or offer letter agreements with Dr. Reid, Dr. Drmanac and Mr. Curson. The Company entered into offer letter agreements with each of Mr. Bansal, Mr. Martin and Mr. Sutherland. The terms of each of the respective offer letters specify such officer's salary, target bonus and stock option grants.

Equity Compensation

As described under "Compensation Discussion and Analysis" above, the compensation committee approved equity compensation awards in the form of stock options and restricted stock to each Drs. Reid and Drmanac and Mr. Curson in February 2010. In connection, with joining the Company each of Mr. Bansal and Mr. Sutherland were granted stock options in as specified in their offer letters. Mr. Martin received a stock option grant in connection with his promotion. For more information regarding the equity compensation awards and our equity award practices, please see the section titled "Compensation Discussion and Analysis - Long-Term Equity Incentives." In addition, the named executive officers' equity compensation awards may, under certain circumstances, be subject to accelerated vesting in the event that a named executive officer is terminated or in the event of a change of control. For more information regarding the accelerated vesting provisions and treatment of the equity compensation awards in the event a named executive officer is terminated or a change of control of the company, see the sections titled "Severance Arrangements" and "Potential Payments upon Termination and/or a Change of Control" below.

Other Benefits

For a description of the other elements of our executive compensation program, see the section titled "Compensation Discussion and Analysis - Employee Benefits."

Outstanding Equity Awards at December 31, 2010

The following table sets forth information regarding outstanding equity awards as of December 31, 2010 for each NEO. All vesting is contingent upon continued employment with Complete Genomics.

| Name | Option Awards ⁽¹⁾ | | | |
|-------------------------|------------------------------------|---|--|----------------------------|
| | Number of Securities | Underlying Securities Unexercised Options (#) | Number of Securities Unexercised Options (#) | Option Exercise Price (\$) |
| | Underlying Unexercised Options (#) | | | |
| Clifford A. Reid, Ph.D. | 1,287 ⁽²⁾ | 1,803 | 1.50 | 11/12/2019 |
| | 66,666 ⁽³⁾⁽⁴⁾ | | 1.50 | 12/27/2019 |
| | 113,889 ⁽³⁾ | 227,778 | 1.50 | 02/23/2020 |
| Ajay Bansal | ⁽⁵⁾ | 128,000 | 2.69 | 07/15/2020 |
| Bruce Martin | 541 ⁽⁶⁾ | 452 | 1.50 | 09/20/2017 |
| | 321 ⁽²⁾ | 1,503 | 1.50 | 11/12/2019 |
| | 4,721 ⁽⁷⁾ | 3,934 | 1.50 | 11/12/2019 |
| | 14,326 ⁽⁸⁾ | 28,654 | 1.50 | 11/12/2019 |
| | ⁽⁹⁾ | 42,922 | 2.69 | 07/15/2020 |
| Mark J. Sutherland | ⁽¹⁰⁾ | 128,000 | 1.50 | 03/21/2020 |

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| | | | | |
|-----------------------|--------------------------|---------|------|------------|
| Radoje Drmanac, Ph.D. | 1,193 ⁽²⁾ | 1,671 | 1.50 | 11/12/2019 |
| | 66,666 ⁽³⁾⁽⁴⁾ | | 1.50 | 12/27/2019 |
| | 72,833 ⁽³⁾ | 145,668 | 1.50 | 02/23/2020 |
| R. John Curson | 1,045 ⁽²⁾ | 1,465 | 1.50 | 11/12/2019 |
| | 66,666 ⁽³⁾⁽⁴⁾ | | 1.50 | 12/27/2019 |
| | 19,667 ⁽³⁾ | 39,334 | 1.50 | 02/23/2020 |

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- (1) Each stock option was granted pursuant to our 2006 Equity Incentive Plan. The stock options were granted prior to the consummation of the Company's initial public offering on November 16, 2010. The exercise price of the stock options reflect the fair market value of the Company's common stock at the date of grant based on the board of directors' contemporaneous valuations of the Company's common stock.
- (2) This award vests over a four-year period in equal monthly installments following April 1, 2009.
- (3) This award vests over a four-year period in equal monthly installments following August 12, 2009.
- (4) This award has an early exercise provision.
- (5) This award vests over a four-year period with 25% of the shares vesting on May 10, 2011 and 1/48 of the shares vesting on a monthly basis thereafter.
- (6) This award vests over a four-year period with 25% of the shares vesting on May 17, 2008 and 1/48 of the shares vesting on a monthly basis thereafter. The exercise price of this stock option was reduced from \$16.50 per share to \$1.50 per share on January 28, 2010 based on a modification approved by the board of directors.
- (7) This award vests over a four-year period with 25% of the shares vesting on May 17, 2008 and 1/48 of the shares vesting on a monthly basis thereafter.
- (8) This award vests over a four-year period with 25% of the shares vesting on August 12, 2010 and 1/48 of the shares vesting on a monthly basis thereafter.
- (9) This award vests over a four-year period with 25% of the shares vesting on March 29, 2011 and 1/48 of the shares vesting on a monthly basis thereafter.
- (10) This award vests over a four-year period with 25% of the shares vesting on March 22, 2011 and 1/48 of the shares vesting on a monthly basis thereafter.

Option Exercises and Stock Vested in 2010

| Name | Option Awards | | Stock Awards | |
|-------------------------|---|---------------------------------|---|---|
| | Number of Shares Acquired on Exercise (#) | Value Realized on Exercise (\$) | Number of Shares Acquired on Vesting (\$) | Value Realized on Vesting (\$) ⁽¹⁾ |
| Clifford A. Reid, Ph.D. | | | 285,867 | 428,801 |
| Bruce Martin | 751 | 1,825 | | |
| | 29,110 | 70,737 | | |
| | 3,340 | 8,116 | | |
| Radoje Drmanac, Ph.D. | | | 395,333 | 593,000 |
| R. John Curson | | | 105,333 | 158,000 |

- (1) Value realized upon vesting represents the fair market value of the shares of our common stock subject to the fully vested stock award granted in February 2010, as determined by our board of directors.

Pension Benefits

We do not maintain any defined benefit pension plans.

Nonqualified Deferred Compensation

We do not maintain any nonqualified deferred compensation plans.

Change of Control and Termination**Severance Arrangements**

In March 2006, we entered into severance arrangements with each of Dr. Reid, Dr. Drmanac and Mr. Curson. These arrangements set forth the terms of each named executive officer's severance in the event of his termination of employment under specified circumstances. Under the arrangements, if a covered named executive officer's employment is terminated at any time without cause or he experiences a constructive termination (as each term is defined in his severance agreement), the Company will provide continuation of his base salary for six months

following the termination date, as well as six months vesting acceleration for stock options and restricted stock. In addition, severance benefits would include reimbursement for group health

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continuation coverage premiums for each named executive officer and his eligible dependents under the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended for six months.

Notwithstanding the foregoing, if such termination occurs within 12 months following a change-in-control, all stock options, restricted stock and other equity awards outstanding automatically vest in full and become fully exercisable. A covered named executive officer must provide a general release of claims against our Company in order to be eligible for any severance payments.

Potential Payments upon Termination and/or a Change of Control

The following table illustrates the potential payments to each of our named executive officers in connection with:

- § the Officer's termination without cause outside the context of a change-in-control of the Company, assuming such termination occurred on December 31, 2010;
- § the Officer's termination without cause, or constructive termination, within 12 months following a change-in-control of the Company, assuming such termination in connection with a change-in-control of the Company occurred on December 31, 2010 and his options were assumed or substituted by the acquiring entity; and
- § the acceleration of the Officer's equity awards in connection with a change-in-control of the Company, where the potential acquiring entity does not assume or substitute the options held by the Officer and the Officer's employment is continued with the Company and/or the acquiring entity, assuming such change-in-control occurred on December 31, 2010.

| Name | Type of Benefit | Potential payments in connection with: | | |
|-----------------------------------|---------------------------|---|--|---|
| | | Termination without Cause or Constructive Termination | Termination Without Cause or a Constructive Termination Within 12 Months Following a Change-in-Control | Equity Awards are not Assumed or Substituted in Connection with a Change-in-Control |
| Clifford A. Reid, Ph.D. | Salary | \$ 160,000 ⁽¹⁾ | \$ 160,000 ⁽¹⁾ | \$ |
| | Benefits | 8,976 ⁽²⁾ | 8,976 ⁽²⁾ | |
| | Equity Award Acceleration | 817,965 ⁽³⁾ | 1,635,929 ⁽⁴⁾ | 1,635,929 ⁽⁴⁾ |
| | Total | 986,941 | 1,804,905 | 1,635,929 |
| Ajay Bansal ⁽⁵⁾ | Salary | | | |
| | Benefits | | | |
| | Equity Award Acceleration | | 611,840 ⁽⁴⁾ | 611,840 ⁽⁴⁾ |
| Total | | 611,840 | 611,840 | |
| Bruce Martin ⁽⁵⁾ | Salary | | | |
| | Benefits | | | |
| | Equity Award Acceleration | | | 411,389 ⁽⁴⁾ |
| Total | | | 411,389 | |
| Mark J. Sutherland ⁽⁵⁾ | Salary | | | |
| | Benefits | | | |
| | Equity Award Acceleration | | | 764,160 ⁽⁴⁾ |

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| | | | | |
|-----------------------|---------------------------|------------------------|--------------------------|--------------------------|
| | Total | | | 764,160 |
| Radoje Drmanac, Ph.D. | Salary | 125,000 ⁽¹⁾ | 125,000 ⁽¹⁾ | |
| | Benefits | 7,470 ⁽²⁾ | 7,470 ⁽²⁾ | |
| | Equity Award Acceleration | 572,472 ⁽³⁾ | 1,144,945 ⁽⁴⁾ | 1,144,945 ⁽⁴⁾ |
| | Total | 704,942 | 1,277,415 | 1,144,945 |
| R. John Curson | Salary | 115,000 ⁽¹⁾ | 115,000 ⁽¹⁾ | |
| | Benefits | 1,163 ⁽²⁾ | 1,163 ⁽²⁾ | |
| | Equity Award Acceleration | 254,450 ⁽³⁾ | 508,901 ⁽⁴⁾ | 508,901 ⁽⁴⁾ |
| | Total | 370,613 | 625,064 | 508,901 |

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- (1) Represents six months of base salary.
- (2) Represents six months of health care benefits.
- (3) Represents the value of six months of vesting acceleration of unvested option awards, calculated based upon the closing market price per share of our common stock as reported on NASDAQ on December 31, 2010 minus the exercise price.
- (4) Represents the value of the vesting acceleration of 100% of unvested option awards, calculated based upon the closing market price per share of our common stock as reported on NASDAQ on December 31, 2010 minus the exercise price.
- (5) Executive is not party to a severance agreement.

Risk Analysis of Our Compensation Plans

The compensation committee has reviewed our compensation policies generally applicable to our employees and believes that our policies do not encourage excessive and unnecessary risk-taking, and that the level of risk that they do encourage is not reasonably likely to have a material adverse effect on us. Our compensation policies and programs are designed to encourage our employees to remain focused on both the short- and long-term goals of us. For example, while our cash bonus plans are intended to measure performance on an annual basis, our equity awards typically vest over a number of years, which we believe encourages our employees to focus on sustained stockholder appreciation and limits the potential value of excessive risk-taking. The committee believes that the mix of long-term equity incentive, short-term cash incentive bonus and base salary appropriately balances both the short- and long-term performance goals of us without encouraging excessive risk-related behavior. While the compensation committee regularly evaluates its compensation programs, the committee believes that its current balance of incentives both adequately compensates its employees and does not promote excessive risk taking.

Confidentiality Information, Secrecy and Invention Agreements

Each of our named executive officers has entered into a standard form agreement with respect to confidential information, secrecy and inventions. Among other things, these agreements obligate each named executive officer to refrain from disclosing any of our proprietary information received during the course of employment and, with some exceptions, to assign to us any inventions conceived or developed during the course of employment.

Employee Benefit and Stock Plans

2010 Equity Incentive Award Plan

In September 2010, our board of directors adopted, and, in October 2010, our stockholders approved, the 2010 Equity Incentive Award Plan, or the 2010 Plan, which became effective in November 2010 in connection with our initial public offering. The principal purpose of the 2010 Plan is to attract, retain and motivate selected employees, consultants and directors through the granting of stock-based compensation awards and cash-based performance bonus awards. The 2010 Plan is also designed to permit us to make cash-based awards and equity-based awards intended to qualify as performance-based compensation under Section 162(m) of the Internal Revenue Code of 1986, as amended, or the Code. The principal features of the 2010 Plan are summarized below. This summary is qualified in its entirety by reference to the text of the 2010 Plan, which is filed as an exhibit to the registration statement of which this prospectus is a part.

Share Reserve. Under the 2010 Plan, 2,450,000 shares of our common stock were initially reserved for issuance pursuant to a variety of stock-based compensation awards, including stock options, stock appreciation rights, or SARs, restricted stock awards, restricted stock unit awards, deferred stock awards, dividend equivalent awards, stock payment awards and performance awards and other stock-based awards, plus the 655,394 shares that remained available for awards under our 2006 Equity Incentive Plan at the completion of our initial public offering. The number of shares initially reserved for issuance or transfer pursuant to awards under the 2010 Plan will be increased by (i) the number of shares represented by awards outstanding under our 2006 Equity Incentive Plan that are forfeited or lapse unexercised and which, following the effective date of the 2010 Plan, and (ii) an annual increase on the first day of each fiscal year, beginning in 2011 and ending in 2020, equal to the least of:

§ 7,000,000 shares;

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§ 4% of the shares of our common stock outstanding on the last day of the immediately preceding fiscal year; and

§ such smaller number of shares of stock as determined by our board of directors.
Up to the aggregate share reserve may be issued upon the exercise of incentive stock options.

The following counting provisions will be in effect for the share reserve under the 2010 Plan:

§ to the extent that an award terminates, expires or lapses for any reason or an award is settled in cash without the delivery of shares, any shares subject to the award at such time will be available for future grants under the 2010 Plan;

§ to the extent shares are tendered or withheld to satisfy the grant, exercise price or tax withholding obligation with respect to any award under the 2010 Plan, such tendered or withheld shares will be available for future grants under the 2010 Plan;

§ to the extent that shares of our common stock granted under the 2010 Plan are repurchased by, and returned to, us prior to vesting, such shares will be available for future grants under the 2010 Plan;

§ the payment of dividend equivalents in cash in conjunction with any outstanding awards will not be counted against the shares available for issuance under the 2010 Plan; and

§ to the extent permitted by applicable law or any exchange rule, shares issued in assumption of, or in substitution for, any outstanding awards of any entity acquired in any form of combination by us or any of our subsidiaries will not be counted against the shares available for issuance under the 2010 Plan.

Administration. The compensation committee of our board of directors will administer the 2010 Plan unless our board of directors assumes authority for administration. The compensation committee must consist of at least two members of our board of directors, each of whom is intended to qualify as an outside director, within the meaning of Section 162(m) of the Code, a non-employee director for purposes of Rule 16b-3 under the Exchange Act and an independent director within the meaning of the rules of The NASDAQ Global Market, or other principal securities market on which shares of our common stock are traded. The 2010 Plan provides that the compensation committee may delegate its authority to grant awards to employees other than executive officers and certain senior executives of the company to a committee consisting of one or more members of our board of directors or one or more of our officers.

Subject to the terms and conditions of the 2010 Plan, the administrator has the authority to select the persons to whom awards are to be made, to determine the number of shares to be subject to awards and the terms and conditions of awards, and to make all other determinations and to take all other actions necessary or advisable for the administration of the 2010 Plan. The administrator is also authorized to adopt, amend or rescind rules relating to administration of the 2010 Plan. Our board of directors may at any time remove the compensation committee as the administrator and re-vest in itself the authority to administer the 2010 Plan. The full board of directors will administer the 2010 Plan with respect to awards to non-employee directors.

Eligibility. Options, SARs, restricted stock and all other stock-based and cash-based awards under the 2010 Plan may be granted to individuals who are then our officers, employees or consultants or are the officers, employees or consultants of certain of our subsidiaries. Such awards also may be granted to our directors. Only employees of us or certain of our subsidiaries may be granted incentive stock options, or ISOs.

Awards. The 2010 Plan provides that the administrator may grant or issue stock options, SARs, restricted stock, restricted stock units, deferred stock, dividend equivalents, performance awards, stock payments and other stock-based and cash-based awards, or any combination thereof. Each award will be set forth in a separate agreement with the person receiving the award and will indicate the type, terms and conditions of the award.

§ *Nonqualified Stock Options*, or NQSOs, will provide for the right to purchase shares of our common stock at a specified price, which may not be less than fair market value on the date of grant, and usually will become exercisable (at the discretion of the administrator) in one or more installments after the grant date, subject to the participant's continued employment or service with us and/or subject to the

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satisfaction of corporate performance targets and individual performance targets established by the administrator. NQSOs may be granted for any term specified by the administrator that does not exceed ten years.

- § ***Incentive Stock Options***, or ISOs, will be designed in a manner intended to comply with the provisions of Section 422 of the Code and will be subject to specified restrictions contained in the Code. Among such restrictions, ISOs must have an exercise price of not less than the fair market value per share of common stock on the date of grant, may only be granted to employees and must not be exercisable after a period of ten years measured from the date of grant. In the case of an ISO granted to an individual who owns (or is deemed to own) at least 10% of the total combined voting power of all classes of our capital stock, the 2010 Plan provides that the exercise price must be at least 110% of the fair market value per share of common stock on the date of grant and the ISO must not be exercisable after a period of five years measured from the date of grant.
- § ***Restricted Stock*** may be granted to any eligible individual and made subject to such restrictions as may be determined by the administrator. Restricted stock, typically, may be forfeited for no consideration or repurchased by us at the original purchase price if the conditions or restrictions on vesting are not met. In general, restricted stock may not be sold or otherwise transferred until the restrictions are removed or expire. Purchasers of restricted stock, unlike recipients of options, will have voting rights and will have the right to receive dividends, if any, prior to the time when the restrictions lapse. However, extraordinary dividends will generally be placed in escrow, and will not be released until the restrictions are removed or expire.
- § ***Restricted Stock Units*** may be awarded to any eligible individual, typically without payment of consideration, but subject to vesting conditions based on continued employment or service or on performance criteria established by the administrator. Like restricted stock, restricted stock units may not be sold, or otherwise transferred or hypothecated, until vesting conditions are removed or expire. Unlike restricted stock, stock underlying restricted stock units will not be issued until the restricted stock units have vested, and recipients of restricted stock units generally will have no voting or dividend rights prior to the time when vesting conditions are satisfied.
- § ***Deferred Stock Awards*** represent the right to receive shares of our common stock on a future date. Deferred stock may not be sold or otherwise hypothecated or transferred until issued. Deferred stock will not be issued until the deferred stock award has vested, and recipients of deferred stock generally will have no voting or dividend rights prior to the time when the vesting conditions are satisfied and the shares are issued. Deferred stock awards generally will be forfeited, and the underlying shares of deferred stock will not be issued, if the applicable vesting conditions and other restrictions are not met.
- § ***Stock Appreciation Rights***, or SARs, may be granted in connection with stock options or other awards, or separately. SARs granted in connection with stock options or other awards typically will provide for payments to the holder based upon increases in the price of our common stock over a set exercise price. The exercise price of any SAR granted under the 2010 Plan must be at least 100% of the fair market value per share of our common stock on the date of grant. Except as required by Section 162(m) of the Code with respect to a SAR intended to qualify as performance-based compensation under Section 162(m) of the Code, there are no restrictions specified in the 2010 Plan on the exercise of SARs or the amount of gain realizable therefrom, although restrictions may be imposed by the administrator in the SAR agreements. SARs under the 2010 Plan will be settled in cash or shares of our common stock, or in a combination of both, at the election of the administrator.
- § ***Dividend Equivalents*** represent the value of the dividends, if any, per share paid by us, calculated with reference to the number of shares covered by the award. Dividend equivalents may be settled in cash or shares and at such times as determined by the compensation committee or board of directors, as applicable.

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§ **Performance Awards** may be granted by the administrator on an individual or group basis. Generally, these awards will be based upon specific performance targets and may be paid in cash or in common stock or in a combination of both. Performance awards may include phantom stock awards that provide for payments based upon the value of our common stock. Performance awards may also include bonuses that may be granted by the administrator on an individual or group basis and which may be payable in cash or in common stock or in a combination of both.

§ **Stock Payments** may be authorized by the administrator in the form of common stock or an option or other right to purchase common stock as part of a deferred compensation or other arrangement in lieu of all or any part of compensation, including bonuses, that would otherwise be payable in cash to the employee, consultant or non-employee director.

Change-in-Control. If a change-in-control occurs where the acquiror does not assume or replace awards granted under the 2010 Plan prior to the consummation of such transaction, then such awards will be subject to accelerated vesting such that 100% of such awards will become vested and exercisable or payable, as applicable. In addition, the administrator will also have complete discretion to structure one or more awards under the 2010 Plan to provide that such awards will become vested and exercisable or payable on an accelerated basis if such awards are assumed or replaced with equivalent awards but the individual's service with us or the acquiring entity is subsequently terminated within a designated period following the change in control event. The administrator may also make appropriate adjustments to awards under the 2010 Plan and is authorized to provide for the acceleration, cash-out, termination, assumption, substitution or conversion of such awards in the event of a change in control or certain other unusual or nonrecurring events or transactions. Under the 2010 Plan, a change in control is generally defined as:

§ the transfer or exchange, in a single or series of related transactions, by our stockholders of more than 50% of our voting stock to a person or group;

§ a change in the composition of our board of directors over a two-year period such that 50% or more of the members of the board were elected through one or more contested elections;

§ a merger, consolidation, reorganization or business combination in which we are involved, directly or indirectly, other than a merger, consolidation, reorganization or business combination which results in our outstanding voting securities immediately before the transaction continuing to represent a majority of the voting power of the acquiring company's outstanding voting securities and after which no person or group beneficially owns 50% or more of the outstanding voting securities of the surviving entity immediately after the transaction;

§ the sale, exchange, or transfer of all or substantially all of our assets; or

§ stockholder approval of our liquidation or dissolution.

Adjustments of Awards. In the event of any stock dividend, stock split, combination or exchange of shares, merger, consolidation, spin-off, recapitalization, distribution of our assets to stockholders (other than normal cash dividends) or any other corporate event affecting the number of outstanding shares of our common stock or the share price of our common stock that would require adjustments to the 2010 Plan or any awards under the 2010 Plan in order to prevent the dilution or enlargement of the potential benefits intended to be made available thereunder, the administrator will make appropriate, proportionate adjustments to:

§ the aggregate number and type of shares subject to the 2010 Plan;

§ the number and kind of shares subject to outstanding awards and terms and conditions of outstanding awards (including, without limitation, any applicable performance targets or criteria with respect to such awards); and

§ the grant or exercise price per share of any outstanding awards under the 2010 Plan.

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Amendment and Termination. Our board of directors or the committee (with board approval) may terminate, amend or modify the 2010 Plan at any time and from time to time. However, we must generally obtain stockholder approval to:

- § increase the number of shares available under the 2010 Plan (other than in connection with certain corporate events, as described above);
- § grant options with an exercise price that is below 100% of the fair market value per share of our common stock on the grant date;
- § extend the exercise period for an option beyond ten years from the date of grant; or

§ the extent required by applicable law, rule or regulation (including any applicable stock exchange rule). Notwithstanding the foregoing, an option may be amended to reduce the per share exercise price below the per share exercise price of such option on the grant date, and options may be granted in exchange for, or in connection with, the cancellation or surrender of options having a higher per share exercise price, without receiving additional stockholder approval.

Expiration Date. The 2010 Plan will expire on, and no option or other award may be granted pursuant to the 2010 Plan after, the tenth anniversary of the effective date of the 2010 Plan. Any award that is outstanding on the expiration date of the 2010 Plan will remain in force according to the terms of the 2010 Plan and the applicable award agreement.

Securities Laws. The 2010 Plan is intended to conform to certain provisions of the Securities Act and the Exchange Act and related regulations and rules promulgated by the SEC thereunder, including without limitation, Rule 16b-3. The 2010 Plan will be administered, and options will be granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations.

Section 409A of the Code. Certain awards under the 2010 Plan may be considered nonqualified deferred compensation for purposes of Section 409A of the Code, which imposes certain additional requirements regarding the payment of deferred compensation. Generally, if at any time during a taxable year a nonqualified deferred compensation plan fails to meet the requirements of Section 409A, or is not operated in accordance with those requirements, all amounts deferred under the 2010 Plan and all other equity incentive plans for the taxable year and all preceding taxable years by any participant with respect to whom the failure relates are includible in gross income for the taxable year to the extent not subject to a substantial risk of forfeiture and not previously included in gross income. If a deferred amount is required to be included in income under Section 409A, the amount also is subject to interest and an additional income tax. The interest imposed is equal to the interest at the underpayment rate plus one percentage point imposed on the underpayments that would have occurred had the compensation been includible in income for the taxable year when first deferred, or, if later, when not subject to a substantial risk of forfeiture. The additional U.S. federal income tax is equal to 20% of the compensation required to be included in gross income. In addition, certain states, including California, have laws similar to Section 409A, which impose additional state penalty taxes on such compensation.

Section 162(m) of the Code. In general, under Section 162(m) of the Code, income tax deductions of publicly held corporations may be limited to the extent total compensation (including, but not limited to, base salary, annual bonus and income attributable to stock option exercises and other nonqualified benefits) for certain executive officers exceeds \$1,000,000 (less the amount of any excess parachute payments as defined in Section 280G of the Code) in any taxable year of the corporation. However, under Section 162(m), the deduction limit does not apply to certain performance-based compensation established by an independent compensation committee that is adequately disclosed to and approved by stockholders. In particular, stock options and SARs will satisfy the performance-based compensation exception if the awards are made by a qualifying compensation committee, the 2010 Plan sets the maximum number of shares that can be granted to any person within a specified period, and the compensation is based solely on an increase in the stock price after the grant date. Specifically, the option exercise price must be equal to or greater than the fair market value of the stock subject to the award on the grant date. Under a Section 162(m) transition rule for compensation plans of

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corporations which are privately held and which become publicly held in an initial public offering, the 2010 Plan will not be subject to Section 162(m) until the earlier of:

§ a material modification of the 2010 Plan;

§ the issuance of all of the shares of our common stock reserved for issuance under the 2010 Plan;

§ the expiration of the 2010 Plan; and

§ the first meeting of our stockholders at which members of our board of directors are to be elected that occurs after the close of the third calendar year following the calendar year in which our initial public offering occurs.

After the transition date, rights or awards granted under the 2010 Plan, other than options and SARs, will not qualify as performance-based compensation for purposes of Section 162(m) unless such rights or awards are granted or vest upon pre-established objective performance goals, the material terms of which are disclosed to and approved by our stockholders. Thus, after the transition date, we expect that such other rights or awards under the plan will not constitute performance-based compensation for purposes of Section 162(m).

2006 Equity Incentive Plan

Our board of directors adopted, and our stockholders approved, the 2006 Equity Incentive Plan in March 2006. The 2006 Equity Incentive Plan provided for the grant of ISOs, NQSOs and stock purchase rights. As of March 31, 2011, options to purchase 2,665,425 shares of our common stock at a weighted average exercise price per share of \$1.98 remained outstanding under the 2006 Equity Incentive Plan. No stock purchase rights have been granted under the 2006 Equity Incentive Plan. No shares of our common stock are available for future issuance pursuant to awards granted under the 2006 Equity Incentive Plan and no further awards will be granted under the 2006 Equity Incentive Plan. However, all outstanding awards will continue to be governed by their existing terms.

Administration. Our board of directors, or a committee thereof appointed by our board of directors, has the authority to administer the 2006 Equity Incentive Plan and the awards granted under it.

Stock Options. The 2006 Equity Incentive Plan provides for the grant of ISOs under the federal tax laws or NQSOs. ISOs may be granted only to employees. NQSOs and stock purchase rights may be granted to employees, directors or consultants. The exercise price of ISOs granted to employees who at the time of grant own stock representing more than 10% of the voting power of all classes of our common stock may not be less than 110% of the fair market value per share of our common stock on the date of grant, and the exercise price of ISOs granted to any other employees may not be less than 100% of the fair market value per share of our common stock on the date of grant. The exercise price of NQSOs to employees, directors or consultants who at the time of grant own stock representing more than 10% of the voting power of all classes of our common stock may not be less than 110% of the fair market value per share of our common stock on the date of grant, and the exercise price of nonstatutory stock options to all other employees, directors or consultants may not be less than 100% of the fair market value per share of our common stock on the date of grant. Shares subject to options under the 2006 Equity Incentive Plan generally vest in a series of installments over an optionee's period of service, with a minimum vesting rate of at least 20% per year over five years from the date of grant, except with respect to options granted to officers, directors and consultants.

In general, the maximum term of options granted is ten years. The maximum term of options granted to an optionee who owns stock representing more than 10% of the voting power of all classes of our common stock is five years. If an optionee's service relationship with us terminates other than by disability or death, the optionee may exercise the vested portion of any option in such period of time as specified in the optionee's option agreement, but in no event will such period be less than 30 days following the termination of service. If an optionee's service relationship with us terminates by disability or death, the optionee, or the optionee's designated beneficiary, as applicable, may exercise the vested portion of any option in such period of time as specified in the optionee's option agreement, but in no event will such period be less than 12 months following the termination of service. Shares of common stock representing any unvested portion underlying the option on

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the date of termination will immediately cease to be issuable and will become available for future issuance under the 2006 Equity Incentive Plan. If, after termination, the optionee does not exercise the option within the time period specified, the option will terminate and the shares of common stock covered by such option will become available for future issuance under the 2006 Equity Incentive Plan.

Stock Purchase Rights. The 2006 Equity Incentive Plan provides that we may issue stock purchase rights alone, in addition to or in tandem with options granted under the 2006 Equity Incentive Plan and/or cash awards made outside of the 2006 Equity Incentive Plan. Each stock purchase right will be governed by a restricted stock purchase agreement. We will have the right to repurchase shares of common stock acquired by the purchaser upon exercise of a stock purchase right upon the termination of the purchaser's status as an employee, director or consultant for any reason. The repurchase price for shares acquired by the purchaser upon exercise of a stock purchase right will be the original price paid by the purchaser. Except with respect to shares purchased by officers, directors and consultants, the repurchase option lapses at a rate of at least 20% per year over five years from the date of purchase. However, this lapsing does not apply to stock purchase rights granted to individuals who are tax residents of Germany. Once the stock purchase right is exercised, the purchaser will have rights equivalent to those of our other stockholders.

Corporate Transactions. In the event of a proposed dissolution or liquidation, the administrator of the 2006 Equity Incentive Plan has the discretion to take one or more of the following actions:

§ provide that any option or stock purchase right be made exercisable until ten days prior to such transaction; and

§ provide that our option to repurchase any shares purchased upon exercise of an option or stock purchase right will lapse as to all such shares.

To the extent options and stock purchase rights have not been previously exercised, all such options and stock purchase rights will terminate immediately prior to the consummation of the proposed transaction.

In the event of certain corporate transactions, the administrator of the 2006 Equity Incentive Plan will adjust the number of shares of common stock that may be delivered under the 2006 Equity Incentive Plan and/or the number, class and price of shares of common stock covered by each outstanding option or stock purchase right.

Change-in-Control. If we undergo a change-in-control, and any surviving corporation does not assume options or stock purchase rights under the 2006 Equity Incentive Plan, or substitute an equivalent option of the successor corporation or a parent or subsidiary of the successor corporation, then the vesting of options or stock purchase rights held by participants in the 2006 Equity Incentive Plan will be accelerated and the options or stock purchase rights will become fully exercisable during the 15-day period specified below. The holder of such options or stock purchase rights not assumed or substituted will be notified by the 2006 Equity Incentive Plan administrator that the option or stock purchase right is fully exercisable for a period of 15 days from the date of such notice and will be terminated if not exercised within such 15 day period.

Employee Stock Purchase Plan

In September 2010, our board of directors adopted, and, in October 2010, our stockholders approved, an employee stock purchase plan, or the ESPP, which became effective in November 2010 in connection with our initial public offering. The ESPP is designed to allow our eligible employees and the eligible employees of our participating subsidiaries to purchase shares of common stock, at semi-annual intervals, with their accumulated payroll deductions.

Share Reserve. 750,000 shares of our common stock were initially reserved for issuance under our ESPP. The number of shares of common stock reserved under our ESPP will automatically increase on the first trading day of each year, beginning in 2011 and ending in 2020, by an amount equal to the least of:

§ 2,800,000 shares;

§ 2% of the number of shares of our common stock outstanding on the last day of the immediately preceding fiscal year; and

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§ a lesser amount determined by our board of directors.

Offering Periods. The ESPP is administered through a series of successive offering periods, with a new offering period beginning on May 15th and November 15th of each year. Unless otherwise determined by the compensation committee, each offering period has a duration of six months.

Eligible Employees. Our employees, and any employees of our subsidiaries that the compensation committee designates as eligible to participate in the ESPP, who are scheduled to work more than 20 hours per week for more than five calendar months per year may join an offering period on the start date of that period.

Payroll Deductions. A participant may contribute from 1% to 15% of his or her compensation through payroll deductions up to \$12,500 per offering period, and the accumulated deductions will be applied to the purchase of shares on each semi-annual purchase date. The purchase price per share will be equal to 85% of the fair market value per share of our common stock on the first trading day of an offering period in which a participant is enrolled or, if lower, 85% of the fair market value per share on the semi-annual purchase date. Semi-annual purchase dates will occur on the last trading day of each offering period. However, not more than 3,000 shares may be purchased in total by any participant during any offering period. Our compensation committee has the authority to change these limitations for any subsequent offering period.

Change in Control. If we are acquired by merger or sale of substantially all of our assets or we merge with another company, then all outstanding purchase rights may either be assumed by the acquirer or be exercised at an early purchase date prior to the effective date of the acquisition. The purchase price in effect for each participant will be equal to 85% of the fair market value per share of our common stock on the first trading date of the offering period in which the participant is enrolled at the time the acquisition occurs or, if lower, 85% of the fair market value per share on the purchase date prior to the acquisition.

Plan Provisions. Our board may at any time amend, suspend, terminate or discontinue the ESPP. However, certain amendments may require stockholder approval.

401(k) Plan

We maintain a defined contribution employee retirement plan, or 401(k) Plan, for our employees. Our executive officers are also eligible to participate in the 401(k) Plan on the same basis as our other employees. The 401(k) Plan provides that each participant may contribute up to the statutory limit, which is \$16,500 for calendar year 2011. Participants that are 50 years or older can also make catch-up contributions, which in calendar year 2011 may be up to an additional \$5,500 above the statutory limit. In 2010, we did not make any contributions to the 401(k) Plan on behalf of eligible employees. The 401(k) Plan is intended to qualify under Section 401 of the Code so that contributions by employees to the 401(k) Plan, and income earned on the 401(k) Plan contributions, are not taxable to employees until withdrawn from the 401(k) Plan. The trustees under the 401(k) Plan may, at the direction of each participant, invest the 401(k) Plan employee salary deferrals in selected investment options.

Limitation on Liability and Indemnification Matters

Our amended and restated certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

§ any breach of the director's duty of loyalty to us or our stockholders;

§ any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;

§ unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or

§ any transaction from which the director derived an improper personal benefit.

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Our amended and restated certificate of incorporation and amended and restated bylaws provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our amended and restated bylaws also provide that we are obligated to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought, and we are not aware of any threatened litigation that may result in claims for indemnification.

Rule 10b5-1 Sales Plans

Our directors and executive officers have adopted written plans, known as Rule 10b5-1 plans, in which they contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from the director or officer. The director or officer may amend or terminate the plan in limited circumstances. Our directors and executive officers may also buy or sell additional shares of our common stock outside of a Rule 10b5-1 plan when they are not in possession of material, nonpublic information.

Subsequent Event – Change in Control and Severance Plan

On May 5, 2011, our board of directors approved a change in control and severance plan for our executive officers and other members of management. The change in control and severance plan is expected to be effective in mid-2011 upon the execution of letter agreements by the plan participants. In the event an executive officer is terminated without cause or experiences a constructive termination, the plan provides for a lump sum cash payment equal to between six and 12 months base salary and for COBRA coverage for the executive officer and his covered dependents for between six and 12 months, in each case based on the seniority of the executive officer. If such termination occurs within 12 months of a change in control, the plan provides for a lump sum cash payment equal to between nine and 18 months base salary and for COBRA coverage for the executive officer and his covered dependents for between nine and 18 months, in each case based on the seniority of the executive officer, and the immediate and automatic vesting in full and exercisability of all unvested equity awards.

Table of Contents**Certain Relationships and Related Party Transactions**

We describe below each transaction, since January 1, 2008, to which we were a party or will be a party, in which:

§ the amounts involved exceeded or will exceed \$120,000; and

§ a director, executive officer, holder or group of holders known to us to beneficially own more than 5% of any class of our voting securities or any member of their immediate family had or will have a direct or indirect material interest in the transaction.

The share numbers and purchase prices disclosed below have been adjusted to reflect the 30:1 reverse stock split that occurred on November 13, 2009.

Initial Public Offering

In connection with our initial public offering, the underwriters allocated an aggregate of 1,650,000 shares of our common stock in the offering to certain of our principal stockholders and/or affiliates on the same terms as the other shares that were offered and sold in our initial public offering. These allocations are listed in the table below:

| Name | Number of shares of common stock allocated in connection with initial public offering |
|--|--|
| Caduceus Private Investments III, LP ⁽¹⁾⁽²⁾ | 602,778 |
| Essex Woodlands Health Ventures VIII, L.P. ⁽³⁾⁽⁴⁾ | 602,778 |
| Enterprise Partners VI, L.P. ⁽⁵⁾⁽⁶⁾ | 111,111 |
| Prospect Venture Partners III, L.P. ⁽⁷⁾ | 333,333 |

(1) Includes 5,687 shares allocated to OrbiMed Associates III, LP, an affiliate of Caduceus Private Investments III, LP.

(2) Carl L. Gordon, Ph.D., is one of our directors and is a partner of OrbiMed Advisors, LLC.

(3) Includes 39,386 shares allocated to Essex Woodlands Health Ventures Fund VIII A, L.P. and 17,124 shares allocated to Essex Woodlands Health Ventures Fund B, L.P., each of which is an affiliate of Essex Woodlands Health Ventures VIII, L.P.

(4) C. Thomas Caskey, M.D., is one of our directors and is an adjunct partner in Essex Woodlands Health Ventures.

(5) Includes 111,111 shares allocated to Enterprise Partners V, L.P., an affiliate of Enterprise Partners VI, L.P.

(6) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.

(7) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

Preferred Stock Issuances**2010 Bridge Financing**

In April, May, June and August 2010, we sold convertible promissory notes, or the 2010 Notes, to certain of our existing investors for an aggregate purchase price of \$22.2 million. The 2010 Notes accrued interest at a rate of 8% per annum and had a maturity date of the earliest of (i) a corporate reorganization as defined in the 2010 Notes, (ii) the closing of the initial public offering of our stock, (iii) an event of default pursuant to the terms of the 2010 Notes or (iv) April 12, 2011. In August 2010, in connection with our Series E preferred stock financing described below, the full principal amount of the 2010 Notes, along with accrued but unpaid interest thereon of \$364,266, were automatically converted into an aggregate of 2,990,355 shares of our Series E preferred stock at a conversion price of \$7.56 per share. In addition, each investor who purchased 2010 Notes also received warrants to purchase a number of shares of our common stock equal to (a) the product of (i) 5% of the principal amount of 2010 Notes purchased by such investor and (ii) the number of months between the date of issuance of the warrant and the date of our next financing (up to five months), divided by (b) \$1.50, resulting in the issuance of warrants to purchase an aggregate of 1,848,849 shares of common stock.

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The table below sets forth the participation in the sale of the 2010 Notes by our directors, executive officers and 5% stockholders and their affiliates.

| Name | Principal amount of 2010 Notes purchased | Number of shares of common stock underlying warrants received in connection with purchase of 2010 Notes |
|--|--|---|
| Caduceus Private Investments III, LP ⁽¹⁾⁽²⁾ | \$ 3,291,190 | 294,379 |
| Essex Woodlands Health Ventures VIII, L.P. ⁽³⁾⁽⁴⁾ | \$ 3,291,190 | 294,380 |
| C. Thomas Caskey, M.D. ⁽⁴⁾ | \$ 4,786 | 252 |
| Enterprise Partners VI, L.P. ⁽⁵⁾⁽⁶⁾ | \$ 2,144,834 | 191,844 |
| Highland Crusader Offshore Partners, L.P. ⁽⁷⁾ | \$ 2,049,630 | 176,496 |
| OVP Venture Partners VI, L.P. ⁽⁸⁾⁽⁹⁾ | \$ 2,144,820 | 191,841 |
| Prospect Venture Partners III, L.P. ⁽¹⁰⁾ | \$ 2,078,348 | 185,897 |
| SCV-CG, LLC | \$ 7,000,000 | 501,667 |

- (1) Includes \$31,050 in 2010 Notes and warrants to purchase 2,777 shares of common stock purchased by OrbiMed Associates III, LP, an affiliate of Caduceus Private Investments III, LP.
- (2) Carl L. Gordon, Ph.D., is one of our directors and is a partner of OrbiMed Advisors, LLC.
- (3) Includes \$215,050 in 2010 Notes and warrants to purchase 19,235 shares of common stock purchased by Essex Woodlands Health Ventures Fund VIII A, L.P. and \$93,500 in 2010 Notes and warrants to purchase 8,364 shares of common stock purchased by Essex Woodlands Health Ventures Fund B, L.P., each of which is an affiliate of Essex Woodlands Health Ventures VIII, L.P.
- (4) C. Thomas Caskey, M.D., is one of our directors and is an adjunct partner in Essex Woodlands Health Ventures.
- (5) Includes \$74,417 in 2010 Notes and warrants to purchase 7,856 shares of common stock purchased by Enterprise Partners Management, LLC and \$690,167 in 2010 Notes and warrants to purchase 55,808 shares of common stock purchased by Enterprise Partners V, L.P., each of which is an affiliate of Enterprise Partners VI, L.P.
- (6) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.
- (7) Includes \$600,672 in 2010 Notes and warrants to purchase 51,725 shares of common stock purchased by Highland Credit Opportunities CDO, L.P., an affiliate of Highland Crusader Offshore Partners, L.P. Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.
- (8) Includes \$35,418 in 2010 Notes and warrants to purchase 3,167 shares of common stock purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.
- (9) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.
- (10) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

Issuance of Series E Preferred Stock and Warrants to Purchase Common Stock

In August, September and October 2010, we issued 6,912,181 shares of Series E preferred stock at a price of \$7.56 per share for gross proceeds of approximately \$52.3 million. The table below sets forth the number of shares of Series E preferred stock sold to our directors, executive officers and 5% stockholders and their affiliates, and includes the shares of Series E preferred stock issued in connection with the conversion of the 2010 Notes, including the consideration paid for such shares by cancellation of the 2010 Notes as disclosed above.

| Name | Number of | |
|--|------------------------------------|--------------------------|
| | Shares of Series E Preferred Stock | Aggregate Purchase Price |
| Caduceus Private Investments III, LP ⁽¹⁾⁽²⁾ | 1,279,138 | \$ 9,670,284 |
| Essex Woodlands Health Ventures VIII, L.P. ⁽³⁾⁽⁴⁾ | 1,279,137 | \$ 9,670,276 |
| C. Thomas Caskey, M.D. ⁽⁴⁾ | 1,844 | \$ 13,940 |
| Enterprise Partners VI, L.P. ⁽⁵⁾⁽⁶⁾ | 833,601 | \$ 6,302,023 |

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| | | |
|--|---------|--------------|
| Highland Crusader Offshore Partners, L.P. ⁽⁷⁾ | 796,420 | \$ 6,020,935 |
| OVP Venture Partners VI, L.P. ⁽⁸⁾⁽⁹⁾ | 833,596 | \$ 6,301,986 |
| Prospect Venture Partners III, L.P. ⁽¹⁰⁾ | 807,760 | \$ 6,106,665 |
| SCV-CG, LLC | 938,957 | \$ 7,098,515 |
| Wall Family Investment Partnership, Ltd. ⁽¹¹⁾ | 50,000 | \$ 378,000 |

(1) Includes 12,068 shares held by OrbiMed Associates III, LP, an affiliate of Caduceus Private Investments III, LP.

(2) Carl L. Gordon, Ph.D., is one of our directors and is a partner of OrbiMed Advisors, LLC.

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- (3) Includes 83,580 shares purchased by Essex Woodlands Health Ventures Fund VIII A, L.P. and 36,339 shares purchased by Essex Woodlands Health Ventures Fund B, L.P., each of which is an affiliate of Essex Woodlands Health Ventures VIII, L.P.
- (4) C. Thomas Caskey, M.D., is one of our directors and is an adjunct partner of Essex Woodlands Health Ventures.
- (5) Includes 27,049 shares purchased by Enterprise Partners Management, LLC and 259,458 shares purchased by Enterprise Partners V, L.P., each of which is an affiliate of Enterprise Partners VI, L.P.
- (6) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.
- (7) Includes 233,402 shares purchased by Highland Credit Opportunities CDO, L.P., an affiliate of Highland Crusader Offshore Partners, L.P. Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.
- (8) Includes 4,767 shares purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.
- (9) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.
- (10) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.
- (11) Robert T. Wall is one of our directors and maintains dispositive power over the shares held by the Wall Family Investment Partnership, Ltd.

2009 Bridge Financing

In February 2009, April 2009, June 2009 and August 2009, we sold convertible promissory notes, or the 2009 Notes, to certain of our existing investors for an aggregate purchase price of \$14.7 million. The 2009 Notes accrued interest at a rate of 8% per annum and had a maturity date of the earliest of (i) a change of control as defined in our certificate of incorporation, (ii) an event of default pursuant to the terms of the 2009 Notes or (iii) on or after December 31, 2009, within five business days after our receipt of written notice from the investors holding at least 51% of the principal amount of the 2009 Notes. In August 2009, in connection with our Series D preferred stock financing described below, the full principal amount of the 2009 Notes, along with accrued but unpaid interest thereon of \$329,393, were automatically converted into an aggregate of 1,991,325 shares of our Series D preferred stock at a conversion price of \$7.56 per share. In addition, investors who purchased 2009 Notes also received warrants to purchase up to an aggregate of 278,165 shares of our Series D preferred stock at an exercise price of \$7.56 per share.

The table below sets forth the participation in the sale of the 2009 Notes by our directors, executive officers and 5% stockholders and their affiliates.

| Name | Principal amount of 2009 Notes purchased | Number of shares of Series D preferred stock issued upon conversion of the 2009 Notes | Number of shares of Series D preferred stock underlying warrants received in connection with purchase of 2009 Notes |
|--|--|---|---|
| Enterprise Partners VI, L.P. ⁽¹⁾⁽²⁾ | \$ 4,000,458 | 541,720 | 79,318 |
| Highland Crusader Offshore Partners, L.P. | \$ 3,027,535 | 407,297 | 46,057 |
| OVP Venture Partners VI, L.P. ⁽³⁾⁽⁴⁾ | \$ 4,000,458 | 541,720 | 79,318 |
| Prospect Venture Partners III, L.P. ⁽⁵⁾ | \$ 3,621,549 | 490,422 | 71,872 |

- (1) Includes \$1,234,762 in 2009 Notes purchased by Enterprise Partners V, L.P., an affiliate of Enterprise Partners VI, L.P., which converted into 166,700 shares of Series D preferred stock. In connection with its purchase of the 2009 Notes, Enterprise Partners V, L.P. received warrants to purchase up to 25,639 shares of Series D preferred stock at an exercise price of \$7.56 per share.
- (2) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.
- (3) Includes \$59,811 in 2009 Notes purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P., which converted into 8,141 shares of Series D preferred stock. In connection with its purchase of the 2009 Notes, OVP VI Entrepreneurs Fund, L.P. received warrants to purchase up to 1,423 shares of Series D preferred stock at an exercise price of \$7.56 per share.
- (4) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.
- (5) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

Issuance of Series D Preferred Stock

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Between August 2009 and March 2010, we sold 7,310,816 shares of Series D preferred stock at a price of \$7.56 per share for gross proceeds of approximately \$55.3 million. The table below sets forth the number of shares of

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Series D preferred stock sold to our directors, executive officers and 5% stockholders and their affiliates and includes the shares of Series D preferred stock issued in connection with the conversion of the 2009 Notes, including the consideration paid for such shares by cancellation of the 2009 Notes as disclosed above.

| Name | Number of shares of Series D preferred stock | Aggregate purchase price |
|--|---|--------------------------------|
| Caduceus Private Investments III, LP ⁽¹⁾⁽²⁾ | 2,274,354 | \$ 17,194,116 |
| Essex Woodlands Health Ventures VIII, L.P. ⁽³⁾⁽⁴⁾ | 2,274,354 | \$ 17,194,116 |
| C. Thomas Caskey, M.D. ⁽⁴⁾ | 3,307 | \$ 25,001 |
| Enterprise Partners VI, L.P. ⁽⁵⁾⁽⁶⁾ | 731,664 | \$ 5,531,380 |
| Highland Crusader Offshore Partners, L.P. ⁽⁷⁾ | 588,665 | \$ 4,450,307 |
| OVP Venture Partners VI, L.P. ⁽⁸⁾⁽⁹⁾ | 731,662 | \$ 5,531,365 |
| Prospect Venture Partners III, L.P. ⁽¹⁰⁾ | 674,426 | \$ 5,098,661 |

(1) Includes 21,456 shares held by OrbiMed Associates III, LP, an affiliate of Caduceus Private Investments III, LP.

(2) Carl L. Gordon, Ph.D., is one of our directors and is a partner of OrbiMed Advisors, LLC.

(3) Includes 148,608 shares purchased by Essex Woodlands Health Ventures Fund VIII A, L.P. and 64,612 shares purchased by Essex Woodlands Health Ventures Fund B, L.P., each of which is an affiliate of Essex Woodlands Health Ventures VIII, L.P.

(4) C. Thomas Caskey, M.D., is one of our directors and is an adjunct partner of Essex Woodlands Health Ventures.

(5) Includes 66,138 shares purchased by Enterprise Partners Management, LLC and 176,737 shares purchased by Enterprise Partners V, L.P., each of which is an affiliate of Enterprise Partners VI, L.P.

(6) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.

(7) Includes 52,969 shares purchased by Highland Credit Opportunities CDO, L.P., an affiliate of Highland Crusader Offshore Partners, L.P. Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.

(8) Includes 9,477 shares purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.

(9) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.

(10) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

Issuance of Common Stock Warrants

In August and September 2010, we issued warrants to purchase up to 1,318,719 shares of our common stock at an exercise price of \$2.69 per share to certain existing investors who purchased shares in our Series E preferred stock financing. These warrants subsequently terminated and were no longer outstanding as of September 30, 2010. The table below sets forth the number of shares of common stock that were issuable upon the exercise of these warrants, prior to their termination, that were issued to our directors, executive officers and 5% stockholders and their affiliates.

| Name | Number of Shares of Common Stock Initially Issuable Upon Exercise of Warrants |
|--|---|
| Caduceus Private Investments III, LP ⁽¹⁾⁽²⁾ | 234,104 |
| Essex Woodlands Health Ventures VIII, L.P. ⁽³⁾⁽⁴⁾ | 234,104 |
| C. Thomas Caskey, M.D. ⁽⁴⁾ | 336 |
| Enterprise Partners VI, L.P. ⁽⁵⁾⁽⁶⁾ | 152,563 |
| Highland Crusader Offshore Partners, L.P. ⁽⁷⁾ | 145,746 |
| OVP Venture Partners VI, L.P. ⁽⁸⁾⁽⁹⁾ | 152,562 |
| Prospect Venture Partners III, L.P. ⁽¹⁰⁾ | 147,833 |
| SCV-CG, LLC | 234,739 |

- (1) *Includes warrants to purchase 2,209 shares of common stock held by OrbiMed Associates III, LP, an affiliate of Caduceus Private Investments III, LP.*
- (2) *Carl L. Gordon, Ph.D., is one of our directors and is a partner of OrbiMed Advisors, LLC.*
- (3) *Includes warrants to purchase 15,297 shares of common stock held by Essex Woodlands Health Ventures Fund VIII A, L.P. and warrants to purchase 6,651 shares of common stock held by Essex Woodlands Health Ventures Fund B, L.P., each of which is an affiliate of Essex Woodlands Health Ventures VIII, L.P.*
- (4) *C. Thomas Caskey, M.D., is one of our directors and is an adjunct partner of Essex Woodlands Health Ventures.*

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- (5) Includes warrants to purchase 3,835 shares of common stock held by Enterprise Partners Management, LLC and warrants to purchase 48,330 shares of common stock held by Enterprise Partners V, L.P., each of which is an affiliate of Enterprise Partners VI, L.P.
- (6) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.
- (7) Includes warrants to purchase 42,713 shares of common stock held by Highland Credit Opportunities CDO, L.P., an affiliate of Highland Crusader Offshore Partners, L.P. Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.
- (8) Includes warrants to purchase 1,192 shares of common stock purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.
- (9) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.
- (10) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

In August 2009, we issued warrants to purchase up to an aggregate of 1,630,629 shares of our common stock at an exercise price of \$1.50 per share to certain existing investors who purchased at least \$1.0 million more than their pro rata portion of our Series D preferred stock financing. The table below sets forth the number of shares of common stock issuable upon the exercise of warrants issued to our directors, executive officers and 5% stockholders and their affiliates.

| Name | Number of shares of common stock issuable upon exercise of warrants |
|--|--|
| Enterprise Partners VI, L.P. ⁽¹⁾⁽²⁾ | 447,724 |
| Highland Crusader Offshore Partners, L.P. ⁽³⁾ | 329,638 |
| OVP Venture Partners VI, L.P. ⁽⁴⁾⁽⁵⁾ | 447,725 |
| Prospect Venture Partners III, L.P. ⁽⁶⁾ | 405,542 |

- (1) Includes warrants to purchase 308,930 shares of common stock held by Enterprise Partners V, L.P., an affiliate of Enterprise Partners VI, L.P.
- (2) Andrew E. Senyei, M.D., is one of our directors and is a managing director and a general partner of Enterprise Partners.
- (3) Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.
- (4) Includes warrants to purchase 3,134 shares of common stock purchased by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.
- (5) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.
- (6) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

Issuance of Series C Preferred Stock

In February 2008, we sold 166,346 shares of Series C preferred stock at a price of \$159.30 per share for gross proceeds of approximately \$26.5 million. In March 2008, we issued 1,004 shares of Series C preferred stock valued at approximately \$160,000 to a professional consulting services firm in exchange for their services. The table below sets forth the number of shares of Series C preferred stock sold to our directors, executive officers and 5% stockholders and their affiliates.

| Name | Number of shares of Series C preferred stock | Aggregate purchase price |
|--|---|--------------------------------|
| Enterprise Partners VI, L.P. ⁽¹⁾ | 21,488 | \$ 3,423,038 |
| Highland Crusader Offshore Partners, L.P. ⁽²⁾ | 100,438 | \$ 15,999,773 |
| OVP Venture Partners VI, L.P. ⁽³⁾⁽⁴⁾ | 21,488 | \$ 3,423,038 |
| Prospect Venture Partners III, L.P. ⁽⁵⁾ | 19,482 | \$ 3,103,483 |

- (1) Andrew E. Senyei, M.D., is one of our directors and is a managing director and general partner of Enterprise Partners.
- (2)

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Includes 43,941 shares held by Highland Credit Opportunities CDO, L.P., an affiliate of Highland Crusader Offshore Partners, L.P. Highland Crusader Offshore Partners, L.P. beneficially owns more than 5% of our outstanding common stock.

(3) Includes 429 shares held by OVP VI Entrepreneurs Fund, L.P., an affiliate of OVP Venture Partners VI, L.P.

(4) Charles P. Waite, Jr., is one of our directors and is a general partner of OVP Venture Partners.

(5) Alexander E. Barkas, Ph.D., is one of our directors and is a managing member of Prospect Management Co. III, LLC, the general partner of Prospect Venture Partners III, L.P.

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Investor Rights Agreement

We have entered into an investors' rights agreement with the purchasers of our outstanding preferred stock and certain holders of common stock and warrants to purchase our common stock and preferred stock, including entities with which certain of our directors are affiliated. As of April 29, 2011, the holders of 21.7 million shares of our common stock, including the shares of common stock issued upon the conversion of our preferred stock and shares of common stock issued upon exercise of warrants, are entitled to rights with respect to the registration of their shares under the Securities Act. For a more detailed description of these registration rights, see "Description of Capital Stock - Registration Rights."

Indemnification Agreements

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Stock Options and Stock Option Modification

We have granted stock options to our executive officers. For more information regarding these stock options, see the section titled "Executive Compensation - Compensation Discussion and Analysis."

In January 2010, our board of directors approved a stock option modification. See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Stock Option Modification" for a description of our 2010 option exchange program.

Other Transactions

In March 2006, we entered into a licensing agreement with Callida Genomics, Inc., or Callida, for use of certain patents, patent applications, know-how and other intellectual property relating to sequencing by hybridization. See "Business - Intellectual Property." As partial consideration for the rights acquired pursuant to the license agreement, we issued 13,333 shares of our Common Stock to Callida. Callida is owned by Radoje Drmanac, Ph.D., our Chief Scientific Officer, and his wife, Snezana Drmanac.

We have granted stock options to our executive officers and certain of our directors. For a description of these options, see "Executive Compensation - Compensation Discussion and Analysis - Long-Term Equity Incentives." In addition, in March 2010, we issued:

§ 285,867 shares of common stock to our President, Chief Executive Officer and director, Clifford A. Reid, Ph.D., at a purchase price of \$1.50 per share;

§ 105,333 shares of common stock to R. John Curson, who was our Chief Financial Officer at the time of grant and is now our Vice President of Financial Operations, at a purchase price of \$1.50 per share; and

§ 395,333 shares of common stock to our Chief Scientific Officer, Radoje Drmanac, Ph.D., at a purchase price of \$1.50 per share. Dr. Reid, Mr. Curson and Dr. Drmanac received bonuses of \$361,615, \$133,244 and \$500,087, respectively, in connection with these grants. See "Executive Compensation - Compensation Discussion and Analysis - Long-Term Equity Incentives."

In November 2007, we entered into a consulting agreement with Mrs. Drmanac, the wife of Dr. Drmanac, our Chief Scientific Officer and one of our founders. Mrs. Drmanac provides research and development services related to our sequencing technology as an independent contractor. Mrs. Drmanac is compensated at a rate of \$150 per hour for her services. In 2009, Mrs. Drmanac was paid a total of \$150,930 for her services pursuant to the consulting agreement. The consulting agreement is for a term of five years and can be terminated by either party with ten days written notice.

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We have entered into indemnification agreements with each of our directors. Each of our directors who will remain on the board following the completion of this offering, and each of our executive officers, have entered into new indemnification agreements, which will be effective immediately prior to the consummation of this offering. See Management Limitation on Liability and Indemnification Matters.

Policies and Procedures for Related Party Transactions

Our board of directors has adopted a written related person transaction policy to set forth the policies and procedures for the review and approval or ratification of related person transactions. This policy covers, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds \$120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. Our board of directors has delegated to the Audit Committee the responsibility and authority over our related person transaction policy.

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Principal Stockholders

The following table sets forth information known to us about the beneficial ownership of our common stock at April 29, 2011, as adjusted to reflect the sale of the shares of common stock in this offering, by:

§ each person or group of affiliated persons known to us to be the beneficial owner of more than 5% of our common stock;