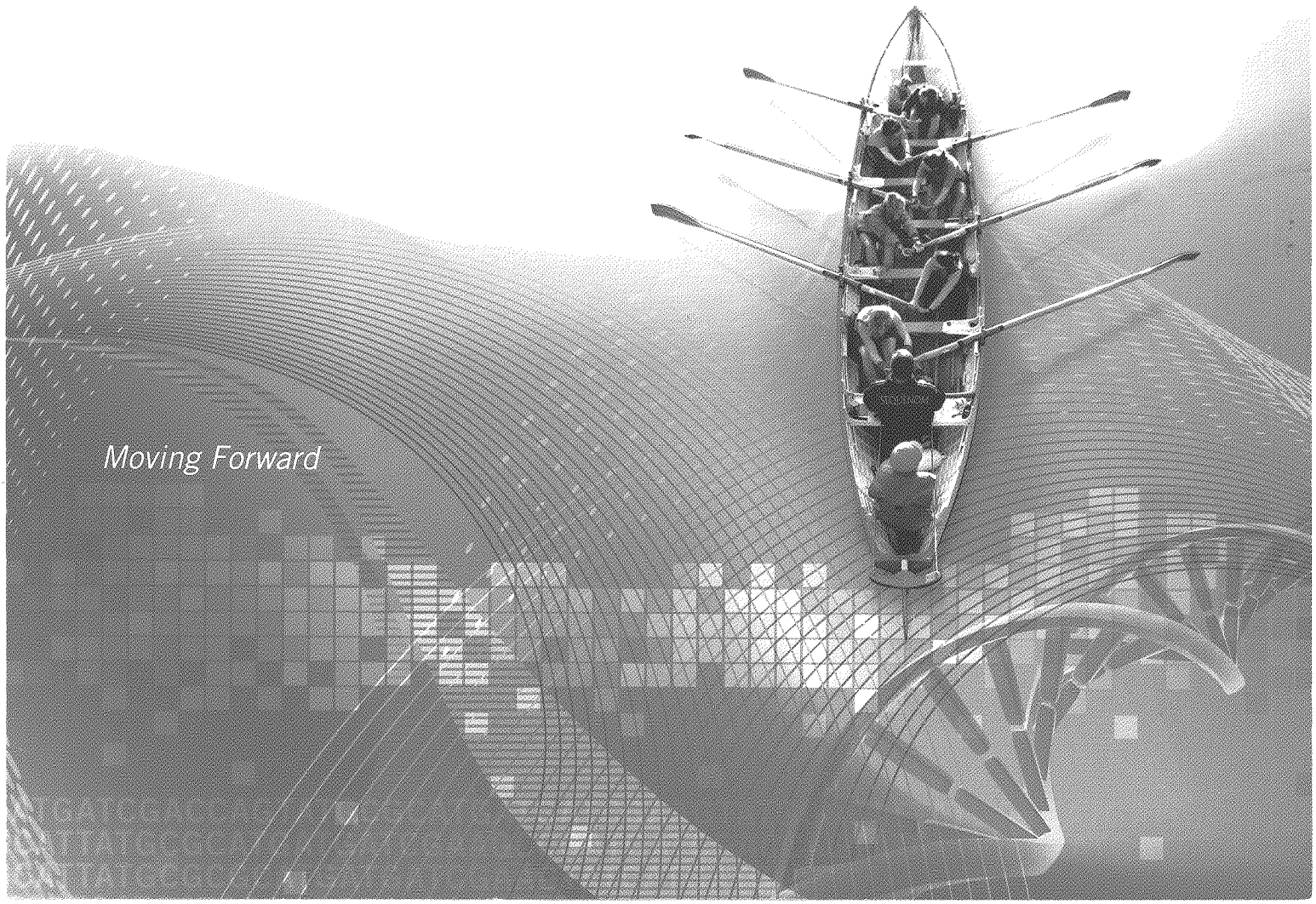
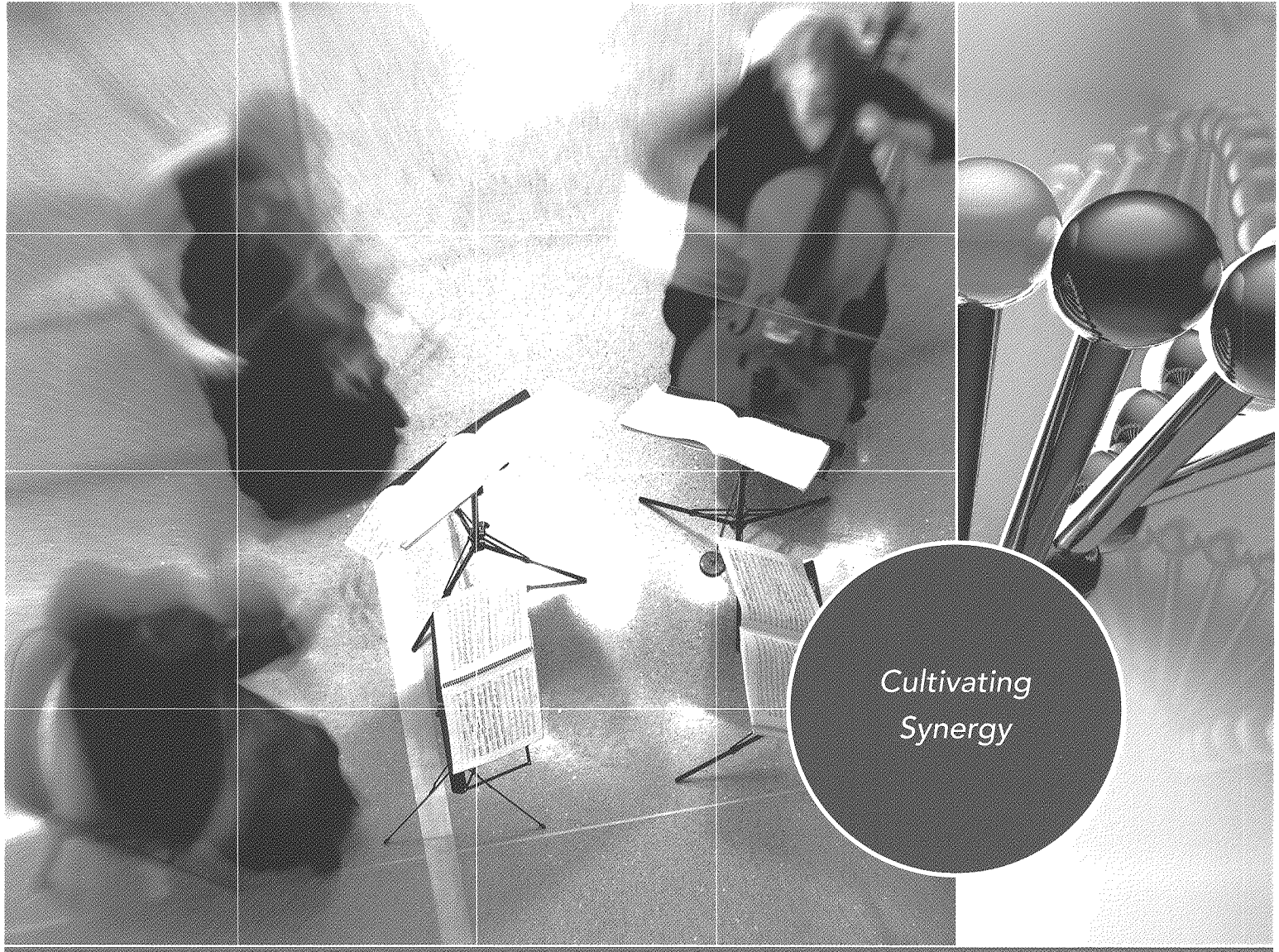
SEQUENOM®

2008 ANNUAL REPORT



Moving Forward



Contents

Except for the historical information contained herein, the matters set forth in this annual report, including statements regarding the Company's goals for 2009, commercialization of the first noninvasive prenatal diagnostic test and novel tools for our research customers, expectations regarding SEQureDx Technology including RNA and DNA-based approaches to the detection of fetal aneuploidy, potential applications, benefits and impact of such technology and approaches and expected performance including sensitivity and specificity and predictive values, the continuing development, validation and commercialization of such technology and approaches and the plans for expected availability and launch timelines of laboratory developed tests utilizing such technologies including tests for Trisomies 21, 18, and 13, Rhesus D, Cystic Fibrosis, plans for development and launch of other noninvasive prenatal tests, future opportunities for and benefits of noninvasive prenatal laboratory developed and diagnostic tests, the potential of collaborations with other parties and any expectations, impact or benefit of those collaborations, the continued development of a closed tube assay format, and market expansion of the Company's iSEQ product, are forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially, including the risks and uncertainties associated with the Company's operating performance, demand for and market acceptance of the Company's products, services, and technologies, research and development progress, new technology and product development and commercialization particularly for new technologies such as molecular diagnostics and laboratory developed tests, and particularly noninvasive prenatal diagnostics and laboratory developed tests, reliance upon the collaborative efforts of other parties, competition, intellectual property protection and intellectual property rights of others, government regulation particularly with respect to diagnostic products and laboratory developed tests, obtaining or maintaining regulatory approvals, and other risks detailed from time to time in the Company's SEC (U.S. Securities and Exchange Commission) filings, including the Company's Annual Report on Form 10-K for the year ended December 31, 2008 and other documents subsequently filed with or furnished to the SEC. These forward-looking statements are based on current information that may change and you are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this press release. All forward-looking statements are qualified in their entirety by this cautionary statement, and the Company undertakes no obligation to revise or update any forward-looking statement to reflect events or circumstances after the issuance of this annual report.

Sequenom – Synergy Moving Forward

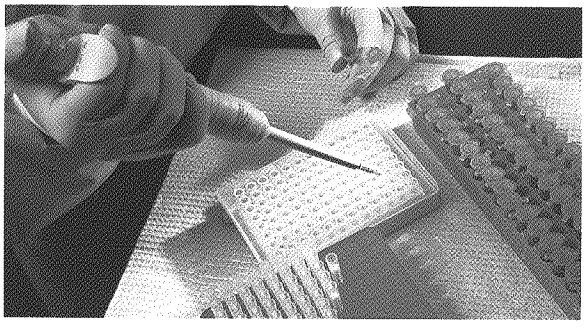
Inspiring collaborative innovation

Synergy is defined as a dynamic state in which combined action is favored over the sum of individual forces. The essence of harnessing synergy is to value differences and to recognize the harmony of individual components as they contribute to the whole. In business, synergy exists as a mutually advantageous compatibility of distinct participants, resources, and efforts. We look back on 2008 as a year that Sequenom made significant forward progress on our innovative noninvasive genetic test for Down syndrome, while introducing genetic analysis products that strengthen and expand our leadership position in the research and translational medicine communities.

The synergistic fit between our genetic analysis and molecular diagnostics businesses is becoming ever-more apparent. Our genetic analysis successes and improvements facilitate and support our diagnostics initiatives. The development of SEQureDx™ and other technologies holds the promise to transition patient management to safer, more effective methods.

The synergistic fit between our genetic analysis and molecular diagnostics businesses is becoming ever-more apparent.

We expect that 2009 will be another exciting and productive year for Sequenom as we bring our Down syndrome test to physicians and their patients, advance our transition beyond prenatal genetic testing to women's health, infectious disease and oncology, and further capitalize on the synergies between our genetic analysis and molecular diagnostics businesses.



Achieving Our Milestones

To Our Stockholders, Customers, Suppliers, and Employees,

I am delighted to report that our many accomplishments during 2008 serve to further establish Sequenom's leadership position in molecular diagnostics and genetic analysis. We made important progress last year with an innovative noninvasive genetic test for Down syndrome, while introducing new genetic analysis products that further our reach in fine-mapping genotyping.

This year will be pivotal for our diagnostics business as we prepare for a June introduction of our test for Down syndrome. Decades of work by others on noninvasive genetic-based alternatives have not overcome the formidable technical difficulties in developing such a test. Yet largely due to technology breakthroughs by Dr. Dennis Lo, Li Ka Shing Professor of Medicine at The Chinese University of Hong Kong (CUHK), and exclusively licensed to Sequenom from CUHK and Isis Innovation Ltd., our work with cell-free fetal nucleic acids has allowed for the development of our novel SEQureDx™ technology. This technology holds promise to be practice-changing in screening for Down syndrome, helping to transition patient management to a safer, more effective method and becoming the standard-of-care in a U.S. market estimated to exceed one billion dollars annually.

Our prospective clinical testing of 858 samples with SEQureDx technology produced remarkable results, with specificity of 99.9% and sensitivity of 100%. These data demonstrate that our technology is considerably more accurate than commonly used standard-of-care screening tests, which perform in practice at a 70% to 90% detection rate (i.e., sensitivity) and 90% to 95% specificity level. Our noninvasive technology also compares favorably to current invasive procedures such as amniocentesis, which has sensitivity and specificity of approximately 99.5%.

We are continually demonstrating the clinical potential of SEQureDx technology in screening for Down syndrome in progressively larger prospective studies. These include a Company-sponsored, independently administered study to include up to 10,000 samples from pregnancies considered at high risk for Down syndrome, as well as other studies conducted at our CLIA-certified laboratory, the Sequenom Center of Molecular Medicine (Sequenom CMM). Our acquisition last year of Sequenom CMM represents an important strategic move, as it allows us to develop and launch our laboratory-developed tests through our own facility. The results from both clinical studies will

be submitted for publication in peer-reviewed medical journals, and we expect that the publication of data will support physician adoption of our test.

We also engaged the leading contract sales organization PDI, Inc. to provide us with an appropriate sales infrastructure to support our ability to effectively meet a large commercial opportunity for our Down syndrome test, as well as to support other genetic tests. We plan to expand our prenatal diagnostics franchise with a Rhesus D test and a carrier screening test for cystic fibrosis, among others.

We continue to expand and strengthen our intellectual property through licensing, acquisition and internal innovation in noninvasive prenatal diagnostics, as well as in oncology. We believe our issued patents in the U.S. and Europe represent root intellectual property for the noninvasive analysis of cell-free fetal nucleic acids in blood, plasma and serum, and we have recently filed numerous additional patent applications based on this technology. We also have licensed from Xenomics rights to broad issued patents analyzing fetal nucleic acids in urine, from Cytonix rights to broad-issued patents for digital PCR for all prenatal applications, and from The Chinese University of Hong Kong exclusive rights to digital and sequencing approaches for noninvasive prenatal analysis.

We are leveraging our genetic analysis expertise and innovation by developing diagnostics for cancer and infectious diseases. Earlier this year we completed the acquisition of SensiGen, LLC which is developing oncology and infectious disease diagnostics. Under our prior collaboration with SensiGen, we were developing advanced gene-based molecular tests with diagnostic potential, including analytically validated, ultra-sensitive and ultra-specific tests for detecting and monitoring human papillomavirus (HPV) – the primary cause of cervical and head-and-neck cancers – Lupus, chronic kidney disease, inflammatory bowel disease and others, all of which utilize our MassARRAY® platform.

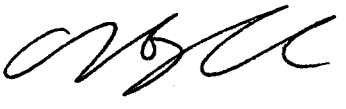
We also made significant progress with our genetic analysis business in 2008, even with economic conditions that caused contraction in capital equipment budgets, a challenge we expect to continue in 2009. In addition to placing 53 MassARRAY systems during the year, bringing the total installed based to more than 275, we launched several important products, such as our iSEQ™ Comparative Sequence Analysis application for pathogen typing and our EpiDesigner application for cancer analysis. Importantly, last year we introduced the OncoCarta™ Panel, a comprehensive multi-gene research use panel that enables cancer researchers to rapidly profile genetic changes associated with tumor initiation and progression. OncoCarta has already been adopted by many researchers in clinically directed cancer research, and holds potential to spur development of future life-altering diagnostics.

The synergistic fit between our genetic analysis and molecular diagnostics businesses is becoming ever-more apparent. In addition to our oncology and infectious disease programs, development of our closed-tube assay for our MassARRAY system provides another example. We recently completed a feasibility analysis of this format, which has important implications for our diagnostic business as it supports a simpler, more automated platform for diagnostic analysis at a lower price point.

We expect that 2009 will be another exciting and productive year for Sequenom as we bring our novel Down syndrome test to physicians and their patients, advance our transition beyond prenatal genetic testing to women's health, infectious disease and oncology, and further capitalize on the synergies between our genetic analysis and molecular diagnostics businesses.

I'd like to offer my sincere thanks to our customers and partners, our employees, and our shareholders. I appreciate and value your continued support of our Company.

Sincerely,

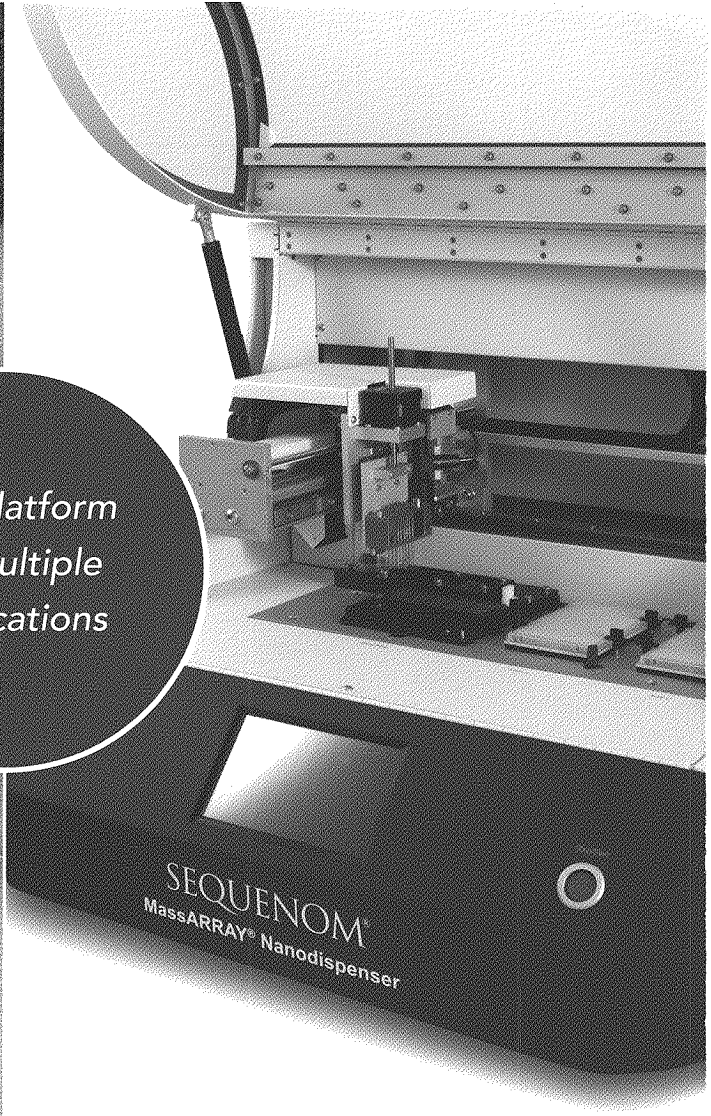


Harry Stylli, Ph.D.

President and Chief Executive Officer

March 26, 2009

One Platform for Multiple Applications



The Next Generation of Genetic Analysis Tools

In 2008, Sequenom launched a number of tools that either complement our existing genetic analysis solutions, or expand them into new markets and directions. These include the new iSEQ™ application for microbial analysis, the OncoCarta™ Panel for cancer mutation profiling, the improved SpectroCHIP® II, three new EpiPanels and the EpiDesigner, and a Copy Number Variation (CNV) solution.

iSEQ™ Comparative Sequence Analysis

Sequenom launched a new MassARRAY solution that enables accurate, high throughput identification and typing of microbes, viruses, and other haploid organisms. The iSEQ™ application is based on MassCLEAVE™ biochemistry, enabling automatic sample identification, sample grouping and mutation detection by comparison with user-defined reference sequence sets. Together with our genotyping and gene expression applications, a wide range of automated, high throughput and cost effective molecular typing schemes can be performed on Sequenom's MassARRAY® System, including those based on SNP analysis, sequence comparison, or on quantification of microbial or viral RNA or DNA.

OncoCarta™ for Oncogene Mutation Profiling

Sequenom has developed an oncogene panel based on 238 oncogene mutations using genotyping by primer extension and MALDI-TOF mass spectrometry. The OncoCarta™ Panel v1.0 offers rapid, parallel analysis of simple and complex mutations across 19 common oncogenes. The OncoCarta™ set enables validated, cost effective screening of oncogene mutation frequencies in a variety of cell and tumor types and samples for research purposes. Additional cancer screening panels are planned for 2009.

Since we have been using the SpectroCHIP II, all noticeable adduct peaks have been eliminated and the signal intensity is higher. We would recommend it to anyone doing genotyping who is experiencing adduct peaks.

Alexandre Montpetit
Assistant Scientific Director
Génome Québec Innovation Center

EpiPanels and EpiDesigner

Sequenom EpiPanels are high resolution, fine mapping panels for a subset of putative epigenetic targets. In March 2008, we announced the introduction of our Cancer EpiPanel for high-throughput methylation profiling of DNA samples over hundreds of validated cancer-associated genes. Additional panels include amplicon designs to interrogate CpG sites in genes that are maternally or paternally imprinted (Imprinting Panel, released June 2008), and over 150 genes commonly described in mouse studies (Mouse EpiPanel, released October 2008). If an investigator requires specific gene(s) of interest that are not included in the Sequenom EpiPanels, assays can be easily designed for any genomic region using Sequenom's EpiDesigner Software. EpiDesigner is a free primer design tool that facilitates optimal primer design for amplifying bisulfite converted genomic regions of interest. The EpiTYPER technology combined with the simplicity of pre-designed panels and the EpiDesigner offers quantitative methylation profiling of virtually any genomic target.

Copy Number Variation (CNV)

During the third quarter of 2008, we issued a user guide to support the analysis of CNVs. CNV refers to differences in the number of copies of a particular gene present in the genome of an individual. Since CNVs often encompass genes with important roles both in disease and drug response, understanding CNVs may also help scientists understand human genome evolution.

SpectroCHIP® II

In 2008 we concentrated some of our efforts on improving our SpectroCHIP® array, a key product in Sequenom's technology. The improvements made to the matrix have reduced the likelihood of adduct formation. The improvements made also allowed us to increase signal to noise ratio. Customers that have used the SpectroCHIP® II gave us very positive feedback.

Genetic Services – Providing quality data and outstanding service

The Sequenom Genetic Services Laboratory specializes in a variety of genomic analysis applications including Genotyping, Methylation Analysis and Gene Expression Analysis.

The highly automated, state-of-the art laboratory has 9 dedicated MassARRAY systems with a total capacity of over one million genotypes per day.

New Genotyping Service: OncoCarta™ Panel v1.0

The OncoCarta™ Panel v1.0 is comprised of a group of highly sensitive assays for oncogene mutation detection, and is now being offered as a service.

Assays-By-Sequenom

Assays-By-Sequenom launched in 2007 provides a convenient and cost effective way for customers to obtain ready-to-go mixed and validated assays. The offering includes three levels of service, from which researchers can choose based on their needs. Assays-By-Sequenom customers can access the service using our e-commerce portal: *mysequenom.com*.

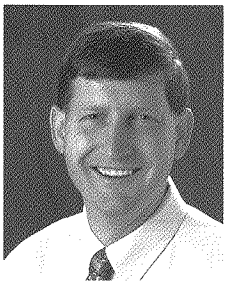
Ordering pre-mixed assays decreases hands-on time and infrastructure requirements for assay set up. Assays-by-Sequenom enables larger scale studies with faster turnaround time, which further strengthens our competitive advantage in the fine mapping market.

Center of Excellence Program

In July of 2008, the McGill University and Génome Québec Innovation Centre became the first Sequenom Genotyping Center of Excellence (COE). This distinction signifies the achievement and maintenance of ongoing quality and service when providing genotyping services to the public. Future COEs are in the process of being certified.

CENTER OF SEQUENOM® EXCELLENCE

I'm very impressed with the professionalism and quality of data from Sequenom's Methylation Analysis service. They really have it down to an art. We observed good correlation of duplicate samples and proper data corresponding to controls, and the data we received was very easy to read. I'm so glad I chose to outsource this project.



Robert Philibert M.D., Ph.D.
Associate Professor of Psychiatry
The University of Iowa

Methylation Analysis

The proportion of Methylation Analysis projects increased significantly in 2008. The popular service offers several superlative features including individual methylation ratios for CpGs within a target sequence, long reads up to 600 bp in one reaction, robust analysis from a range of samples including formalin fixed paraffin embedded (FFPE) samples, as well as the scalability expected from the MassARRAY platform.

The Potential to Advance Prenatal Care

Sequenom's research and development team, in collaboration with the world's leading experts in genetic medicine, is working on noninvasive prenatal genetic tests using SEQureDx technology. SEQureDx technology aims to provide accurate information to women, their physicians, and genetic counselors.

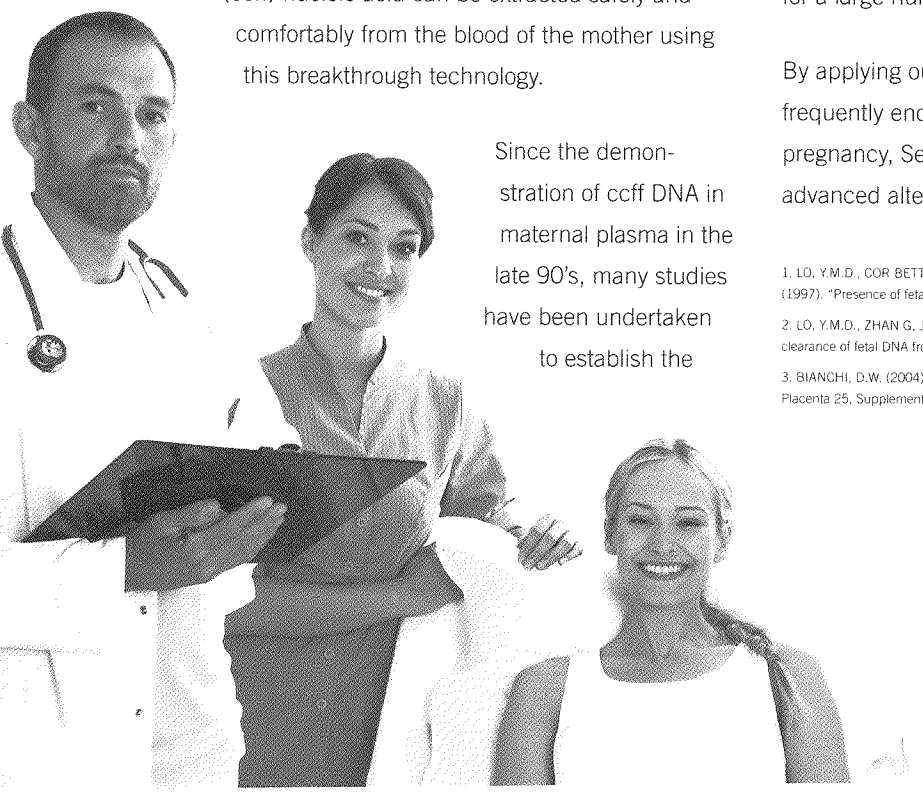
We anticipate that SEQureDx technology will be utilized early in pregnancy and may reduce the need for invasive procedures such as amniocentesis or chorionic villus sampling.

The Birth of a New Technology

Noninvasive Prenatal Diagnostics

In 2008 Sequenom successfully continued its research efforts using its exclusively licensed noninvasive technology, SEQureDx™ and completed highly promising research studies on tests for fetal RHD genotyping, Trisomy 21 (Down syndrome) and *Fetal*^{xy} (fetal sex determination). In addition, new exclusive licensing brought promise of future developments for noninvasive prenatal diagnostic tests.

SEQureDx technology is a revolutionary approach to genetic testing. For years, doctors have used either surrogate biochemical markers or invasive procedures such as amniocentesis or chorionic villus sampling to determine the health of a fetus, but the introduction of Sequenom's new technology has the potential to become the desired alternative testing method to these indirect or invasive procedures. For example, rather than harvesting placental tissue cells (as is required for chorionic villus sampling), or entering the uterus to sample the amniotic fluid surrounding the fetus (as is done with amniocentesis), circulating cell-free fetal (ccff) nucleic acid can be extracted safely and comfortably from the blood of the mother using this breakthrough technology.



Since the demonstration of ccff DNA in maternal plasma in the late 90's, many studies have been undertaken to establish the clinical utility of this methodology in noninvasive prenatal tests. Compared to testing intact fetal cells isolated from maternal blood, there are significant advantages to testing ccff DNA in maternal plasma.

1. There are sufficient quantities of ccff DNA in pregnancy to develop prenatal diagnostic tests for routine testing.[1]
2. The turnover of circulating fetal DNA has been studied and appears to be quite rapid. In most women, circulating fetal DNA is undetectable by 2 hours postpartum, and the mean half life is estimated to be 16.3 minutes (4-30 minute range). This means there is little risk of interference of DNA from previous pregnancies.[2]
3. ccff DNA has been reported to be detected routinely at 12 weeks, showing promise for noninvasive fetal DNA tests in the 1st trimester.[3]

These unique characteristics of ccff DNA provide assurance of rapid, reliable and reproducible noninvasive prenatal tests that can be easily carried out for a large number of samples.

By applying our novel SEQureDx technology to frequently encountered diagnostic problems in pregnancy, Sequenom believes it can create a safe, advanced alternative in prenatal care for women.

1. LO, Y.M.D., COR BETTA, N., CHAM BERLAIN, P.F., RAI, V., SAR GENT, I.L., REDMAN, C.W. (1997). "Presence of fetal DNA in maternal plasma and serum." Lancet 350:485–7.

2. LO, Y.M.D., ZHAN G, J., LEUN G, T.N., LAU , T.K., CHAN G, A.M., HJELM , N.M. (1999). "Rapid clearance of fetal DNA from maternal plasma." Am J Hum Genet 64:218–24.

3. BIANCHI, D.W. (2004). "Circulating fetal DNA: its origin and diagnostic potential-A Review." Placenta 25, Supplement A. Trophoblast Research, Vol. 18, S93–S101.

Valuable Additions and New Collaborations

Commercialization through a Strategic Acquisition

The expertise in molecular diagnostics at the Sequenom Center for Molecular Medicine and its relationship with a key healthcare system, Spectrum Health, are valuable and complementary assets for Sequenom, which will position the company for successful launch of tests using its exclusively licensed SEQureDx™ technology on its highly sensitive MassARRAY platform.

Sequenom Center for Molecular Medicine®

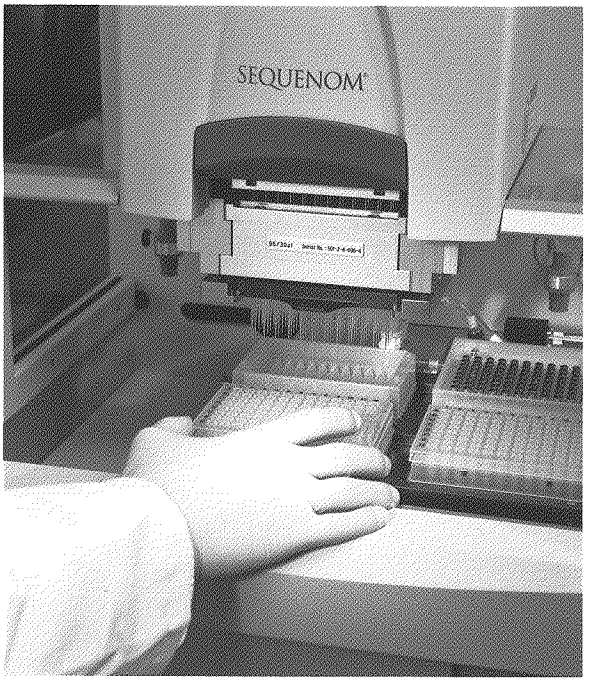
Cutting-edge diagnostics with a focus on women's health and oncology

In November 2008, Sequenom acquired a CLIA certified and CAP accredited molecular pathology laboratory located in Grand Rapids, Michigan, a major step in the commercialization strategy for its SEQureDx technology.

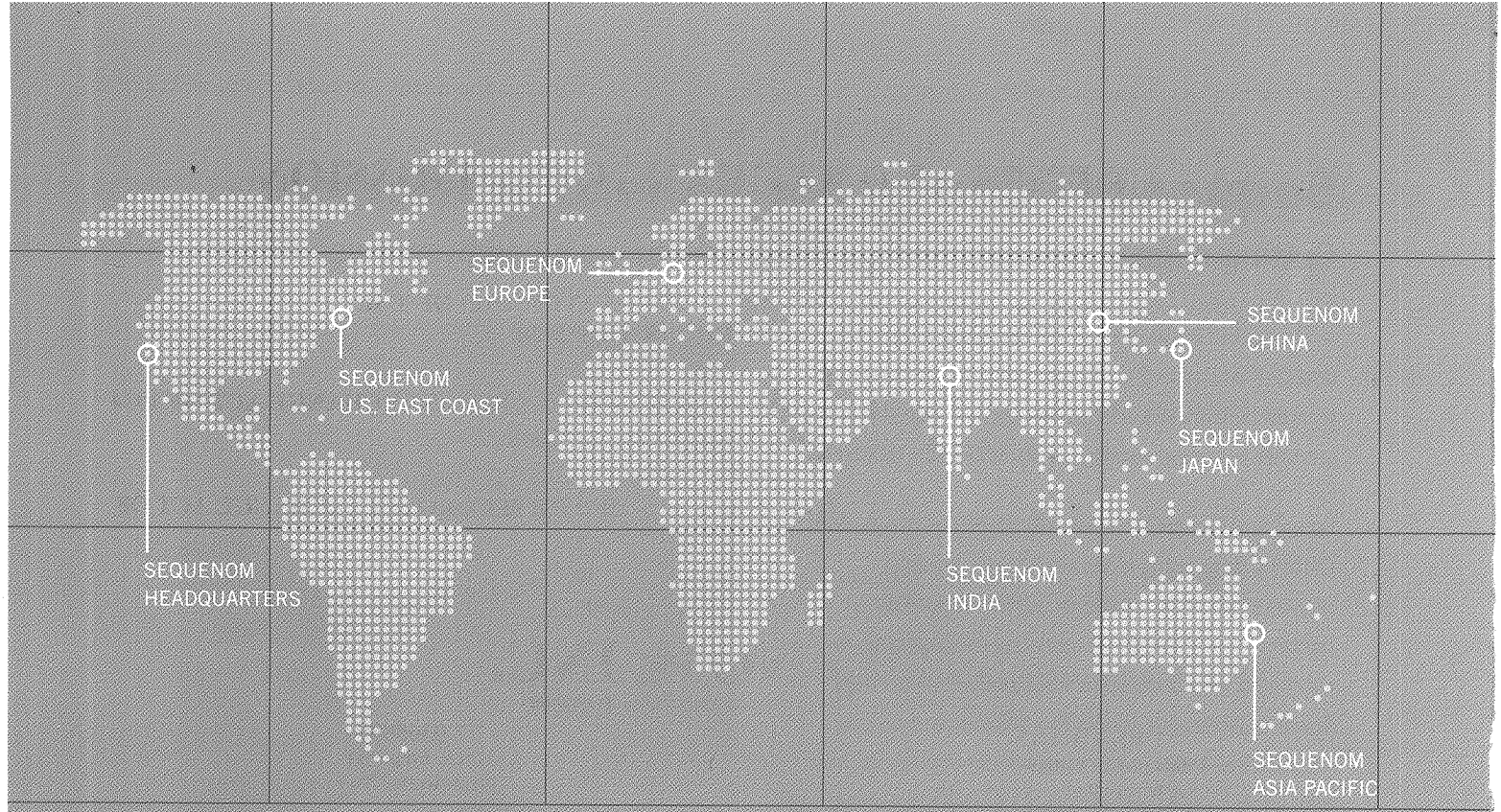
Sequenom Center for Molecular Medicine (Sequenom CMM) is developing a comprehensive portfolio of laboratory developed tests (LDTs) on the high performance MassARRAY genetic analysis platform combined with Sequenom's SEQureDx™ technology. These technologies enable the efficient and precise measurement of trace amounts of circulating cell-free fetal (ccff) genetic target material from a simple maternal blood sample.

Noninvasive tests currently in development are fetal RHD genotyping, Aneuploidies, including Trisomy 21 (Down syndrome) and *Fetal*^{XY}. Also offered will be a cystic fibrosis carrier screening test with the largest mutation panel available. It is anticipated that these initial tests will all be commercialized by the summer of 2009. The future menu may include tests for head and neck cancer and lupus.

It is through such tests that Sequenom CMM will provide an advanced alternative to prenatal care and has the promise of improving women's healthcare. By offering timely and accurate information to women and their physicians, better tools will be provided to achieve the best pregnancy outcomes.



Sequenom Center for Molecular Medicine is changing the landscape in genetic disorder diagnostics – enabling the highest standard of care for all women.



International Locations

Providing worldwide customer support

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F: (858) 202-9001

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layout & design: emago media

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

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTIONS 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

(Mark One)

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

For the fiscal year ended December 31, 2008

OR

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

For the transition period from to .

Commission File Number: 000-29101

SEQUENOM, INC.

(Exact name of Registrant as specified in its charter)

DELAWARE	**77-0365889**
(State or other jurisdiction or incorporation or organization)	**(I.R.S. Employer Identification No.)**
3595 John Hopkins Court San Diego, California	**92121**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 202-9000

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

Common Stock, $.001 par value

(Title of class)

The Nasdaq Stock Market, LLC

(Name of Each Exchange on Which Registered)

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

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

Large accelerated filer ☐	Accelerated filer ☒	Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company filer ☐

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

The aggregate market value of the voting stock held by non-affiliates of the registrant, based upon the closing sale price of the Common Stock on June 30, 2008 as reported on The Nasdaq Global Market, was approximately $586.6 million. Shares of Common Stock held by each executive officer and director and by each person who owns 10% or more of the outstanding Common Stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of February 2, 2009, there were 60,977,461 shares of the registrant's Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates by reference information from the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission (the "Commission") in connection with the solicitation of proxies for the registrant's annual meeting of stockholders to be held on May 12, 2009. Such definitive proxy statement will be filed with the Commission no later than 120 days after December 31, 2008.

SEQUENOM, Inc.
FORM 10-K
For the Fiscal Year Ended December 31, 2008
Index

PART I

Item 1. BUSINESS

All statements in this report that are not historical are forward-looking statements within the meaning of Section 21E of the Securities Exchange Act. These forward-looking statements can generally be identified as such because the context of the statement will include words such as "may," "will," "intend," "plans," "believes," "anticipates," "expects," "estimates," "predicts," "potential," "continue," "opportunity," "goals," or "should," the negative of these words or words of similar import. Similarly, statements that describe our future plans, strategies, intentions, expectations, objectives, goals or prospects are also forward-looking statements. These forward-looking statements are or will be, as applicable, based largely on our expectations and projections about future events and future trends affecting our business, and so are or will be, as applicable, subject to risks and uncertainties including but not limited to the risk factors discussed in this report, that could cause actual results to differ materially from those anticipated in the forward-looking statements. We caution investors that there can be no assurance that actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements. Our views and the events, conditions and circumstances on which these future forward-looking statements are based, may change. All forward statements are qualified in their entirety by this cautionary statement and we undertake no obligation to revise or update any such statements to reflect events or circumstances after the date hereof.

SEQUENOM®, SpectroCHIP®, iPLEX® , and MassARRAY® are registered trademarks and EpiTYPER™, SEQureDx™ , MassCLEAVE™, iSEQ™ and AttoSense™ are trademarks of Sequenom, Inc. This report may also refer to trade names and trademarks of other organizations.

Sequenom, Inc. was incorporated in 1994 under the laws of the State of Delaware. As used in this report, the words "we," "us," "our," and "Sequenom" refer to Sequenom, Inc. and its wholly owned subsidiaries on a consolidated basis, unless explicitly noted otherwise.

Overview

We are a diagnostic testing and genetics analysis company committed to providing products, services, diagnostic testing, applications and genetic analysis products that translate the results of genomic science into solutions for biomedical research, translational research, molecular medicine applications, and agricultural, livestock, and other areas of research. Our development and commercialization efforts in various diagnostic areas include non-invasive prenatal diagnostics, oncology, infectious diseases, and other disorders.

Molecular Diagnostics and SEQureDx™ Technology

Molecular Diagnostics

We are researching, developing and pursuing the commercializion of various non-invasive molecular diagnostic tests for prenatal genetic disorders and diseases, oncology, infectious diseases, and other diseases and disorders. We have branded our diagnostic technology for prenatal diagnostics under the trademark SEQureDx. Our efforts in molecular diagnostics are focused on non-invasive diagnostics currently using our proprietary MassARRAY system, however, we may in the future employ other platforms with our applications as may be more suitable on a case-by-case basis considering optimum test performance and commercialization factors.

Currently, we are primarily focused on developing and commercializing prenatal screening and diagnostic tests using our non-invasive, circulating cell-free fetal (ccff) nucleic acid based assay technology. This technology is non-invasive to the womb using a simple maternal blood draw for prenatal diagnosis in order to provide more fundamental and reliable information about the fetus early in pregnancy. Our planned screening and diagnostic tests in areas of women's health, oncology, and infectious disease are also non-invasive and are expected to use simple blood draws from patients rather than invasive procedures such as surgery.

Supporting our initiatives in women's health, oncology and infectious disease we entered into an agreement for the acquisition of the complete AttoSense portfolio of gene-based molecular tests and related assets from SensiGen LLC in January 2009. The acquisition includes highly-sensitive and specific tests for the detection and monitoring of human papillomavirus (HPV) (the primary cause of cervical and head and neck cancers), systemic lupus erythematosus (Lupus), chronic kidney disease (CKD), inflammatory bowel disease (IBD) and other tests, all of which utilize our proprietary MassARRAY platform. This acquisition was completed in February 2009.

Prenatal Diagnostics

Non-invasive prenatal diagnostic tests based on our foundational fetal nucleic acid analysis intellectual property are initially being developed on our MassARRAY platform for chromosomal aneuploidies including Trisomy 21 (Down syndrome), Trisomy 18 (Edwards syndrome), and Trisomy 13 (Patau syndrome), Rhesus D genotyping and gender determination for sex-linked disorders. Through our Clinical Laboratory Improvement Amendments (CLIA) licensed laboratory, the Sequenom Center for Molecular Medicine (SCMM), located in Grand Rapids, Michigan, laboratory developed tests (LDTs) will be developed, validated and commercialized. This is a common approach used for most molecular genetic tests. We have made substantial investments in our information technology infrastructure to enhance the capabilities of our CLIA laboratory to track samples and provide electronic ordering and reporting, and have put in place sample collection and transportation systems that can be readily scaled. We are also pursuing relationships with payors that will support our pricing structure and reimbursement opportunities.

We plan to launch through our CLIA laboratory a non-invasive prenatal screening LDT test for Rhesus D and a carrier screening test for Cystic Fibrosis during the second quarter of 2009. We expect to continue launching other tests including a non-invasive prenatal screening LDT test for trisomies (Trisomy 21 and potentially Trisomies 18 and 13) in June 2009 and a non-invasive prenatal screening LDT test for gender-linked disorders (our Fetal^{xy} screen) during the fourth quarter of 2009. Concurrent with our LDT commercialization activities, we plan to conduct the development, validation, and other activities necessary to file submissions with the Food and Drug Administration (FDA) seeking approval for selected diagnostic tests. We plan to file submissions with the FDA for our prenatal trisomy tests and Rhesus D genotyping in 2010.

In September 2008 we announced positive results from our Trisomy 21 prenatal test studies using our proprietary RNA-based ccff SEQureDx technology. We reported that data from blinded studies involving 399 clinical samples collected prospectively showed that our proprietary test for Down syndrome correctly identified 100% of all Down syndrome samples without any false-positive or false-negative outcomes. Our test demonstrated complete concordance with invasive procedures such as amniocentesis and chorionic villus sampling (CVS) in both first and second trimester samples.

In January 2009, we announced further positive results from additional Trisomy 21 prenatal test studies using our proprietary RNA-based ccff SEQureDX technology. We presented data for 459 new samples from prospective blinded studies, bringing the total number of samples studied to 858. The test correctly identified all 22 Down syndrome positive samples in the data set including eight first-trimester and 14 second-trimester Down syndrome samples (*i.e.* 100% sensitivity or detection rate) with a single false positive and no false negatives, as confirmed by CVS or amniocentesis. We also announced an enhancement to our non-invasive SEQureDx trisomy technology utilizing a DNA-based approach. This method demonstrated universal ethnic coverage, high sensitivity and specificity, and the ability to detect Trisomy 21 (Down syndrome), Trisomy 18 (Edwards syndrome) and Trisomy 13 (Patau syndrome) in a single test. The DNA-based test may potentially be used in parallel to the RNA-based method or as a front-line test in its own right. The DNA-based method correctly detected the one homozygous positive Down syndrome sample that the RNA-based method did not resolve (i.e., that had been deemed "inconclusive"). When compared to amniocentesis or CVS, the new DNA-based method correctly identified all 68 homozygotes tested including inconclusive Down syndrome samples and inconclusive Edwards syndrome samples. While we are still working on increasing population coverage for the test, we currently anticipate that the population coverage for the launched test should increase to greater than 95% of the United States population.

Based on the results from the 858 total study samples, our SEQureDx RNA-based technology demonstrated:

- Specificity of 99.9% (99.2%–100.0%) and 100% sensitivity (87.9%–100.0%) at a 95% confidence interval;
- The Positive Predictive Value is 96.6% (82.8%–99.8%) and the Negative Predictive Value of 100.0% (99.5%–100%) at a 95% confidence interval;
- The SEQureDx RNA test had a total of 106 unresolved results ("inconclusives") due to homozygotes (94) and unacceptable RNA levels (12) or a total of 12.4%. (The DNA-based method, when applied, resolved the no calls of those samples which could be tested);
- SEQureDx is more accurate than commonly employed standard-of-care screening tests, which perform at a 70%-90% detection rate (i.e., sensitivity) with a 90%-95% specificity in practice. SEQureDx even compares favorably to current invasive procedures, such as amniocentesis (which has sensitivity and specificity of approximately 99.5%).

"Specificity" is the probability that the test will be negative if the patient does not have the disease or condition. "Sensitivity" is the probability that the test will be positive if the patient has the disease or condition. "Positive Predictive Value" is the probability that a patient has the disease or condition when his/her test is positive. "Negative Predictive Value" is the probability that a patient does not have the disease or condition when his/her test is negative. The ranges in parentheses are 95% confidence intervals which represent the statistical uncertainty associated with the results based on the sample data.

We have engaged third parties to further validate and to provide independent assessment of our prenatal trisomy test technology. These studies are important in order for us to obtain insurance payor coverage for our tests, to drive physician adoption and recommendation of our tests, and to facilitate commercialization of our products. Under our agreement with Obstetrix Medical Group (Obstetrix), Obstetrix will provide SCMM with samples for a study to further evaluate our non-invasive prenatal test for Down syndrome. Obstetrix is a national physician group practice of maternal-fetal medicine specialists that is affiliated with Pediatrix Medical Group. This prospective multi-center feasibility study is designed as a LDT validation study and is intended to evaluate samples from 3,000 to 5,000 pregnant women for Down syndrome as part of test validation prior to our planned commercial launch of the test in June 2009. Findings of this study are expected to be presented at a health conference in the first quarter of 2010.

A second study, an independent, prospective, multi-arm, multi-center observational study to document the performance of our non-invasive prenatal test for Down syndrome is currently underway for the evaluation of samples from up to 10,000 pregnant women in high-prevalence pregnancies. This independent study is led by Women & Infants Hospital of Rhode Island. A peer-reviewed publication of data from the first arm of the study evaluating second trimester samples is expected in the fourth quarter of 2009 and peer-reviewed publication of data from the first trimester arm is expected in the second quarter of 2010. Peer-reviewed publication is important for physician education and to drive test commercialization which relies upon physician recommendation and adoption of our tests.

We plan to pursue development of other non-invasive prenatal tests which are relevant to diagnosing disorders or conditions such as thalassemias, cardiac disorders, congenital disorders and autism, and also pursue development of tests for post-natal applications of interest. For example, in January 2009 we announced a collaboration with the Immune Tolerance Institute to develop an advanced newborn screening test for severe combined immunodeficiency (SCID), a rare disease affecting newborns that can be treated effectively if diagnosed early. The test is based on the pioneering work of Jennifer Puck, M.D. of the University of California, San Francisco. A successful feasibility study was recently completed demonstrating the adaptability of Dr. Puck's real time polymerase chain reaction (RT-PCR) screening assay for SCID diagnosis to our MassARRAY platform.

In addition to the technical and other progress on our trisomy tests described above, our key molecular diagnostics and SEQureDx technology developments during 2008 also included:

- We completed the acquisition of a CLIA-Certified, CAP accredited laboratory, the Michigan based Center for Molecular Medicine. As part of the acquisition, certain collaborative agreements with Spectrum Health and the Van Andel Research Institute were formalized. The CLIA laboratory was renamed the Sequenom Center for Molecular Medicine (SCMM);
- We initiated a multi-center fetal RhD study at centers affiliated with the North American Fetal Therapy Network (NAFTNet) using our MassARRAY System and SEQureDx Technology;
- We generated preliminary data using DNA markers indicating the ability of SEQureDX technology to determine fetal gender early in pregnancy, which could reduce the need for invasive prenatal procedures in women with fetuses at risk for X-link or sex-dependent genetic disorders;
- In a collaborative technology project with The Chinese University of Hong Kong and Boston University, we achieved breakthrough data supporting new technology for the non-invasive prenatal diagnosis of monogenic diseases as published online in the Early Edition of the *Proceedings of the National Academy of Sciences.* Monogenic diseases, which include cystic fibrosis, ß-thalassemia and sickle cell anemia, are currently definitively diagnosed prenatally only through invasive procedures following extensive carrier screening testing on both parents;
- We acquired exclusive worldwide rights (excluding Hong Kong) to digital PCR and other non-invasive prenatal diagnostic intellectual property including "shotgun sequencing" technology from The Chinese University of Hong Kong;
- We acquired exclusive rights to fundamental patent rights for digital PCR technologies and methods through a licensing agreement with Genomic Nanosystems, LLC, a wholly owned subsidiary of the Cytonix Corporation; and
- We entered into an exclusive licensing agreement with Xenomics, Inc, for exclusive rights to patents for prenatal research and diagnostic products developed using fetal nucleic acids found in maternal urine.

Prenatal Diagnostics Licenses

We have exclusively in-licensed patent rights (U.S. Patent No. 6,250,540 and its foreign equivalents) to use cell-free fetal nucleic acids for diagnostic testing of serum and plasma samples obtained from pregnant women from Isis Innovation Ltd. (ISIS) a wholly owned subsidiary of the University of Oxford. Our exclusive license rights, which are platform independent and not limited to mass spectrometry, cover the general diagnostic use of cell-free fetal nucleic acids derived from maternal plasma or serum in territories including the United States, Europe, Australia, Canada, Hong Kong and Japan as well as non-exclusive rights in China.

In October 2005, and as amended thereafter, we entered into the agreement with ISIS, pursuant to which ISIS granted us an exclusive royalty-bearing license in the United States, Canada, France, Germany, Great Britain and other countries in Europe, to develop, use and market products covered by the patent claims of U.S. Patent No. 6,250,540 and its foreign equivalents, licensed under the ISIS Agreement (the Licensed Products), except for the field of Rhesus D blood typing by RT-PCR amplification platforms in Europe. The licensed technology, including improvements made by the inventors prior to the ISIS Agreement, covers non-invasive prenatal genetic diagnostic testing on fetal nucleic acids.

In October 2006 we entered into an amendment to the ISIS Agreement pursuant to which, in exchange for an upfront payment by us and entitlement to milestone and royalty payments, ISIS granted us an expanded exclusive license including the field of prenatal gender determination for social or lifestyle purposes and an expanded territory for the field of gender determination for social or lifestyle purposes including Japan and Australia. In November 2007, we entered into a second amendment to the ISIS Agreement pursuant to which, in exchange for an upfront payment by us, a right to a milestone fee upon completion of a specified event, and

royalty payments on sales, ISIS granted us an expanded licensed territory to include Japan, Australia, and Hong Kong, excluding in the case of Hong Kong the field of gender determination for social or lifestyle purposes.

We also have an exclusive option to negotiate a further license of any improvements made by ISIS inventors. Subject to the license rights granted under the ISIS Agreement, intellectual property rights created in connection with improvements made to the licensed technology will belong to the party developing the improvements. We also granted to ISIS a perpetual royalty-free license to the University of Oxford to use and publish material relating to the licensed technology and any of our improvements solely for non-commercial use. The University of Oxford's right to publish is subject to our right to delay publication of information to protect the licensed technology or our improvements.

We have agreed to make up-front payments to ISIS and pay to ISIS royalties on net sales of Licensed Products, including specified minimum royalty amounts, and milestone payments upon commercial events with respect to Licensed Products for particular indications.

The ISIS Agreement will remain in force for the life of any patent issued in connection with the patent application covering the licensed technology, subject to earlier termination by either party upon uncured material breach or other specified circumstances. ISIS may terminate the ISIS Agreement if we file a petition to wind-up or dissolve or upon 30 days written notice if we were to challenge the validity of the patent rights covering the licensed technology or fail to make the up-front payments as provided in the ISIS Agreement. After the third anniversary of the ISIS Agreement, we may terminate the ISIS Agreement for any reason with six months advance written notice. In the event we fail to achieve certain milestone requirements with respect to particular indications, ISIS may convert the exclusive license into a non-exclusive license with respect to those indications.

We have also exclusively in-licensed patent rights from the Chinese University of Hong Kong, and Xenomics Inc., covering the general use, on any technology platform, of fetal nucleic acids derived from maternal plasma, serum, urine, and in some cases whole blood, for non-invasive prenatal genetic diagnostic testing, including genetic, expression and epigenetic-based assays and tests.

Our license agreement with Xenomics, Inc. provides us with exclusively licensed patent rights (including United States Patent Nos. 6,251,638; and RE 39,920) for the use of fetal nucleic acids obtained from maternal urine. The license provides us with the exclusive global right to use transrenal fetal DNA in maternal urine for non-invasive prenatal diagnostics and analysis on a technology-independent basis for all uses, excluding the limited field of fetal gender determination solely by the presence of Y chromosome. This intellectual property for urine-based tests provides us with additional options for test development and commercialization. The licensed intellectual property includes issued patents in the United States and Europe and is part of our continuing strategy to expand and protect our SEQureDx franchise through the identification and licensing of new technologies and sampling methodologies.

We also hold exclusive rights to issued patents and pending patent applications providing fundamental patent rights for digital PCR technologies and methods through a licensing agreement with Genomic Nanosystems, LLC, a wholly owned subsidiary of the Cytonix Corporation. The issued patents are United States Patent Nos. 6,143,496; 6,391,559; and 7,459,315 and will expire in 2017. The license provides us with the exclusive right to use patented and patent pending digital PCR methods on any platform for non-invasive prenatal diagnostics and analysis for any sample (for example, fetal cells, amniocentesis fluids, plasma, urine, etc.). We also secured the exclusive right to use digital PCR methods in conjunction with mass spectrometry for any commercial, diagnostic or research purpose, excluding second generation sequencing.

In January 2007, as part of our platform independent commercialization strategy, we announced our first commercial partnership with Lenetix Medical Screening Laboratory, Inc., on a non-exclusive basis, who has developed a CLIA validated test for Rhesus D blood incompatibility using real time polymerase chain reaction RT-PCR (the "Lenetix Agreement"). In December 2007, Lenetix received New York State approval of a

non-invasive prenatal LDT performed on a real-time PCR (RT-PCR) platform to detect Rhesus D incompatibility, based on our technology licensed and the work performed under the Lenetix Agreement. Commercial sales of the test by Lenetix commenced in January 2008. We have not and do not expect to derive significant revenues from the Lenetix Agreement in the future.

Molecular Diagnostics Market

The United States molecular diagnostics testing market represents the fastest growing and most profitable area of the $51.7 billion clinical laboratory industry in the United States. In the United States the molecular diagnostics market segment is estimated to be $5.8 billion at a growth rate of 19% per year. When looking at the different segments of the molecular diagnostics market, infectious disease represents 73%, oncology 12% and genetic testing is 12%. With our SEQureDx technology for prenatal diagnostics, the Attosense HPV technology acquired from SensiGen, and our evolving oncology suite of products, we are positioning Sequenom for short and long-term leadership roles in the molecular diagnostics market.

In the near term, we are targeting a $2 billion prenatal screening opportunity with our prenatal Down syndrome and Rhesus D genotyping products. Cystic fibrosis carrier screening, which is often ordered when Down syndrome screening is performed is estimated to be a market worth an additional $250 to $750 million based on the different product offerings available in the United States today.

Genetic Analysis

Our proprietary MassARRAY system, comprised of hardware, software applications, consumable chips and reagents, is a high performance (in speed, accuracy and cost efficiency) nucleic acid analysis platform that quantitatively and precisely measures genetic target material and variations. Our platform is widely accepted as a leading high-performance DNA analysis platform for the fine mapping genotyping market and is gaining traction in newer developing markets, such as epigenomics and clinical microbiology. Our customers include premier clinical research laboratories, bio-agriculture, bio-technology and pharmaceutical companies, academic institutions, various government agencies worldwide, as well as our CLIA certified lab, Sequenom Center for Molecular Medicine. To provide customer support for our expanding user base and in an effort to maximize market penetration, we have established direct sales and support personnel serving North America, Europe, India, Australia and Asia, in addition to regional distribution partners in France, Israel, Russia, Eastern Europe, South Korea, New Zealand, Singapore, Taiwan, Kuwait, Saudi Arabia and Turkey.

Our MassARRAY system provides reliable results for a wide range of DNA/RNA analysis applications including single nucleotide polymorphism, or SNP, genotyping detection of mutations, analysis of copy number variants and other structural genome variations. In addition, the system is valuable in providing quantitative gene expression analysis, quantitative methylation marker analysis, comparative sequence analysis of haploid organisms, SNP discovery, and oligonucleotide quality control. These applications are provided through proprietary application software that operates on the MassARRAY platform and through the purchase of consumable chips and reagent kits. While the MassARRAY system is versatile across many applications, it is a robust and cost-effective genotyping solution for fine mapping projects enabled through our iPLEX multiplexing assay reagents and chips which permits multiplexed SNP analysis using approximately the same amount of reagents and chip surface area as is used for a single sample analysis.

Our research and development efforts in genetic analysis are committed to producing new and improved components and applications for the MassARRAY system that deliver greater system versatility and excellent data quality at a competitive price per data point. These research and development activities and new applications also facilitate and support our diagnostics initiatives. Our genetics analysis business product offerings and developments during 2008 included the following:

- *iSEQ Comparative Sequence Analysis* – We launched a new MassARRAY application that enables accurate, high throughput identification and typing of microbes, viruses, and other haploid organisms.

The iSEQ application is based on our proprietary MassCLEAVE biochemistry, enabling automatic sample identification, sample grouping and mutation detection by comparison with user-defined reference sequence sets. This product expands our genomic and genetic analysis portfolio and is intended for use by the research community in various fields including epidemiological and surveillance monitoring, biodefense, agricultural and food science applications, forensics and basic clinical research. The application (available through software and reagents) offers a cost-efficient and less labor intensive alternative and is ideally suited for automating and developing new microbial typing and monitoring strategies. The iSEQ application provides an open format for sequence inputs and allows for an easy adoption of the technology for comparative sequence analysis.

- *Copy Number Variation (CNV)* – We introduced an application that supports the analysis of CNVs. CNV refers to the genetic trait of differences in the number of copies of a particular gene or gene region present in the genome of an individual. Since CNVs often encompass genes that may have important roles both in human disease and drug response, understanding the mechanisms of CNV formation may also help scientists better understand human genome evolution. CNVs can also play a significant role in the etiology of cancer and the response of a tumor to specific drugs.
- *Epigenomics Applications and Panels* – We launched a new EpiDesigner application as well as four new pre-validated content panels for commonly studied genes in cancer drug discovery and development, including a Standard Epi-Panel, Imprinting, Cancer and Mouse EpiPanels. Epigenomics refers to the study of heritable factors that can cause an organism's genes to behave (or "express themselves") differently, even though the gene sequence itself may not change. Our Cancer EpiPanel can be used for high-throughput methylation profiling of DNA samples over hundreds of validated cancer-associated genes. Using our proprietary EpiTYPER technology, the pre-designed Cancer EpiPanel offers a first-of-its-kind simplified method of rapid and quantitative methylation profiling of commonly studied cancer-related genes. We believe these enhancements to our EpiTYPER application will aid researchers in identifying those genes that have mutated or have been influenced by environmental or other factors.
- *OncoCarta Mutation Panel* – We introduced a new research use only panel for identifying mutation patterns of genes associated with the development of specific cancers. The panel consists of 238 somatic mutations from 19 oncogenes, for the discovery of singular and co-occurring mutations. This panel is available to customers in the form of ready-made reagents and oligonucleotide mixes to enable immediate characterization of archived samples. This panel has the potential to be used for genetically typing tumor biopsies and is part of our oncology and molecular diagnostics development efforts.
- *Closed Tube Assay* – We completed feasibility testing of a closed tube assay format, which is aimed at simplifying workflow and providing overall assay improvement and cost and will continue these efforts, including liquid handling automation, during 2009.

Genetic Analysis Markets

Biomedical Research and Molecular Medicine

Approximately 250 MassARRAY systems have been placed in academic, pharmaceutical, and clinical research institutions across the global biomedical research market to identify genetic markers with potential clinical utility. Whole-genome population studies are conducted for general research purposes to create SNP maps and to determine allele frequencies in different ethnicities or species. Whole genome association studies and linkage studies are conducted for genetic discovery purposes. In general, these studies are high throughput studies that analyze a small number of samples against a high number of SNPs. Candidate gene and candidate region association studies typically follow whole-genome population genetics studies, whole genome association studies, and linkage studies. Once target regions are identified and connections to disease are made, these institutions then typically perform fine mapping genotyping studies, which are conducted in an effort to apply genetics to diseases. Institutions conducting fine mapping genotyping studies use the MassARRAY system to perform candidate gene and candidate region association studies. Candidate gene association studies demonstrate that underlying genetic defects reside in specific biological pathways. From there, biomarker discovery efforts can potentially lead to clinical validation and use.

Oncology and Translational Research

Cancer is fundamentally a genetic disease and although the understanding of the genes, pathways, and signaling networks has increased exponentially over the past few decades, relatively little of this information has resulted in significant improvements in cancer mortality rates. The gap between the understanding of cellular and biological processes as they relate to tumor initiation and progression and improvements in patient survival may be due to an inability to comprehensively and systematically approach each cancer as an individual disease. The emerging field of translational medicine is directed at addressing this inability by integrating research inputs from the basic sciences and translating the results of clinical trials into changes in clinical practice. The molecular characterization of tumors is one of the areas of cancer research where science has made great strides in understanding the genetic changes associated with tumor initiation and progression and where it has lead to demonstrable improvements in patient care. Although we are early in the process of development and commercialization, we aim to provide key research tools for translational medical research targeted at oncology. These tools will allow evaluation of genomic alterations and mutations, which include base substitutions that inactivate tumor suppressor genes or cause constitutive activation of proto-oncogenes, large genomic deletions, large and small intragenic deletions, chromosomal translocations, as well as aberrant promoter methylation and other epigenetic events.

Clinical Research, Public Health, Biodefense

Our iSEQ Comparative Sequencing Analysis application is directed to the clinical research market (with its focus on public health issues), healthcare industries, pharmaceutical sectors and homeland defense initiatives. In these areas nucleic acid based detection and identification of bacteria and viruses, especially pathogens of public health interest, have become reliable alternatives to classical detection methods. DNA based analyses are of increasing importance for pathogen typing and antibiotic resistance profiling. A large number of sequencing efforts in the past decade have provided reference sequences for massive parallel comparative sequencing of individuals to ascertain variations within populations and to identify informative genomic markers for routine DNA based microbial and viral typing and monitoring. This continuing effort requires accurate, reproducible, high-throughput technologies for large-scale comparative sequencing in extensive archives of microbes. The automation, throughput, accuracy, data portability and reproducibility of the MassARRAY iSEQ Comparative Sequence Analysis application serves these needs.

Agricultural and Livestock

Widespread livestock testing is partly being driven by government mandate. With growing requests for farm-of-origin verification, country-of-origin verification, age-verification, and national ID programs, the market for traceability analysis is expanding. These programs rely upon accurate traceability analysis for their success. The MassARRAY platform is widely recognized as one of the most accurate and cost effective platforms for providing traceability testing in this context. Additionally, there is market demand for genetic testing as it relates to trait selection and feedlot management. There is also growing demand for genetic analysis of crops, including maize, rice, and others for potentially growing agricultural products with enhanced traits, such as nutritional quality, disease resistance, and crop yields.

Our MassARRAY platform is widely accepted by livestock-focused service providers in the United States and Europe for genotyping, due to its suitability for routine testing of a large number of DNA samples with modest numbers of SNPs. Beginning with our first MassARRAY system placement with the U.S. Department of Agriculture in 1999, we have provided genotyping solutions for livestock customers. We serve the livestock market through product sales, panel development and optimization, and by providing services, including back-up testing, over-flow, and quality control. Our competitive advantage in the livestock market is based upon the capability of the MassARRAY system to perform high-volume routine testing. While other genetic analysis platform companies have been successful in the whole genome mapping segment of the market, their platforms are not optimal for routine tests involving tens to hundreds of SNPs.

Strategic Direction

In our molecular diagnostics business we are focusing on developing and commercializing various non-invasive prenatal diagnostic tests and developing tests in other women's health and disease areas, including oncology and infectious disease. In addition to our CLIA laboratory development of diagnostic tests for non-invasive prenatal diagnostics, we are pursuing partnering opportunities for the development and adaptation of the MassARRAY system for commercialization for molecular diagnostics in general. Our genetic analysis strategy focuses on leveraging our technology, intellectual property, and other assets to expand deeper into and beyond the fine mapping segment of the genetic analysis market, to more aggressively target pharmaceutical companies and other for-profit institutions, particularly in areas of translational research and molecular medicine, and capitalizing on our potential in molecular diagnostics markets. In our core genetic analysis business, we are focusing on prioritizing key product and service initiatives that we believe will drive growth and create value.

Our strategy includes the following initiatives:

- Developing and commercializing non-invasive prenatal diagnostic assays and other proprietary tests for women's health, oncology, infectious disease, and other areas, both through our CLIA laboratory, internal development, and potential partnership with others;
- Focusing on meeting customer needs in the fine mapping segment of the genetic analysis market and adding pharmaceutical, biotechnology, agricultural, and molecular diagnostic companies to our research customer base;
- Creating a sustainable competitive advantage by launching applications, and new products such as our closed tube assay currently under development, our biomarker panels for oncology research and other research, and other applications for genotyping, comparative sequencing, quantitative gene expression, methylation pattern analysis, and other analyses; and
- Adapting the MassARRAY platform for use in molecular diagnostics, potentially including development of *in-vitro* diagnostic solutions.

Intellectual Property

To establish and protect our proprietary technologies and products, we rely on a combination of patent, copyright, trademark and trade secret laws, as well as confidentiality provisions in our contracts.

We have implemented a diligent patent strategy, including in-licensing, designed to facilitate our research and development and commercialization of current and future products. Our patent portfolio, including in-licensed patent rights, includes 349 issued patents and 275 pending patent applications, in the United States and other major industrial nations throughout the world.

Our prenatal diagnostic patent portfolio includes numerous in-licensed issued patents and in-licensed pending patent applications. The issued patents include United States Patent Nos. 6,250,540, 6,927,028, and 6,664,056, and foreign equivalents for portions of the portfolio that include Canada and Europe. These patents will expire between 2017 and 2022. Most of the patent applications that are in-licensed are in the early stages of patent prosecution and it is difficult to predict when patents will issue from those applications, if at all. These patents and patent applications cover methods of analyzing fetally-derived nucleic acids in maternal serum or plasma, methods of analyzing the methylation status of fetal nucleic acid to differentiate it from maternal nucleic acid, and various DNA and RNA markers which may be useful in detecting and diagnosing various fetal disorders, such as Down syndrome or maternal disorders, such as preeclampsia. We in-licensed United States Patent No. 6,250,540 and its foreign equivalents from ISIS in the United Kingdom. The European counterpart patent to U.S. Patent No. 6,250,540 is European Patent No. 994963. The 994963 Patent was the subject of an Opposition proceeding in the European Patent Office (the "EPO"), which was brought against ISIS by Ravgen, Inc. The Opposition concluded with the EPO's decision to affirm the grant of the European 994963 Patent,

however, with amended claims consistent with the issued claims of its counterpart United States Patent. Ravgen has appealed the EPO's decision (Appeal No. T146/07-334) and the appeal remains currently pending before the EPO.

The majority of our issued United States patents pertaining to mass spectrometry-based nucleic acid analysis methods and technology will expire between 2013 and 2017. United States Patent Nos. 6,500,621, 6,300,076, 6,258,538, and 5,869,242 and European Patent No. EP 0815261 each claim nucleic acid analysis by mass spectrometry methods, including methods that may be performed using our MassARRAY system. Each of these patents expires in 2015.

Through our exclusive license agreement with Xenomics, Inc, we hold exclusive rights to patents for prenatal research and diagnostic uses and products using fetal nucleic acids found in maternal urine. The licensed patent rights include United States Patent Nos. 6,251,638; and RE 39,920, and foreign equivalents in Europe. These patents will expire between 2017 and 2018. The license provides us with exclusive rights to use transrenal fetal nucleic acids in maternal urine for noninvasive prenatal diagnostics and analysis on a platform and technology-independent basis for all uses, excluding fetal gender determination solely by the presence of Y chromosome.

Through our exclusive license agreement with Genomic Nanosystems, LLC, we hold exclusive rights to issued patents and pending patent applications providing fundamental rights for digital PCR technologies and methods. The issued patents are United States Patent Nos. 6,143,496; 6,391,559; and 7,459,315. These patents will expire in 2017. The license provides us with the exclusive right to use the technology on any platform for noninvasive prenatal diagnostics and analysis for any sample (for example, fetal cells, amniocentesis fluids, plasma, urine, etc.) and also in conjunction with mass spectrometry for any commercial, diagnostic or research purpose, excluding second generation sequencing.

Our success depends to a significant degree upon our ability to continue to develop proprietary products and technologies, to identify and validate useful genetic markers and to thoroughly understand their associations with disease, and to in-license desirable or necessary intellectual property as appropriate. We intend to continue to file patent applications as we develop new products and methods for nucleic acid analysis, and as we develop diagnostic and molecular medicine related technology and products. Patents provide some degree of protection for our intellectual property. However, the assertion of patent protection involves complex legal and factual determinations and is therefore uncertain. The laws governing patentability and the scope of patent coverage continue to evolve, particularly in the areas of genetics, molecular biology, and prenatal and molecular diagnostics that are of interest to us. There can be no assurance that patents will issue from any of our patent applications. The scope of any of our issued patents including U.S. Patent No. 6,250,540, may not be sufficiently broad to offer meaningful protection.

Our issued patents may be successfully challenged, invalidated, circumvented or declared unenforceable so that our patent rights would not create an effective competitive barrier. The laws of some foreign countries may not permit such assignments or may not protect our proprietary rights to the same extent, as do the laws of the United States. In view of these factors, our intellectual property positions bear some degree of uncertainty.

We also rely in part on trade secret protection and confidentiality agreements for protection of our intellectual property. We attempt to protect our trade secrets and confidential information by entering into confidentiality agreements with outside parties and with our employees and consultants. Our employees also sign agreements requiring that they assign to us their intellectual property interests in work performed for us as a part of their employment. The laws of some foreign countries may not permit such assignments or may not protect our proprietary rights to the same extent, as do the laws of the United States. All employees sign an agreement not to compete unfairly with us during their employment and upon termination of their employment, through the misuse of confidential information, soliciting employees, soliciting customers, and the like. It is possible that these agreements may be breached or invalidated and if so, there may not be an adequate corrective remedy available. Parties may breach the confidentiality provisions in our contracts or infringe or misappropriate our

patents, copyrights, trademarks, trade secrets, confidential information, and other proprietary rights. Outside parties may independently discover or invent competing technologies or reverse engineer our trade secrets or other technology. The measures we are taking to protect our proprietary rights may not be adequate due to factors beyond our control.

In the future, parties may file claims asserting that our technologies or products infringe on their intellectual property. We cannot predict whether parties will assert such claims against us, or whether those claims will harm our business. If we are forced to defend against such claims, we will face costly litigation and diversion of management's attention and resources. As a result of such disputes, we may have to develop costly non-infringing technology or enter into licensing agreements. These agreements, if necessary, may be unavailable on terms acceptable to us, which could seriously harm our business and financial condition.

Competition

We face competition from various companies offering nucleic acid analysis systems and services, from various companies developing and commercializing diagnostic assays, and from various companies researching and developing prenatal diagnostic technology.

In the molecular diagnostic business, including the non-invasive prenatal diagnostic market, we plan to develop LDT and diagnostic use tests based on detection of circulating cell-free fetal nucleic acid in maternal serum or plasma. Our exclusive license to the intellectual property surrounding the use of free fetal nucleic acids, combined with the precision and accuracy of our MassARRAY system will provide us with a competitive advantage in this space. In addition to invasive techniques, our competition arises from alternative methods of non-invasive prenatal diagnostics such as fetal cell purification from maternal blood and trophoblast purification from cervical swabs, fetal cell approaches, and potentially from sequencing approaches. Potential competitors include Ikonysis, Inc., Artemis Health, Inc., and Fluidigm Corp.

In the nucleic acid analysis marketplace, our MassARRAY system competes with alternative technology platforms that differ in cost per data point, throughput, sample amplification, analysis process, sample separation or method of DNA detection, turnaround time and quality of results. Most competitive technologies do not rely on direct detection methods such as mass spectrometry, but instead use indirect sample detection methods, such as hybridization or labeling. Competitive technologies are offered by Life Technologies, Corp. (formerly Applied Biosystems, Inc.) Beckman Coulter, Inc., Illumina, Inc., Biotage AB, Fluidigm, Corp., Ibis Biosciences, Inc. (now Abbott), and others.

Research and Development

We believe that investment in research and development is essential to establishing a long-term competitive position as a provider of genetic analysis tools and as a provider or an enabler of diagnostic tests. Our research and development expenses for the years ended December 31, 2008, 2007, and 2006, were $27.5 million, $14.4 million, and $11.9 million, respectively.

During 2008 we conducted most of our research and development activities at our facilities in the United States. Our research and development is augmented by advisory and collaborative relationships with others.

Our research and development efforts are primarily focused on expanding the applications for our MassARRAY technology, research and development of diagnostic assays, and research and development of other prenatal diagnostic methods and technologies that are relevant to diagnosing disorders or conditions such as thalassemias, cardiac disorders, congenital disorders and autism, as well as for oncology and infectious diseases and certain other diseases, including the sample preparation step of enriching fetal nucleic acid for subsequent analysis.

Government Regulation

Regulation by governmental authorities in the United States and other countries will be a significant factor in the development, testing, production and marketing of diagnostic products, including tests that may be developed by us or our corporate partners, collaborators or licensees. Certain diagnostic products developed by us or our collaborators may require regulatory approval by governmental agencies prior to commercialization. Products that we develop in the diagnostic markets, depending on their intended use, will be regulated as medical devices by the FDA and comparable agencies of other countries and require either premarket approval, or PMA, or 510(k) clearance from the FDA prior to marketing. The 510(k) clearance pathway usually takes from three to six months from submission, but can take significantly longer. The premarket approval pathway is much more costly, lengthy, uncertain and generally takes from nine months to one year or longer from submission. The receipt and timing of regulatory clearances or approvals for the marketing of such products may have a significant effect on our future revenues. Human diagnostic products are subject to rigorous testing and other approval procedures by the FDA in the United States and similar health authorities in foreign countries. Various federal and state statutes and regulations also govern or influence the manufacturing, safety, labeling, storage, record keeping and marketing of diagnostic products.

Obtaining these approvals and the subsequent compliance with these regulations require the expenditure of substantial resources over a significant period of time, and there can be no assurance that any approvals will be granted. Any such delay in obtaining or failure to obtain such approvals could adversely affect our ability to earn sales revenues, royalties or other license-based fees. Current governmental regulations may change as a result of future legislation or administrative action and cannot be predicted.

As mentioned above, our strategy focuses on capitalizing on our potential in molecular diagnostics markets by commercializing various non-invasive diagnostic tests and laboratory platform systems. Our approach involves initial commercialization, through partnering with CLIA certified laboratories, of LDTs for screening. This approach involves transferring basic technology to the laboratory. The laboratory is solely responsible for the development, validation and commercialization of the assay. Such LDT testing is currently under the purview of CMS and State agencies that provide oversight of the safe and effective use of LDTs. To date, FDA has exercised its regulatory discretion not to regulate LDTs as LDTs are developed and used by a single laboratory. FDA and the U.S. Department of Health and Human Services have been reviewing their approach to regulation in the area of genetic testing and LDTs, and the laws and regulations may undergo change in the near future. Although recent reforms and enforcement actions have focused on them, we have no current plans to utilize analyte specific reagents (ASRs) or In-Vitro Diagnostic Multivariate Index Assay (IVDMIAs) in our LDT strategy so the effect on us of any of these specific changes in FDA policy is currently considered remote to our business.

Our research and development activities involve the controlled use of hazardous materials and chemicals, however, the concentration and volumes of these chemicals are limited. We are subject to federal, state and local laws and regulations governing the use, storage, handling and disposal of such materials and chemicals, as well as certain waste products.

Employees

As of February 2, 2009, we employed 248 persons, of whom 48 hold Ph.D. or M.D. degrees and 47 hold other advanced degrees. Our success will depend in large part upon our ability to attract and retain employees. We face competition in this regard from other companies, research and academic institutions, government entities, and other organizations.

Executive Officers

Our executive officers, their positions with us, and their ages as of February 2, 2009 are as follows:

Name	Age	Position
Executive Officers		
Harry Stylli, Ph.D., M.B.A.	47	President, Chief Executive Officer and Director
Charles R. Cantor, Ph.D.	66	Chief Scientific Officer and Director
Elizabeth Dragon, Ph.D.	60	Senior Vice President, Research and Development
Paul Hawran	56	Chief Financial Officer
Michael Monko, M.B.A.	49	Senior Vice President, Sales and Marketing
Larry Myres	50	Vice President, Operations
Clarke Neumann, J.D.	45	Vice President and General Counsel
Steven Owings	56	Vice President of Commercial Development, Prenatal Diagnostics
Karsten Schmidt, Ph.D.	47	Vice President, Business Development
Dereck Tatman, Ph.D., M.B.A.	36	Vice President, Business Development
Allan Bombard, M.D.	56	Chief Medical Officer
Gary Riordan	50	Vice President, Regulatory Affairs and Quality

Harry Stylli, Ph.D., M.B.A. Dr. Stylli joined us in June 2005 as President and Chief Executive Officer and a director. From November 2004 to February 2005, Dr. Stylli served as President and Chief Executive Officer of Xencor, Inc., a next-generation antibody platform company. From May 2002 to July 2003, Dr. Stylli served as President and Chief Executive Officer for CovX Pharmaceuticals, a biopharmaceutical company that he co-founded, which was acquired by Pfizer. From 1995 to 2001, Dr. Stylli served in various capacities, including President, for Aurora Biosciences Corporation, a drug discovery systems company of which Dr. Stylli was a co-founder. Dr. Stylli currently serves as a director of Molecular Insight Pharmaceuticals, Inc., and Micropharma Ltd., and is an advisor to Nanosyn, a medicinal chemistry company. Dr. Stylli received his Ph.D. from London University's Faculty of Medicine and an M.B.A. from the United Kingdom's Open University.

Charles R. Cantor, Ph.D. Dr. Cantor joined us as Chief Scientific Officer and Chairman of the Scientific Advisory Board in August 1998 and has served as our director since 1998. Dr. Cantor is also Chief Executive Officer of DiThera, Inc., a biotechnology company that he founded in 2007. Since 1992, Dr. Cantor has served as a professor in the Department of Biomedical Engineering and Co-Director of the Center for Advanced Biotechnology at Boston University. Prior to that time, Dr. Cantor held positions at Columbia University and the University of California, Berkeley. He was also Director of the Human Genome Center of the Department of Energy at Lawrence Berkeley Laboratory. Dr. Cantor published the first textbook on genomics, *The Science and Technology of the Human Genome Project,* and remains active in the Human Genome Project through his membership in a number of the project's advisory committees and review boards. Dr. Cantor is a member of the National Academy of Sciences. He is also a scientific advisor to 12 biotechnology and life science companies and one venture capital firm. Dr. Cantor currently serves as a director of ExSAR, Inc., Human BioMolecular Research Institute, and Retrotrope, Inc. Dr. Cantor received his Ph.D. in Chemistry from the University of California, Berkeley.

Elizabeth Dragon, Ph.D. Dr. Dragon joined us as Senior Vice President, Research and Development in May 2006. From 1990 to May 2006, Dr. Dragon served in various leadership roles in diagnostics research and development at Roche Molecular Systems, Inc., a molecular diagnostics company and member of the Roche Group. Her most recent positions at Roche Molecular Systems was Senior Vice President of Global Standardization and Vice President of Diagnostics Development. Dr. Dragon received her Ph.D. in Virology and Cell Biology from Albert Einstein College of Medicine of Yeshiva University.

Paul W. Hawran. Mr. Hawran joined us as Chief Financial Officer in April 2007. He served as a director from August 2006 until February 2007. Mr. Hawran served as Chief Financial Officer of Neurocrine Biosciences, Inc., a biopharmaceutical company, from 1993 until September 2006. He previously had served as

Vice President and Treasurer at SmithKline Beecham Corporation, as well as in various financial positions at Warner Communications. He is a member of the American Institute of Certified Public Accountants, the California and Pennsylvania Institutes of Certified Public Accountants and the Financial Executives Institute. Mr. Hawran is a director of Cytori Therapeutics, Inc. He received an M.S. in taxation from Seton Hall University.

Michael Monko, M.B.A. Mr. Monko joined us as Senior Vice President, Sales and Marketing in August 2006. Mr. Monko served as Vice President of Sales for the organization that is now the diagnostics strategic business unit of Millipore, a bioscience research and biopharmaceutical manufacturing supplier, from 2005 to July 2006. Previously, he served 19 years in various sales roles at Invitrogen Corporation, a biotechnology tools company. Mr. Monko received his M.B.A. from Babson College.

Larry Myres. Mr. Myres joined us as Vice President, Operations in November 2005. Mr. Myres was Vice President of Operations for DexCom, Inc., a medical device company, from 2000 to 2005 and Precision Vascular Systems, a medical device company, from 1997 to 2000.

Clarke Neumann, J.D. Mr. Neumann joined us in 1999 and has served as Vice President, General Counsel and Assistant Secretary since 2001. Prior to joining us, Mr. Neumann was an attorney at Lyon & Lyon, LLP, specializing in intellectual property litigation, strategic counseling, business litigation and transactional matters. Mr. Neumann holds a J.D. from Loyola Law School, Los Angeles.

Steven Owings. Mr. Owings joined us as Vice President, Commercial Development, Prenatal Diagnostics, in February 2007. From 2004 to 2006, Mr. Owings served as President, North America, of Primagen Inc., a molecular diagnostics company. From 2003 to 2004, Mr. Owings served as a consultant and Director of Business Development to Epoch Biosciences, Inc., a genomics analysis products company that was acquired by Nanogen Inc. in 2004. From 1999 to 2002, Mr. Owings served as Vice President, Sales and Marketing for Visible Genetics Inc., a pharmacogenomics company that was acquired by Bayer Diagnostics in 2002.

Karsten Schmidt, Ph.D. Dr. Schmidt joined us in January 1999 as Director, Business Development and has served as Vice President, Business Development, since December 2005. He has also served previously as Managing Director of our German subsidiary, Vice President, European Operations, and Vice President, Operations. Before joining us, Dr. Schmidt held a senior management position at Rhône-Poulenc Rorer where he was responsible for all drug regulatory affairs activities in the asthma and allergy area. Dr. Schmidt is a trained pharmacist. He received his Ph.D. in pharmaceutical biology from the University in Bonn.

Dereck Tatman, Ph.D., M.B.A. Dr. Tatman joined us in 2000 as a Business Development Analyst and has served as Vice President, Business Development since July 2004. Prior to joining us, Dr. Tatman was employed at Dow Agrosciences in the biotechnology business development group. Dr. Tatman holds a Ph.D. from Arizona State University and a M.S. in Management from Krannert School of Business at Purdue University.

Allan Bombard, M.D. Dr. Bombard joined us as Chief Medical Officer in January 2009. From October 2008 to January 2009, Dr. Bombard was the Chief Executive Officer of Lenetix Medical Laboratory, which provides genetic screening and diagnostic testing for obstetricians, gynecologists, family practitioners, nurse midwives, laboratories, diagnostic facilities and other healthcare providers. From April 2005 to October 2008, Dr. Bombard was Chief Medical Officer of Sharp Mary Birch Hospital for Women. From 2002 to 2005, Dr. Bombard served as Senior Vice President, Chair, and Residency Program Director of the Department of Obstetrics and Gynecology at Lutheran Medical Center. Prior to Lutheran Medical Center, he served as the Western U.S. Medical Director for Women's Health at Aetna. Since 1998, Dr. Bombard has been a clinical professor in the Department of Obstetrics and Gynecology & Women's Health at the Albert Einstein College of Medicine and since 2004. Dr. Bombard received his M.D. from the George Washington University and his M.B.A. from the University of San Diego.

Gary Riordan Mr. Riordan joined us in September 2008 as Vice President, Regulatory Affairs and Quality. Prior to joining us, Mr. Riordan served as Director, Regulatory Affairs at Ventana Medical Systems, Inc., a diagnostic systems supplier, from November 2004 to September 2008, and at Roche Molecular Systems, Inc., from December 1997 to October 2004. Mr. Riordan worked at the U.S. Food and Drug Administration from June 1990 to December 1997 where he evaluated regulatory submissions for antibody- and nucleic acid-based HIV and Hepatitis diagnostic assays and conducted inspections of in vitro diagnostic manufacturers.

Available Information

Copies of our public filings are available on our Internet website at http://www.sequenom.com as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We will supply a copy of this annual report on Form 10-K, and any other periodic or current reports, without charge. To request a copy, please contact Investor Relations, Sequenom, Inc., 3595 John Hopkins Court, San Diego, CA, 92121, USA.

Item 1A. RISK FACTORS

Before deciding to invest in us or deciding to maintain or increase your investment, you should carefully consider the risks described below, in addition to the other information contained in this report and in our other filings with the SEC. The risks and uncertainties described below and in our other filings are not the only ones facing us. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business. If any of these known or unknown risks or uncertainties actually occurs, our business, financial condition and results of operations could be seriously harmed. In that event, the market price for our common stock could decline and you may lose your investment.

We have limited experience.

Many of our technologies, particularly our non-invasive prenatal and other molecular diagnostic technologies, are at an early stage of discovery and development. We continue to develop and commercialize new products and create new applications for our products. We are also researching, developing and pursuing the commercialization of various non-invasive molecular diagnostic tests for prenatal genetic disorders and other diseases and disorders for use on our MassARRAY platform and potentially other platforms and we have limited or no experience in these applications of our technology and operating in these markets. You should evaluate us in the context of the uncertainties and complexities affecting an early stage company developing products and applications for the life science industries and experiencing the challenges associated with entering into new markets that are highly competitive. We need to make significant investments to ensure our genetic analysis products and applications and our diagnostics tests perform properly and are cost-effective, and we or our partners will likely need to apply for and obtain certain regulatory approvals to sell our products for diagnostic applications and it is uncertain whether such approvals will be granted. Even if we develop products for commercial use and obtain all necessary regulatory approvals, we may not be able to develop products that are accepted in the genomic, diagnostic, noninvasive prenatal, clinical research, pharmaceutical, or other markets or the emerging field of molecular medicine and that can be marketed and sold successfully.

We may not be able to generate any revenue from noninvasive prenatal diagnostic tests or any other tests we may develop.

We have committed significant research and development resources to the development of research-use-only and diagnostic tests, particularly non-invasive prenatal tests, for use on our MassARRAY system and other platforms. Although our licensed partner launched the first research-use-only test, a test for RHD using a reverse transcription polymerase chain reaction (RT-PCR) platform in early 2008, there is no guarantee that our partner or we will successfully generate significant revenues from this or any other tests for any use. We plan to launch through our CLIA laboratory a non-invasive prenatal screening LDT test for Rhesus D and a carrier screening test for Cystic Fibrosis during the second quarter of 2009; a non-invasive prenatal

screening LDT test for trisomies (Trisomy 21 and potentially Trisomies 18 and 13) in June 2009; and a non-invasive prenatal screening LDT test for gender-linked disorders (our Fetal^{xy} screen) during the fourth quarter of 2009 and to launch additional tests in the future. However, there is no guarantee that we will be able to successfully launch these or other diagnostic tests on the anticipated timelines or at all. We have no experience in licensing, manufacturing, selling, marketing or distributing our SEQureDx technology, or diagnostic or other tests. If we, or our partners, are not able to successfully market or sell noninvasive prenatal research-use-only or diagnostic tests or other tests we may develop for any reason, including the failure to obtain any required regulatory approvals, we will not generate any revenue from the sale of such tests. Even if we are able to develop noninvasive prenatal research-use-only or diagnostic or other tests for sale in the marketplace, a number of factors could impact our ability to generate any significant revenue from the sale of such tests, including the following:

- reliance on SCMM and third-party CLIA-certified laboratories, which are subject to routine governmental oversight and inspections for continued operation pursuant to CLIA, to process tests that we develop;
- reliance on SCMM and third parties to manufacture any noninvasive prenatal research-use-only or diagnostic or other tests that we may develop;
- our ability to establish and maintain adequate infrastructure to support the commercial launch and sale of our diagnostic tests through SCMM or a third-party CLIA-certified laboratory, including establishing adequate laboratory space, information technology infrastructure, sample collection and tracking systems, electronic ordering and reporting systems and other infrastructure and hiring adequate laboratory and other personnel;
- the availability of adequate study samples for validation studies for any diagnostic tests we develop, the success of such validation studies and our ability to publish study results in peer-reviewed journals;
- the availability of alternative and competing tests or products and technological innovations or other advances in medicine that cause our technologies to be less competitive;
- compliance with federal, state and foreign regulations governing laboratory testing and the sale and marketing of research-use-only or diagnostic or other tests, including noninvasive prenatal tests;
- the accuracy rates of such tests, including rates of false-negatives and/or false-positives;
- concerns regarding the safety or effectiveness or clinical utility of noninvasive prenatal or other tests;
- changes in the regulatory environment affecting health care and health care providers, including changes in laws regulating laboratory testing and/or device manufacturers and any laws regulating prenatal testing;
- the extent and success of our sales and marketing efforts and ability to drive adoption of our diagnostic tests;
- coverage and reimbursement levels by government payors and private insurers;
- the level of physician and customer adoption of any diagnostic tests we develop;
- pricing pressures and changes in third-party payor reimbursement policies;
- general changes or developments in the market for women's and/or prenatal health diagnostics, or diagnostics in general;
- ethical and legal issues concerning the appropriate use of the information resulting from noninvasive prenatal diagnostic tests or other tests;
- the refusal by women to undergo such tests for moral, religious or other reasons, or based on perceptions about the safety or reliability of such tests;

- our ability to promote and protect our SEQureDx brand and technology; and
- intellectual property rights held by others or others infringing our intellectual property rights.

Our operating results may fluctuate significantly.

Our revenues and results of operations may fluctuate significantly, depending on a variety of factors, including the following:

- our ability to manage costs and expenses and effectively implement our business strategy;
- our and our distributors' success in selling, and changes in the demand for, our products and services including our MassARRAY Compact platform and iPLEX Gold multiplexing application and other applications and related consumables, and demand for products and services for genotyping, DNA methylation (epigenetic analysis) and QGE (gene expression analysis) applications;
- our success in selling genetic analysis contract research services;
- our success in depleting or reducing current product inventories in view of new or upcoming product introductions;
- the pricing of our products and services and those of our competitors;
- variations in the timing of payments from customers and collaborative partners and the recognition of these payments as revenues;
- the timing and cost of any new product or service offerings by us;
- our ability to develop new applications and products, such as noninvasive prenatal or other diagnostic assays and other diagnostic technologies, the success of such applications and products, and our ability to improve current products to increase demand for such products;
- the potential need to acquire licenses to new technology, including genetic markers that may be useful in diagnostic applications, or to use our technology in new markets, which could require us to pay unanticipated license fees and royalties in connection with licenses we may need to acquire;
- our research and development progress and how rapidly we are able to achieve technical milestones, including the milestone of sufficient fetal DNA enrichment and/or RNA based solutions with respect to our noninvasive prenatal technologies;
- the cost, quality and availability of our consumable chips, also known as SpectroCHIP bioarrays, oligonucleotides, DNA samples, tissue samples, reagents and related components and technologies;
- material developments in our customer and supplier relationships including our ability to successfully transition to new technologies to successfully maintain our relationships with our customers and suppliers;
- our ability to clinically validate any potential noninvasive prenatal or other diagnostic related products and obtain regulatory approval of any potential diagnostic products; and
- expenses related to, and the results of, any litigation or other legal proceedings.

Further, our revenues and operating results are difficult to predict because they depend on the number, timing, and type of MassARRAY system placements that we make during the year, the number, timing, and types of software licensed or sold, and the quantity and timing of consumables sales for the installed base of systems and the number, timing and type of contract research services agreements that we enter into. Changes in the relative mix of our MassARRAY system and consumables sales and service agreements can have a significant impact on our gross margin, as consumable sales and service agreements typically have margins significantly different than MassARRAY system sales. Our revenues and operating results are also difficult to

predict because they depend upon the activities of our distributors. The absence of or delay in generating revenues could cause significant variations in our operating results from year to year and could result in increased operating losses.

We believe that period-to-period comparisons of our financial results will not necessarily be meaningful. You should not rely on these comparisons as an indication of our future performance. If our operating results in any future period fall below the expectations of securities analysts and investors, our stock price will likely fall.

We may need additional capital to support our growth, which will result in additional dilution to our stockholders.

Our business may require additional investment that we have not yet secured. As of December 31, 2008, we had available cash and cash equivalents and marketable securities of approximately $98.3 million. We also had approximately $5.7 million of auction rate securities, or ARS, investments classified as noncurrent marketable securities at December 31, 2008.

We believe our cash and cash equivalents will be sufficient to fund our operating expenses and capital requirements through 2010. The actual amount of funds that we will need will be determined by many factors, some of which are beyond our control, and we may need funds sooner than currently anticipated. These factors include but are not limited to:

- the size of our future operating losses;
- the level of our and our distributors' success in selling our MassARRAY products and services;
- the terms and conditions of sales contracts, including extended payment terms;
- our ability to introduce and sell new products and services and successfully reduce inventory levels of earlier products;
- the level of our selling, general and administrative expenses;
- the extent of our investment in diagnostic technology, including prenatal genetic analysis technology, molecular diagnostics and noninvasive prenatal diagnostic technology, development, commercialization, and regulatory approval;
- our success in, and the expenses associated with, researching, developing and commercializing diagnostic products, alone or in collaboration with our partners, and obtaining any required regulatory approval for those products;
- the level of our success alone or in collaboration with our partners in launching and selling any diagnostic products and services;
- the extent of our research and development pursuits, including our level of investment in MassARRAY product research and development, and diagnostic assay and other technology research and development;
- the extent to which we enter into, maintain, and derive revenues from licensing agreements, including agreements to out-license our noninvasive prenatal analysis technology, research and other collaborations, joint ventures and other business arrangements;
- the level of our legal expenses, including those expenses associated with intellectual property protection and those expenses and any damages payments associated with litigation, including intellectual property litigation;
- the extent to which we acquire, and our success in integrating, technologies or companies;
- our ability to liquidate any ARS holdings;

- the level of our expenses associated with the audit of our consolidated financial statements as well as compliance with other corporate governance and regulatory developments or initiatives; and
- regulatory changes and technological developments in our markets.

General market conditions or the market price of our common stock may not support capital raising transactions, such as an additional public or private offering of our common stock or other securities. In addition, our ability to raise additional capital may depend upon our stock being quoted on The NASDAQ Global Market or upon obtaining shareholder approval. There can be no assurance that we will be able to satisfy the criteria for continued listing on NASDAQ or that we will be able to obtain shareholder approval if it is necessary. If we are unable to obtain additional funds on a timely basis or on terms favorable to us, we may be required to cease or reduce further commercialization of our products, to cease or reduce certain research and development projects, to sell, license or otherwise dispose of some or all of our technology or assets or business units or to merge all or a portion of our business with another entity. If we raise additional funds by selling shares of our capital stock, the ownership interest of our current stockholders will be diluted. Insufficient funds may require us to delay, scale back, or eliminate some or all of our activities.

We only recently acquired our CLIA-certified laboratory and have limited experience operating a diagnostic laboratory. Our ability to successfully develop and commercialize diagnostic tests will depend on our ability to successfully operate our CLIA-certified laboratory and obtain and maintain required regulatory approvals.

We plan to validate LDT assays and commercialize them through SCMM, our CLIA-licensed laboratory located in Grand Rapids, Michigan. We only recently acquired SCMM in 2008 and as a result have little experience operating a CLIA-licensed laboratory. Because there is substantial distance between SCMM and us, we may have logistical and operational challenges in effectively managing and operating SCMM. If we are unable to successfully transfer our diagnostic technology and tests to SCMM for validation or if SCMM is unable to successfully validate any LDT or other tests that we intend to commercialize through SCMM, we may not be able to successfully commercialize such tests on the anticipated timelines or at all. Although we have invested substantially in SCMM's infrastructure, it is possible that we may not have adequate infrastructure in place for the commercial launch and sale of our diagnostic tests through SCMM. Our ability to successfully develop and commercialize diagnostic tests will depend on our ability to successfully operate SCMM and obtain and maintain required regulatory approvals.

SCMM as a clinical laboratory is subject to CLIA, which 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. The sanction for failure to comply with CLIA requirements may be suspension, revocation or limitation of a laboratory's CLIA certificate, which is necessary to conduct business, as well as significant fines and/or criminal penalties. SCMM is also subject to regulation of laboratory operations under state clinical laboratory laws. State clinical laboratory laws may require that laboratories and/or laboratory personnel meet certain qualifications, specify certain quality controls or require maintenance of certain records. Certain states, including Florida, Maryland, New York, Pennsylvania and Rhode Island, each require that you obtain licenses to test specimens from patients residing in those states and additional states may require similar licenses in the future. If we are unable to obtain licenses from these states or there is delay in obtaining such licenses, we will not be able to process any samples from patients located in those states until we have obtained the requisite licenses. Potential sanctions for violation of these statutes and regulations include significant fines and the suspension or loss of various licenses, certificates and authorizations, which could adversely affect our business and results of operations.

We may not successfully obtain regulatory approval of any noninvasive prenatal or other diagnostic product or other product which we or our licensing or collaborative partners develop and we may not be able to successfully partner with CLIA licensed laboratories with respect to diagnostic products.

Products that we or our collaborators develop in the molecular medicine, diagnostic, noninvasive prenatal diagnostic, or other markets, depending on their intended use, may be regulated as medical devices by the FDA and comparable agencies of other countries and require either premarket approval, or PMA, or 510(k) clearance from the FDA, prior to marketing. The 510(k) clearance process usually takes from three to six months from submission, but can take significantly longer. The PMA process is much more costly, lengthy, uncertain, and generally takes from nine months to one year or longer from submission. In addition, commercialization of any diagnostic or other product that our licensees or collaborators or we develop would depend upon successful completion of preclinical testing and clinical trials. Preclinical testing and clinical trials are long, expensive, and uncertain processes, and we do not know whether we, our licensees, or any of our collaborators, would be permitted or able to undertake clinical trials of any potential products. It may take us or our licensees or collaborators many years to complete any such testing, and failure could occur at any stage. Preliminary results of trials do not necessarily predict final results, and acceptable results in early trials may not be repeated in later trials. A number of companies in the diagnostics industry, including biotechnology companies, have suffered significant setbacks in advanced clinical trials, even after promising results in earlier trials. Delays or rejections of potential products may be encountered based on changes in regulatory policy for product approval during the period of product development and regulatory agency review. If our projects reach clinical trials, we or our licensees or collaborators could decide to discontinue development of any or all of these projects at any time for commercial, scientific, or other reasons.

We initially plan to validate assays and commercialize them in the form of laboratory developed tests (LDTs) through SCMM or a third-party CLIA-certified laboratory. Although LDT testing is currently solely under the purview of CMS and state agencies who provide oversight of the safe and effective use of LDTs, the FDA and the U.S. Department of Health and Human Services have been reviewing their approach to regulation in the area of genetic testing and LDTs, and the laws and regulations may undergo change in the near future. Although we have no current plans to utilize in our LDT strategy analyte specific reagents (ASRs) or In Vitro Diagnostic Multivariate Index Assay (IVDMIAs), which have been the focus of recent reforms and enforcement actions by the FDA, we cannot predict the extent of the FDA's future regulation and policies with respect to LDTs. Concurrently with our LDT commercialization activities, we plan to conduct the development, validation, and other activities necessary to file submissions with the FDA seeking approval for selected diagnostic tests. If we are unable to successfully launch any diagnostic tests as LDTs or if we are otherwise required to obtain FDA premarket clearance or approval prior to commercializing any diagnostic tests, our ability to generate revenue from the sale of such tests may be delayed and we may never be able to generate significant revenues from sales of diagnostic products.

The results of preclinical studies and completed clinical trials are not necessarily predictive of future results, and our current diagnostic product candidates may not have favorable results in later studies or trials.

To date, long-term safety and efficacy have not yet been demonstrated in clinical trials for any of our diagnostic product candidates. Favorable results in our early studies or trials may not be repeated in later studies or trials that will be required to obtain either PMA or 510(k) clearance from the FDA prior to marketing any of our product candidates. Our product candidates may fail to demonstrate positive results in clinical trials despite having progressed through earlier-stage trials. In particular, the limited results that we have obtained for our prenatal diagnostic tests may not predict results from studies in larger numbers of subjects drawn from more diverse populations over a longer period of time. Unfavorable results from ongoing preclinical studies or clinical trials could result in delays, modifications or abandonment of ongoing or future clinical trials, or abandonment of a product development program. Preclinical and clinical results are frequently susceptible to varying interpretations that may delay, limit or prevent regulatory approvals or commercialization.

Because we exclusively licensed our noninvasive prenatal diagnostic and gender determination testing rights from ISIS any dispute with ISIS may adversely affect our ability to develop and commercialize diagnostic tests based on these licensed rights.

In October 2005, we entered into an exclusive license to noninvasive prenatal diagnostic rights (United States Patent No. 6,258,540 and foreign equivalents) with ISIS which we amended in October 2006 and in November 2007 to also include exclusive rights to intellectual property for noninvasive prenatal gender determination testing for social and lifestyle purposes. We intend to use the rights that we acquired under the license to develop noninvasive prenatal nucleic acid based tests, including gender determination tests. If there is any dispute between us and ISIS regarding our rights under the license agreement, or we do not achieve certain commercial launch milestones, in a timely manner, our ability to exclusively commercialize these diagnostic tests may be adversely affected and could delay or completely terminate our product development and commercialization efforts for these diagnostic tests.

We and our licensees and collaborators may not be successful in developing or commercializing diagnostic products, diagnostic assays including noninvasive prenatal diagnostic products, or other products using our products, services, or discoveries.

Development of diagnostic or other products by us, our licensees, or our collaborators including assays, are subject to risks of failure inherent in the development and commercial viability of any such product, such as demand for such product. These risks further include the possibility that such product would:

- be found to be ineffective, unreliable, or otherwise inadequate or otherwise fail to receive regulatory approval;
- be difficult or impossible to manufacture on a commercial scale;
- be uneconomical to market;
- fail to be successfully commercialized if adequate reimbursement from government health administration authorities, private health insurers, and other organizations for the costs of these products is unavailable;
- be impossible to commercialize because they infringe on the proprietary rights of others or compete with products marketed by others that are superior; or
- fail to be commercialized prior to the successful marketing of similar products by competitors.

If a licensee discovers or develops diagnostic products or we or a collaborator discover or develop diagnostic or other products using our technology, products, services, or discoveries, we may rely on that licensee or collaborator (hereafter referred to as "partner") for product development, regulatory approval, manufacturing, and marketing of those products before we can realize revenue and some or all of the milestone payments, royalties, or other payments we may be entitled to under the terms of the licensing or collaboration agreement. If we are unable to successfully achieve milestones or our partners fail to develop successful products, we will not earn the revenues contemplated and we may also lose exclusive (as in the case of our license agreement with Isis Innovation Ltd, or ISIS, under which we in-license our fundamental noninvasive prenatal diagnostic technology) or non-exclusive license rights to intellectual property that are required to commercialize such products. Our agreements may allow our partners significant discretion in electing whether to pursue any of these activities. We cannot control the amount and timing of resources our partners may devote to our programs or potential products. As a result, we cannot be certain that our partners will choose to develop or commercialize any products or will be successful in doing so. In addition, if a partner is involved in a business combination, such as a merger or acquisition, or changes its business focus, its performance under its agreement with us may suffer and, as a result, we may not generate any revenues or only limited revenues from the royalty, milestone, and similar payment provisions contained in our agreement with that partner.

Our ability to compete in the market may decline if we lose or may not obtain some of our intellectual property rights.

Our success will depend on our ability to obtain and protect patents on our technology, to protect our trade secrets, and to maintain our rights to licensed intellectual property or technologies. Our patent applications or those of our licensors may not result in the issue of patents in the United States or other countries. Our patents or those of our licensors may not afford meaningful protection for our technology and products. Others may challenge our patents or those of our licensors in litigation or by proceedings such as interference, oppositions and reexaminations, as is the case with the appeal pending before the European Patent Office with respect to the patent rights that we in-licensed from ISIS for prenatal diagnostics (United States Patent No. 6,258,540 and European Patent No. 994963), and as a result, our patents or those of our licensors could be narrowed or invalidated or become unenforceable. Competitors may develop products similar to ours that do not conflict with our patents or patent rights. Others may develop noninvasive prenatal tests or other diagnostic tests or products, technologies or methods in violation of our patents or those of our licensors, or by operating around our patents or license agreements, which could reduce sales of our consumables or reduce or remove our noninvasive prenatal and other diagnostic commercialization opportunities. To protect or enforce our patent rights, we may initiate interference proceedings, oppositions, reexaminations or litigation against others. However, these activities are expensive, take significant time and divert management's attention from other business concerns. We may not prevail in these activities. The patent position of biotechnology companies generally is highly uncertain and involves complex legal and factual questions that are often the subject of litigation. No consistent policy has emerged from the U.S. Patent and Trademark Office, the offices of foreign countries or the courts regarding the breadth of claims allowed or the degree of protection afforded under biotechnology patents. There is a substantial backlog of biotechnology patent applications at the U.S. Patent and Trademark Office and of the equivalent offices around the world and the approval or rejection of patent applications may take several years.

Claims by other companies that we infringe their intellectual property rights or that patents on which we rely are invalid could adversely affect our business.

From time to time, companies have asserted, and may again assert, patent, copyright and other intellectual proprietary rights against our products or products using our technologies. These claims have resulted and may in the future result in lawsuits being brought against us. For example, we are named as a defendant in a lawsuit brought by Beckman Coulter Inc. and Orchid Cellmark Inc. In this lawsuit, Beckman Coulter and Orchid Cellmark have alleged that by making and selling our iPLEX products and teaching our customers how to use these products, we are infringing, contributing, and inducing others to infringe three patents owned by Orchid Cellmark. We may not prevail in this litigation or any future lawsuits alleging patent infringement given the complex technical issues and inherent uncertainties in intellectual property litigation. If any of our products, technologies or activities, in particular our iPLEX products from which we derive a substantial portion of our revenues, were found to infringe on another company's intellectual property rights, we could be subject to an injunction that would force the removal of our products from the market or we could be required to redesign our products, which could be costly. We could also be ordered to pay damages or other compensation, including punitive damages and attorneys' fees to such other company. A negative outcome in any such litigation could also severely disrupt the sales of our marketed products to our customers or their customers, which in turn could harm our relationships with our customers, our market share and and/or product revenues. Even if we are ultimately successful in defending any intellectual property litigation, such litigation is expensive and time consuming to address, will divert our management's attention from our business and may harm our reputation.

Other companies or entities also may commence actions seeking to establish the invalidity of our patents. In the event that one or more of our patents are challenged, a court may invalidate the patent(s) or determine that the patent(s) is not enforceable, which could harm our competitive position. For example, we recently filed a patent infringement lawsuit against defendant Ibis Biosciences, Inc., a subsidiary of Isis Pharmaceuticals, Inc. in the United States District Court for the District of Delaware. We believe that the sale and offer for sale of Ibis products and technology infringes three Sequenom patents related to nucleic acid analysis by mass spectrometry.

We are seeking a permanent injunction enjoining defendant from further infringement and monetary damages. Defendant may challenge the validity of our patents as part of the lawsuit. If one or more of our patents are invalidated, or if the scope of the claims in any of these patents is limited by a court decision, we could lose certain market exclusivity afforded by patents owned or in-licensed by us and potential competitors could more easily bring products to the market that directly compete with our own. Such adverse decisions may negatively impact our revenues.

The rights we rely upon to protect the intellectual property underlying our products may not be adequate, which could enable others to use our technology and reduce our ability to compete with them.

We require our employees, consultants, advisors, and collaborators to execute confidentiality agreements and in certain cases, assignment or license agreements. We cannot guarantee that these agreements will provide us with adequate intellectual property ownership or protection against improper or unauthorized use or disclosure of confidential information or inventions. In some situations, these agreements may conflict with or be subject to the rights of others with whom our employees, consultants, advisors, or collaborators have prior employment or consulting relationships. In some situations, as is the case with our employees in Germany, these types of agreements or relationships are subject to foreign law, which provides us with less favorable rights or treatment than under U.S. law. Others may gain access to our inventions, trade secrets or independently develop substantially equivalent proprietary materials, products, information, and techniques.

We have a history of generating a large percentage of our revenue at the end of each quarterly accounting period.

Due to the manner in which many customers in our target markets allocate and spend their budgeted funds for acquisition of our products, a large percentage of our sales are booked at the end of each quarterly accounting period. Because of this timing of our sales, we may not be able to reliably predict order volumes and our quarterly revenues. A sales delay of only a few days may significantly impact our quarter-to-quarter comparisons. If our quarterly revenues fall below the expectations of securities analysts and investors, our stock price may decline. Similarly, if we are unable to ship our customer orders on time, or if extended payment terms are required, there could be a material adverse effect on revenues for a given quarter.

A reduction in revenues from sales of MassARRAY products would harm our business.

The demand for MassARRAY systems and consumables and contract research services has changed over time, and any decline in demand will reduce our total revenues. We expect that sales of MassARRAY systems and consumables will account for most of our total revenues for the foreseeable future. Also, our competitors have offered low priced fee-for-service genotyping services and technologies to the DNA analysis marketplace. These factors and the following factors, among others, would reduce the demand for MassARRAY products and services:

- competition from other products and service providers or failure of our products or applications or services;
- changes in fiscal policies and the economy which negatively impact customer buying decisions; and
- negative publicity or evaluations, particularly with respect to product warranty and repair and troubleshooting services provided to existing customers and with respect to our license rights to perform gender testing for social or lifestyle purposes.

Our revenues are subject to the risks faced by biotechnology and diagnostic companies, pharmaceutical companies, and governmental and other research institutions.

We expect that our revenues in the foreseeable future will be derived primarily from MassARRAY system products provided to academic institutions, biotechnology, diagnostic, and pharmaceutical companies,

laboratories, companies and institutions that service the livestock industry, and governmental and other research institutions. Our operating results could fluctuate substantially due to reductions and delays in research and development expenditures by these customers. These reductions and delays could result from factors such as:

- changes in economic conditions and possible country-based boycotts;
- changes in government programs that provide funding;
- changes in the regulatory environment affecting health care and health care providers, and, for example, recent draft FDA guidance which, if effected, may impose additional restrictions on CLIA licensed laboratories performing laboratory diagnostic tests;
- pricing pressures and reimbursement policies;
- market-driven pressures on companies to consolidate and reduce costs;
- other factors affecting research and development spending; and
- uncertainty about our ability to fund operations and supply products and services to customers.

None of these factors are within our control. We have broadened the markets to which we sell our products and applications and continue to develop new applications and products for use in new markets. We are targeting customers in clinical research and clinical marker validation, the emerging field of molecular medicine, genetic service laboratories, and animal testing laboratories and diagnostic testing markets. We have limited or no experience operating in these potential markets and, as a result, may be unable to develop products and applications that allow us to penetrate these markets or successfully generate any revenue from sales in these markets. We will have limited ability to forecast future demand for our existing and any new products and applications in these markets.

We depend on sales of our consumable chips and other MassARRAY consumables for a significant portion of our revenues.

Sales of our consumable chips and other consumables for the MassARRAY system are an important source of revenue. Revenues from MassARRAY consumables totaled approximately 41% of our total revenues for the year ended December 31, 2008, compared to 40% of our total revenues for the year ended December 31, 2007, respectively. Factors which may limit the use of our consumable chips and other consumables or otherwise adversely affect our revenues from consumables include:

- the extent of our customers' level of utilization of their MassARRAY systems;
- our ability to provide timely repair services and our ability to secure replacement parts, such as lasers, for our MassARRAY systems;
- the extent to which customers increase multiplexing levels using the iPLEX Gold or any next generation iPLEX applications;
- the availability and adoption of new technologies and applications provided by our competitors;
- failure to sell additional MassARRAY systems;
- the termination of contracts with or adverse developments in our relations with suppliers of our consumables;
- the training of customer personnel;
- the acceptance of our technology by our customers;
- the ability to maintain necessary quality standards and specifications for our SpectroCHIP products; and
- our inability to transition to new suppliers for components for our MassARRAY system and our ability to maintain such relationships.

If our customers are unable to adequately prepare samples for our MassARRAY system, the overall market demand for our products may decline.

Before using the MassARRAY system, customers must prepare samples by following several steps that are subject to human error, including DNA isolation and DNA amplification. If DNA samples are not prepared appropriately, or the proposed assays are too complex, the MassARRAY system may not generate a reading or a correct reading. If our customers experience these difficulties, they might achieve lower throughput levels than specified for the system. If our customers are unable to generate expected levels of throughput, they might not continue to purchase our consumables, they could express their discontent with our products to others, or they could collaborate with others to jointly benefit from the use of our products. Any or all of these actions would reduce the overall market demand for our products. From time to time, we have experienced customer complaints regarding data quality and difficulty in processing more complex assays.

The sales cycles for our products are lengthy, and we may expend substantial funds and management effort with no assurance of successfully selling our products or services.

The sales cycles for our MassARRAY system products are typically lengthy. Our sales and licensing efforts require the effective demonstration of the benefits, value, and differentiation and validation of our products and services, and significant education and training of multiple personnel and departments within a customer organization. We may be required to negotiate agreements containing terms unique to each prospective customer or licensee which would lengthen the sales cycle. We may expend substantial funds and management effort with no assurance that we will sell our products or services. In addition, this lengthy sales cycle makes it more difficult for us to accurately forecast revenue in future periods and may cause revenues and operating results to vary significantly in such periods.

We may not be able to successfully adapt our products for commercial applications.

A number of potential applications of our MassARRAY technology, including research-use-only and diagnostic applications for noninvasive prenatal and other molecular testing, may require significant enhancements in our core technology or the in-licensing of intellectual property rights or technologies. If we are unable to complete the development, introduction, or scale-up of any product, or if any of our products or applications, such as gene expression analysis, epigenetic analysis or iPLEX multiplexing, do not achieve a significant level of market acceptance, our business, financial condition and results of operations could be seriously harmed. Achieving market acceptance will depend on many factors, including demonstrating to customers that our technology and products are cost competitive or superior to other technologies and products that are available now or that may become available in the future. We believe that our revenue growth and profitability will substantially depend on our ability to overcome significant technological challenges and successfully introduce our newly developed products, applications, and services into the marketplace.

We have limited commercial production capability and experience and may encounter production problems or delays, which could result in lower revenue.

We partially assemble the MassARRAY system and partially manufacture our consumable chips and MassARRAY kits. To date, we have only produced these products in moderate quantities. We may not be able to maintain acceptable quality standards as we continue or ramp up production. For example, we have experienced crystallized matrix on some of our chips, which has interfered with chip performance. To achieve anticipated customer demand levels, we will need to scale-up our production capability and maintain adequate levels of inventory while manufacturing our products at a reasonable cost. We may not be able to produce sufficient quantities to meet market demand or manufacture our product at a reasonable cost. If we cannot achieve the required level and quality of production, we may need to outsource production or rely on licensing and other arrangements with third parties. This reliance could reduce our gross margins and expose us to the risks inherent in relying on others. We might not be able to successfully outsource our production or enter into licensing or other arrangements with these third parties, which would adversely affect our business.

We depend on third-party products and services and limited sources of supply to develop and manufacture our products.

We rely on outside vendors to supply certain products and the components and materials used in our products. Some of these products, components and materials are obtained from a single supplier or a limited group of suppliers. Our MassARRAY system is comprised of several components, of which the following are currently obtained from a single supplier: Bruker Daltonics, Inc. supplies replacement components for our mass spectrometers, PSI, Inc. supplies our chips, Majer Precision Engineering, Inc. supplies the pins for the pin-tools and Paragon Medsystems LLC and Thermo Fischer Matrix who supply our nano dispenser liquid handling devices.

Our consumables also include components provided by sole suppliers, New England Biolabs, Epicentre, BioRad, and USB. In the event of any adverse developments with these vendors, our product supply may be interrupted, which would have an adverse impact on our business. In the past, we have experienced quality problems with and delays in receiving components used to produce our consumable chips, problems with laser reliability in our mass spectrometers supplied by Bruker and lengthy delays in obtaining lasers for replacement, problems with matrix crystallization on our chips, and also had technical difficulties with our pin-tool nanoliter dispenser device. We have also experienced software and operational difficulties with our MassARRAY Compact system. Our reliance on outside vendors generally and a sole or a limited group of suppliers in particular involves several risks, including:

- the inability to obtain an adequate supply of properly functioning, required products, components, and materials due to capacity constraints, product defects, a discontinuance of a product by a supplier, or other supply constraints;
- reduced control over quality and pricing of products, components, and materials; and
- delays and long lead times in receiving products, components, or materials from vendors.

If the validity of the consents from volunteers were to be challenged, we could be forced to stop using some of our resources, which would hinder our gene discovery outlicensing efforts and our diagnostic product development efforts.

We have attempted to ensure that all clinical data and genetic and other biological samples that we receive from our subsidiaries and our clinical collaborators have been collected from volunteers who have provided our collaborators or us with appropriate consents for the data and samples provided for purposes which extend to include commercial diagnostic product development activities. We have attempted to ensure that data and samples that have been collected by our clinical collaborators are provided to us on an anonymous basis. We have also attempted to ensure that the volunteers from whom our data and samples are collected do not retain or have conferred on them any proprietary or commercial rights to the data or any discoveries derived from them. Our clinical collaborators are based in a number of different countries, and, to a large extent, we rely upon our clinical collaborators for appropriate compliance with the voluntary consents provided and with local law and regulation. That our data and samples come from and are collected by entities based in different countries results in complex legal questions regarding the adequacy of consents and the status of genetic material under a large number of different legal systems. The consents obtained in any particular country could be challenged in the future, and those consents could prove invalid, unlawful or otherwise inadequate for our purposes. Any findings against us, or our clinical collaborators, could deny us access to or force us to stop using some of our clinical or genetic resources, which would hinder our diagnostic product development efforts. We could become involved in legal challenges, which could consume a substantial proportion of our management and financial resources.

If we cannot obtain licenses to patented SNPs and genes, we could be prevented from obtaining significant revenue or becoming profitable.

The U.S. Patent and Trademark Office has issued and continues to issue patents claiming single nucleotide polymorphism, or SNP, and gene discoveries and their related associations and functions. If certain SNPs and

genes are patented, we will need to obtain rights to those SNPs and genes to develop, use, and sell related assays and other types of products or services utilizing such SNPs and genes. Required licenses may not be available on commercially acceptable terms. If we were to fail to obtain licenses to certain patented SNPs and genes, we might never achieve significant revenue from our diagnostic product development.

If the medical relevance of SNPs is not demonstrated or is not recognized by others, we may have less demand for our products and services and may have less opportunity to enter into diagnostic product development and commercialization collaborations with others.

Some of the products we hope to develop involve new and unproven approaches or involve applications in markets that we are only beginning to explore. They are based on the assumption that information about genes and SNPs may help scientists better understand conditions or complex disease processes. Scientists generally have a limited understanding of the role of genes and SNPs in diseases, and few products based on gene discoveries have been developed. We cannot be certain that genetic information will play a key role in the development of diagnostics or other products in the future, or that any genetic-based findings would be accepted by diagnostic, pharmaceutical, or biotechnology companies or by any other potential market or industry segment. If we or our customers or collaborators are unable to generate valuable information that can be used to develop diagnostics or other products, the demand for our products, applications, and services will be reduced and our business will be harmed.

We may not be able to form and maintain the collaborative relationships or the rights to third-party intellectual property and technologies that our business strategy requires and such relationships may lead to disputes over technology rights or product revenue, royalties, or other payments.

We form research collaborations and licensing arrangements with collaborators to operate our business successfully. To succeed, we will have to maintain our existing relationships and establish additional collaborations and licensing arrangements. Our current strategy includes pursuing partnering opportunities with larger companies interested in or involved in the development of pharmaceutical and diagnostic products to potentially advance our disease gene discoveries and related targets toward drug or diagnostic development. Our strategy also includes obtaining licenses to third-party intellectual property rights and technologies, such as our exclusive license to noninvasive prenatal analysis rights that we acquired from ISIS (United States Patent No. 6,258,540 and foreign equivalents), to potentially expand our product portfolio and generate additional sources of revenue. If we do not achieve certain milestones in a timely manner, we risk losing our exclusive license rights from ISIS. We cannot be sure that we will be able to establish any additional research collaborations, licensing arrangements, or other partnerships necessary to develop and commercialize products or that we can do so on terms favorable to us. If we are unable to establish these collaborations or licensing arrangements, we may not be able to successfully develop any diagnostic or other products or applications and generate any milestone, royalty, or other revenue from sales of these products or applications. If our collaborations or licensing arrangements are not successful or we are not able to manage multiple collaborations successfully, our programs will suffer and we may never generate any revenue from sales of products based on licensed rights or technologies or under these collaborative or licensing arrangements. If we increase the number of collaborations or licensing agreements, it will become more difficult to manage the various relationships successfully and the potential for conflicts among the collaborators and licensees or licensors will increase. Conflicts with our collaborators, licensees or licensors, or other factors may lead to disputes over technology or intellectual property rights or product revenue, royalties, or other payments, which may adversely effect our business.

In addition, our government grants provide the government certain license rights to inventions resulting from funded work. Our business could be harmed if the government exercises those rights.

If we do not succeed in obtaining development and marketing rights for products developed in collaboration with others, our revenue and profitability prospects could be substantially harmed.

Our business strategy includes, in part, the development of noninvasive prenatal diagnostic and other products in collaboration with others, or utilizing the technology of others, and we intend to obtain commercialization or royalty rights to those products or technologies. If we are unable to obtain such rights, or are unable to do so on favorable financial terms, our revenue and profitability prospects could be substantially harmed. To date, we have initiated limited activities towards commercializing products developed in collaboration with, or utilizing the technology of, others. Even if we obtain commercialization rights, commercialization of products may require resources that we do not currently possess and may not be able to develop or obtain, or commercialization may be financially unattractive based upon the revenue-sharing terms offered by potential licensors or provided for in the relevant agreement.

Ethical, privacy, or other concerns about the use of genetic information could reduce demand for our products and services.

Genetic testing, including gender determination and Trisomy 21 (Down syndrome) testing, has raised ethical issues regarding privacy and the appropriate uses of the resulting information. For these reasons, governmental authorities may limit or otherwise regulate the use of genetic testing or prohibit testing for genetic predisposition to certain conditions, particularly for those that have no known cure. Such concerns may lead individuals to refuse to use genetics tests even if permitted. Any of these scenarios could reduce the potential markets for our products and services, which would seriously harm our business, financial condition, and results of operations.

If we breach any of the terms of our license or supply agreements, or these agreements are otherwise terminated or modified, the termination or modification of such agreements could result in our loss of access to critical components and could delay or suspend our commercialization efforts.

We have sourced or licensed components of our technology from other parties. For example, Bruker Daltonics supplies our replacement components for mass spectrometers, PSI, Inc. supplies our chips and Majer Precision Engineering supplies the pins for our present nanodispenser (pin-tool) product, and New England Biolabs, Epicentre and USB supply us with reagents used with our consumables. Our failure to maintain continued supply of such components, particularly in the case of sole suppliers, or the right to use these components would seriously harm our business, financial condition, and results of operations. As a result, in the event that demand for our products declines or does not meet our forecasts, we could have excess inventory or increased expenses or our margins could decrease which could have an adverse impact on our financial condition and business. In the event of any adverse developments with these vendors, our product supply may be interrupted, which would have an adverse impact on our business. Changes to or termination of our agreements or inability to renew our agreements with these parties or enter into new agreements with other suppliers could result in the loss of access to these aspects of our technology or other intellectual property rights or technologies that we may acquire from time to time and could impair, delay, or suspend our commercialization efforts. While we negotiate for agreement periods or notice of termination periods that provide us reasonable periods of time to secure alternative supplies, and require that such agreements may not be terminated without advance notice arbitrarily or without good reason, such as uncured breach or insolvency, such provisions may not provide us with adequate time to secure alternative supplies, provide us with access to alternative technologies on commercially acceptable terms, or otherwise provide us with adequate protection.

We may not successfully integrate acquired businesses and may not successfully complete the acquisition of businesses or technologies that we desire to acquire.

We may acquire additional businesses or technologies, or enter into other strategic transactions. For example, in November 2008, we completed the acquisition of the Center for Molecular Medicine, a CLIA licensed laboratory facility and in February 2009 we completed the acquisition of substantially all of the assets of SensiGen, LLC.

Managing these and future acquisitions entails numerous operational and financial risks, including:

- the inability to retain key employees of any acquired businesses or hire enough qualified personnel to staff any new or expanded operations;
- the impairment of relationships with key customers of acquired businesses due to changes in management and ownership of the acquired businesses;
- the inability to sublease on financially acceptable terms excess leased space or terminate lease obligations of acquired businesses that are not necessary or useful for the operation of our business;
- the exposure to federal, state, local and foreign tax liabilities in connection with any acquisition or the integration of any acquired businesses;
- the exposure to unknown liabilities;
- higher than expected acquisition and integration expenses that would cause our quarterly and annual operating results to fluctuate;
- increased amortization expenses if an acquisition results in significant intangible assets;
- combining the operations and personnel of acquired businesses with our own, which would be difficult and costly;
- disputes over rights to acquired technologies or with licensors or licensees of those technologies; and
- integrating or completing the development and application of any acquired technologies, which would disrupt our business and divert management's time and attention.

We may also attempt to acquire businesses or technologies or attempt to enter into strategic transactions that we are unable to complete. For example, in January 2009, we launched an exchange offer to acquire EXACT Sciences Corporation, but were not able to complete the transaction prior to EXACT Sciences selling and licensing a substantial portion of its assets and intellectual property to a third party. If we are unable to complete such transactions, we may expend substantial resources and ultimately not successfully complete the transaction. Such transactions may also distract management and result in other adverse effects on our business and operations.

We may not be able to successfully compete in the biotechnology and diagnostic industries.

The biotechnology and diagnostic industries are highly competitive. We expect to compete with a broad range of companies in the United States and other countries that are engaged in the development and production of products, applications, services, and strategies to analyze genetic information and strategies to develop and commercialize diagnostic, noninvasive prenatal diagnostic, and other products for customers in the clinical research and clinical marker validation and molecular medicine fields as well as diagnostic service laboratories, animal testing and food safety labs, and customers in other markets. They include:

- biotechnology, pharmaceutical, diagnostic, chemical, and other companies;
- academic and scientific institutions;
- governmental agencies; and
- public and private research organizations.

Many of our competitors have much greater financial, technical, research, marketing, sales, distribution, service, and other resources than we do. Our competitors may offer broader product lines and services and have greater name recognition than we do. Several companies are currently making or developing products that compete with our products. Our competitors may develop or market technologies or products that are more effective or commercially attractive than our current or future products, or that may render our technologies or products obsolete.

We may potentially compete with our customers, which may adversely affect our business.

We have sold MassARRAY systems worldwide to pharmaceutical and biotechnology companies, academic research centers, and government laboratories. Some of our customers use our DNA analysis products to perform contract research services, or to perform genetics studies on their own disease populations for potential diagnostic and drug target identification in the same or similar manner as we have done. Although there are many potential contract research services opportunities and disease areas and diagnostic applications, our customers may seek service work or develop diagnostic assays or may target diseases areas that may overlap with those that we have chosen to pursue. In such cases we may potentially compete against our customers. Competition from our customers may adversely affect our services business or our ability to successfully commercialize diagnostic products.

If we cannot attract and retain highly-skilled personnel, our growth might not proceed as rapidly as we intend.

The success of our business will depend on our ability to identify, attract, hire, train, retain, maintain, and motivate highly skilled personnel, particularly sales, scientific, medical, and technical personnel, for our future success. Competition for highly skilled personnel is intense, and we might not succeed in attracting and retaining these employees. If we cannot attract and retain the personnel we require, we would not be able to expand our business as rapidly as we intend. In particular, if we lose any key member of our management team, we may not be able to find suitable replacements and our business may be harmed as a result. If our management team is not able to effectively manage us through these restructuring changes and transitions, our business, financial condition, and results of operations may be adversely affected. We do not carry "key person" insurance covering any of our officers or other employees.

If we do not effectively manage our business as it evolves, it could affect our ability to pursue opportunities and expand our business.

Evolution in our business has placed and may continue to place a significant strain on our personnel, facilities, management systems, and resources. We will need to continue to improve our operational and financial systems and managerial controls and procedures and train and manage our workforce. We will have to maintain close coordination among our various departments. If we fail to effectively manage the evolution of our business and the transition to also being a provider of diagnostic products as well as the significant restructuring changes that we have experienced, our ability to pursue business opportunities, expand our business, and sell our products and applications in new markets may be adversely affected.

We are subject to risks associated with our foreign operations.

We expect that a significant portion of our sales will continue to be made outside the United States. Approximately 50% of our sales were made outside of the United States during the year ended December 31, 2008, compared to 49% for the year ended December 31, 2007. A successful international effort will require us to develop relationships with international customers and collaborators, including distributors. We may not be able to identify, attract, retain, or maintain suitable international customers or collaborators. Expansion into international markets will require us to establish and grow foreign operations, hire additional personnel to run these operations, and maintain good relations with our foreign customers and collaborators or distributors. International operations also involve a number of risks not typically present in domestic operations, including:

- currency fluctuation risks;
- changes in regulatory requirements;
- costs and risks of deploying systems in foreign countries;
- licenses, tariffs, and other trade barriers;
- political and economic instability and possible country-based boycotts;

- difficulties in staffing and managing foreign operations;
- potentially adverse tax consequences;
- the burden of complying with a wide variety of complex foreign laws and treaties; and
- different rules, regulations, and policies governing intellectual property protection and enforcement.

Our international operations are also subject to the risks associated with the imposition of legislation and regulations relating to the import or export of high technology products. We cannot predict whether tariffs or restrictions upon the importation or exportation of our products will be implemented by the United States or other countries.

If our production and laboratory facilities are damaged, our business would be seriously harmed.

Our only production facility for genetic analysis products is located in San Diego, California, where we also have laboratories. We also have laboratory facilities in Grand Rapids, Michigan. Damage to our facilities due to war, fire, natural disaster, power loss, communications failure, terrorism, unauthorized entry, or other events could prevent us from conducting our business for an indefinite period, could result in a loss of important data or cause us to cease development and production of our products. We cannot be certain that our limited insurance to protect against business interruption would be adequate or would continue to be available to us on commercially reasonable terms, or at all.

Responding to claims relating to improper handling, storage or disposal of hazardous chemicals, and radioactive and biological materials which we use could be time consuming and costly.

We use controlled hazardous and radioactive materials in the conduct of our business, as well as biological materials that have the potential to transmit disease. The risk of accidental contamination or injury from these materials cannot be completely eliminated. If an accident with these substances occurs, we could be liable for any damages that result, which could seriously harm our business. Additionally, an accident could damage our research and manufacturing facilities and operations, resulting in delays and increased costs. Such damage and any expense resulting from delays, disruptions, or any claims may not be covered by our insurance policies.

We may not have adequate insurance if we become subject to product liability or other claims.

Our business exposes us to potential product liability and other types of claims and our exposure will increase as we and our partners and collaborators prepare to commercialize research-use-only or other types of molecular tests, including LDTs and diagnostics for prenatal and other applications. We have product and general liability insurance that covers us against specific product liability and other claims up to an annual aggregate limit of $5 million. Any claim in excess of our insurance coverage would have to be paid out of our cash reserves, which would have a detrimental effect on our financial condition. It is difficult to determine whether we have obtained sufficient insurance to cover potential claims. Also, we cannot assure you that we can or will maintain our insurance policies on commercially acceptable terms, or at all.

Negative conditions in the global credit markets may impair the liquidity and value of a portion of our investment portfolio.

As of December 31, 2008, our marketable securities classified as noncurrent consist of $9.4 million, reduced by approximately $3.7 million reflecting the change in market value, of ARS issued primarily by municipalities and insurance companies that have experienced failed auctions due to lack of liquidity at the time their interest rates were to reset. The recent negative conditions in the global credit markets and the financial services industry have prevented some investors from liquidating their holdings, including their holdings of ARS. As a result, certain of these types of securities are not fully liquid and we could be required to hold them until they are redeemed by the issuer or to maturity. In the event we need to access the funds that are in an illiquid state, we

will not be able to do so without a loss of principal until a future auction on these investments is successful, the securities are redeemed by the issuer or they mature. Although the ARS have continued to pay interest according to their stated terms, based on valuation models and an analysis of other-than-temporary impairment factors, recognized losses of approximately $2.6 million and $1.1 million have been recorded for the years ended December 31, 2008 and 2007, respectively, reflecting the portion of ARS holdings that we have concluded have an other-than-temporary decline in value. If the credit ratings of the security issuers deteriorate or if uncertainties in these markets continue and any decline in market value is determined to be other-than-temporary, we would be required to further adjust the carrying value of the investment through an impairment charge, which could negatively affect our financial condition, cash flow and reported earnings. There is no guarantee that we will be able to liquidate our remaining ARS or might have to incur further recognized losses. It is possible that our ARS investments may be subject to credit rating downgrades, which could also affect the value of the securities and any ability we may have to liquidate these securities in the future.

The uncertainty of the current economic and political conditions could harm our revenues and operating results.

Current domestic and global economic conditions are uncertain and have continued to be volatile and deteriorate over the past several months. The recent turmoil in the economic environment in many parts of the world may continue to put pressure on global economic conditions. Our revenues and operating results may be affected by uncertain or changing economic and market conditions, including the recent crisis in the credit markets and financial services industry and general conditions in the global capital markets. If global economic and market conditions, or economic conditions in the United States or other key markets, remain uncertain or persist, spread, or deteriorate further, we may experience material impacts on our business, operating results, and financial condition.

Our cash asset-backed loan line are maintained with financial institutions which given the current financial crisis may not be fully insured or available.

We maintain significant amounts of cash and cash equivalents at financial institutions that are in excess of federally insured limits. Given the current instability of the financial services industry, there is no guarantee that we will not experience losses on our cash deposits or that our asset-backed loan line will be available for borrowing, or that we will be able to obtain future lines of credit.

Our stock price has been and may continue to be volatile, and your investment could suffer a decline in value.

The trading price of our common stock has been volatile and could be subject to wide fluctuations in price in response to various factors, many of which are beyond our control, including but not limited to:

- actual or anticipated variations in quarterly and annual operating results;
- announcements of technological innovations, clinical study results, or research and development progress or setbacks by us or our competitors;
- our success in entering into, and the success in performing under, licensing and product development and commercialization agreements with others;
- securities analysts' earnings projections or securities analysts' recommendations; and
- general market conditions, including the recent crisis in global financial markets.

The stock market in general, and The NASDAQ Global Market and the market for life sciences companies in particular, have experienced extreme price and volume fluctuations that may have been unrelated or disproportionate to the operating performance of the listed companies. There have been dramatic fluctuations in

the market prices of securities of biotechnology companies. These price fluctuations may be rapid and severe and may leave investors little time to react. Broad market and industry factors may seriously harm the market price of our common stock, regardless of our operating performance. Sharp drops in the market price of our common stock expose us to securities class-action litigation. Such litigation could result in substantial expenses and a diversion of management's attention and resources, which would seriously harm our business, financial condition, and results of operations.

Item 1B. UNRESOLVED STAFF COMMENTS

None.

Item 2. PROPERTIES

We are headquartered in San Diego, California, with wholly-owned subsidiaries located in Hamburg, Germany, and Cambridge, England, New Delhi, India, Hong Kong, Grand Rapids, Michigan and Tokyo, Japan. We also have offices in Queensland, Australia, Beijing, China and Newton, Massachusetts. Collectively, we lease approximately 133,000 square feet under leases that expire at various dates through September 2015, each of which contains laboratory, office, manufacturing, or storage facilities.

The San Diego site is our company headquarters and houses our selling, general, and administrative offices, research and development facilities and manufacturing operations. The sites in Hamburg and Newton are used to support sales and distribution in Europe and the United States, respectively. The Newton site was acquired through our merger with Gemini Genomics in 2001 and is partially subleased. The site in Cambridge, England is used for sales and support activities performed in Europe. The site in Grand Rapids, Michigan houses our CLIA laboratory, SCMM. We believe our facilities are adequate for our current needs.

Item 3. LEGAL PROCEEDINGS

In November 2001, we and certain of our current or former officers and directors were named as defendants in a class action shareholder complaint filed by Collegeware USA in the U.S. District Court for the Southern District of New York (now captioned In re Sequenom, Inc. IPO Securities Litigation) Case No. 01-CV-10831. Similar complaints were filed in the same District Court against hundreds of other public companies that conducted initial public offerings of their common stock in the late 1990s and 2000. In the complaint, the plaintiffs allege that our underwriters, certain of our officers and directors and we violated the federal securities laws because our registration statement and prospectus contained untrue statements of material fact or omitted material facts regarding the compensation to be received by and the stock allocation practices of the underwriters. The plaintiffs seek unspecified monetary damages and other relief. In October 2002, our officers and directors were dismissed without prejudice pursuant to a stipulated dismissal and tolling agreement with the plaintiffs. In February 2003, the District Court dismissed the claim against us brought under Section 10(b) of the Securities Exchange Act of 1934, without giving the plaintiffs leave to amend the complaint with respect to that claim. The District Court declined to dismiss the claim against us brought under Section 11 of the Securities Act of 1933.

In September 2003, pursuant to the authorization of a special litigation committee of our board of directors, we approved in principle a settlement offer by the plaintiffs. In September 2004, we entered into a settlement agreement with the plaintiffs. In February 2005, the District Court issued a decision certifying a class action for settlement purposes and granting preliminary approval of the settlement subject to modification of certain bar orders contemplated by the settlement. In August 2005, the District Court reaffirmed class certification and preliminary approval of the modified settlement. In February 2006, the District Court dismissed litigation filed against certain underwriters in connection with the claims to be assigned to the plaintiffs under the settlement. In April 2006, the District Court held a final fairness hearing to determine whether to grant final approval of the settlement. In December 2006, the U.S. Court of Appeals for the Second Circuit vacated the District Court's

decision certifying as class actions the six lawsuits designated as "focus cases." Thereafter the District Court ordered a stay of all proceedings in all of the lawsuits pending the outcome of plaintiffs' petition to the Second Circuit for rehearing *en banc*. In April 2007, the Second Circuit denied plaintiffs' rehearing petition, but clarified that the plaintiffs may seek to certify a more limited class in the District Court. Accordingly, the settlement as originally negotiated was terminated pursuant to stipulation and will not receive final approval. Plaintiffs filed amended complaints in the six focus cases in August 2007. Sequenom is not one of the focus case issuers. In September 2007, Sequenom's named officers and directors again extended the tolling agreement with the plaintiffs. Also in September 2007, the plaintiffs moved to certify the classes alleged in the focus cases and to appoint class representatives and class counsel in those cases. The focus case issuers filed motions to dismiss the claims against them in November 2007 and an opposition to plaintiffs' motion for class certification in December 2007. The District Court denied the motions to dismiss in March 2008. On October 2, 2008, the plaintiffs withdrew their class certification motion. A deadline for the focus case defendants to answer the amended complaints has not been set.

On June 5, 2008, we were named as a defendant in a complaint filed by plaintiffs Beckman Coulter Inc. and Orchid Cellmark Inc. in the United States District Court for the Southern District of California. In the complaint, the plaintiffs allege that we are infringing three patents owned by Orchid Cellmark Inc. and licensed to Beckman Coulter Inc. by making and selling our iPLEX products and teaching our customers how to use the products. The plaintiffs seek a permanent injunction enjoining us from further infringement, and unspecified monetary damages, including lost profits, enhanced damages pursuant to 35 U.S.C. § 284, costs, attorneys' fees and other relief as the court deems just and proper. On August 15, 2008, we filed an answer and counter claims against plaintiffs seeking declaratory judgments that the patents are not infringed and are invalid and/or unenforceable. Discovery is currently in progress. We believe that the plaintiffs' claims are without merit and will vigorously defend against the claims advanced in the complaint.

On October 30, 2008, we filed a patent infringement suit against Ibis Biosciences, Inc., a subsidiary of Isis Pharmaceuticals, Inc. The complaint was served on the defendant in February 2009. Ibis has been acquired by Abbott Molecular. The lawsuit was filed in the United States District Court for the District of Delaware. The lawsuit alleges that the sale or offer for sale of the Ibis T5000 Biosensor System and related technology infringes three U.S. patents: 6,300,076, 6,500,621 and 7,419,787. We are seeking a permanent injunction enjoining the defendant from further infringement and monetary damages, including enhanced damages pursuant to 35 U.S.C. § 284, costs, attorneys' fees and other relief as the court deems just and proper.

In addition, from time to time, we may be involved in litigation relating to claims arising out of our operations in the normal course of business.

Item 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matter was submitted to a vote of security holders during the fourth quarter of 2008.

PART II

Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

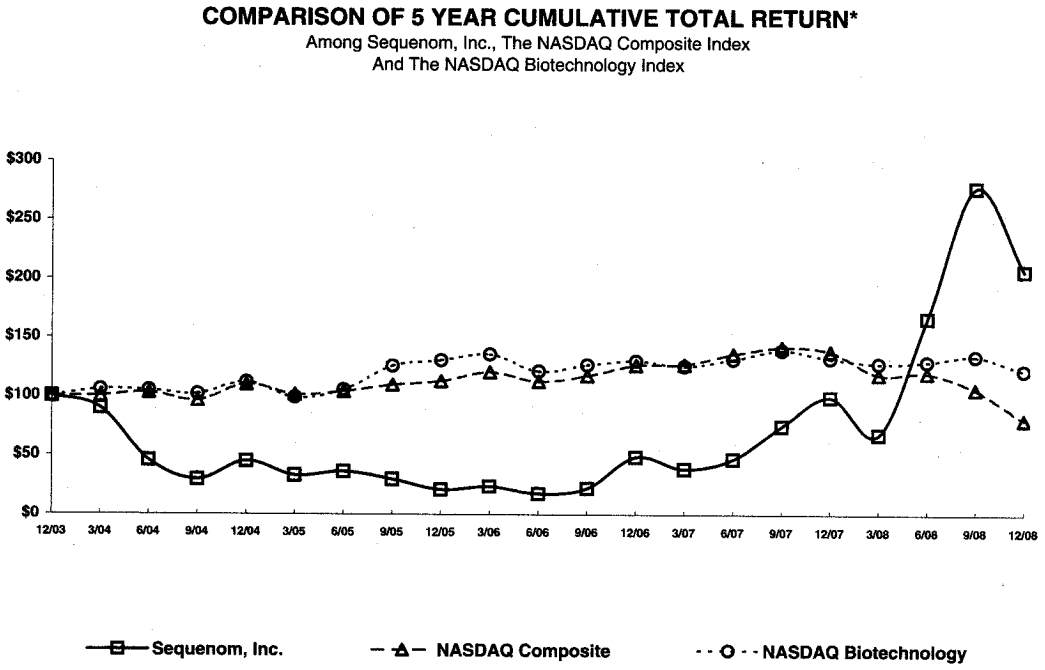
(a) Our common stock is traded on The Nasdaq Global Market under the symbol "SQNM." The following tables set forth the high and low sales prices for the Company's common stock as reported on The Nasdaq Global Market for the periods indicated.

	High	Low
Year Ended December 31, 2008:		
Fourth Quarter	$26.72	$12.71
Third Quarter	27.76	16.28
Second Quarter	15.96	5.07
First Quarter	9.40	5.06
Year Ended December 31, 2007:		
Fourth Quarter	$11.25	$ 7.80
Third Quarter	7.19	4.33
Second Quarter	4.96	2.99
First Quarter	5.44	3.61

There were approximately 118 holders of record of our common stock as of February 2, 2009. We have not paid any cash dividends to date and do not anticipate any being paid in the foreseeable future.

Performance Measurement Comparison*

The following graph compares the cumulative total stockholder return on our common stock between December 31, 2003 and December 31, 2008 with the cumulative total return of (i) the NASDAQ Composite Index (NASDAQ Index) and (ii) the NASDAQ Biotechnology Index (the NASDAQ Biotech Index), over the same period. This graph assumes the investment of $100.00 on December 31, 2003 in common stock, the NASDAQ Index and the NASDAQ Biotech Index, and assumes the reinvestment of any dividends.



* This Section is not "soliciting material" is not deemed "filed" with the SEC and is not to be incorporated by reference in any of our filing under the Securities Act of 1933 or the Securities Exchange Act of 1934 whether made before or after the date hereof without regard to any general incorporation language in any such filing.

Item 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data is derived from our audited consolidated financial statements and should be read in conjunction with the consolidated financial statements and the notes to such statements and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this report. Historical results are not necessarily indicative of the results to be expected in the future.

	Years ended December 31,				
	2008	2007	2006	2005	2004
	(In thousands, except per share data)				
Consolidated statements of operations data					
Revenues:					
Consumables, MassARRAY and other product related	$ 42,259	$ 37,365	$ 27,051	$ 19,070	$ 21,026
Services	4,817	3,524	1,023	—	199
Research and other	73	113	422	351	1,224
Total revenues	47,149	41,002	28,496	19,421	22,449
Costs and expenses:					
Cost of consumables, product and services revenue	19,590	18,077	11,887	10,370	11,361
Research and development	27,455	14,352	11,939	11,930	18,627
Selling and marketing, general and administrative	42,735	31,148	22,425	22,382	23,328
Restructuring and long-lived asset impairment charge	—	—	10	593	2,207
Amortization of acquired intangibles	—	—	1,511	2,014	3,075
Total costs and expenses	89,780	63,577	47,772	47,289	58,598
Loss from operations	(42,631)	(22,575)	(19,276)	(27,868)	(36,149)
Other income (expense):					
Interest income	1,592	1,781	906	633	773
Interest expense	(139)	(17)	(20)	(325)	(434)
Loss on marketable securities	(2,584)	(1,071)	—	—	—
Other (expense) income, net	(181)	(101)	191	94	33
Loss before income taxes	(43,943)	(21,983)	(18,199)	(27,466)	(35,777)
Income tax (expense) benefit	(211)	—	622	929	1,152
Net loss	$(44,154)	$(21,983)	$(17,577)	$(26,537)	$(34,625)
Net loss per share, basic and diluted	$ (0.83)	$ (0.57)	$ (0.71)	$ (2.00)	$ (2.62)
Weighted average shares outstanding, basic and diluted	53,129	38,865	24,842	13,276	13,219

	As of December 31,				
	2008	2007	2006	2005	2004
	(In thousands)				
Consolidated balance sheet data					
Cash, cash equivalents, marketable securities and restricted cash	$ 99,700	$52,150	$26,330	$ 8,678	$37,944
Working capital	103,246	52,690	23,651	5,403	28,479
Total assets	140,484	76,046	39,881	24,436	58,486
Total long-term obligations	4,779	5,744	3,525	1,363	5,700
Total stockholders' equity	116,213	54,265	25,450	11,743	38,072

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Overview

We are a diagnostic testing and genetics analysis company committed to providing products, services, diagnostic testing, applications and genetic analysis products that translate the results of genomic science into solutions for biomedical research, translational research, molecular medicine applications, and agricultural, livestock, and other areas of research. Our development and commercialization efforts in various diagnostic areas include non-invasive prenatal diagnostics, oncology, infectious diseases, and other disorders.

Our proprietary MassARRAY system, comprised of hardware, software applications, consumable chips and reagents, is a high performance (in speed, accuracy and cost efficiency) nucleic acid analysis platform that quantitatively and precisely measures genetic target material and variations. Our platform is widely accepted as a leading high-performance DNA analysis platform for the fine mapping genotyping market and is gaining traction in newer developing markets, such as epigenomics and clinical microbiology. Our customers include premier clinical research laboratories, bio-agriculture, bio-technology and pharmaceutical companies, academic institutions, various government agencies worldwide, as well as our CLIA certified lab, Sequenom Center for Molecular Medicine. To provide customer support for our expanding user base and in an effort to maximize market penetration, we have established direct sales and support personnel serving North America, Europe, India, Australia and Asia, in addition to regional distribution partners in France, Israel, Russia, Eastern Europe, South Korea, New Zealand, Singapore, Taiwan, Kuwait, Saudi Arabia and Turkey.

We are researching, developing and pursuing the commercializion of various non-invasive molecular diagnostic tests for prenatal genetic disorders and diseases, oncology, infectious diseases, and other diseases and disorders. We have branded our diagnostic technology for prenatal diagnostics under the trademark SEQureDx. Our efforts in molecular diagnostics are focused on non-invasive diagnostics currently using our proprietary MassARRAY system, however, we may in the future employ other platforms with our applications as may be more suitable on a case-by-case basis considering optimum test performance and commercialization factors.

Currently, we are primarily focused on developing and commercializing prenatal screening and diagnostic tests using our non-invasive, circulating cell-free fetal (ccff) nucleic acid based assay technology, which is non-invasive to the womb, using a simple maternal blood draw, for prenatal diagnosis, in order to provide more fundamental and reliable information about the fetus early in pregnancy. Our planned screening and diagnostic tests in areas of women's health, oncology, and infectious disease are also non-invasive and are expected to use simple blood draws from patients rather than invasive procedures such as surgery.

Supporting our initiatives in women's health, oncology and infectious disease, in January 2009, we entered into an agreement for the acquisition of the complete AttoSense portfolio of gene-based molecular tests and related assets from SensiGen LLC. The acquisition includes highly-sensitive and specific tests for the detection and monitoring of human papillomavirus (HPV) (the primary cause of cervical and head and neck cancers), systemic lupus erythematosus (Lupus), chronic kidney disease (CKD), inflammatory bowel disease (IBD) and other tests, all of which utilize our proprietary MassARRAY platform. This acquisition was completed in February 2009.

We plan to launch through our CLIA laboratory a non-invasive prenatal screening LDT test for Rhesus D and a carrier screening test for Cystic Fibrosis during the second quarter of 2009; a non-invasive prenatal screening LDT test for trisomies (Trisomy 21 and potentially Trisomies 18 and 13) in June 2009; and a non-invasive prenatal screening LDT test for gender-linked disorders (our Fetal^{xy} screen) during the fourth quarter of 2009. Concurrent with our LDT commercialization activities, we plan to conduct the development, validation, and other activities necessary to file submissions with the Food and Drug Administration (FDA) seeking approval for selected diagnostic tests. We plan to file submissions with the FDA for our prenatal trisomy tests and Rhesus D genotyping in 2010.

Our MassARRAY technology is accepted as a leading high-performance DNA analysis system for the fine mapping genotyping market. We derive revenue primarily from sales of our MassARRAY hardware, software and consumable products. Our standard MassARRAY system combines the following basic components, which contributes to the high level of performance in terms of speed, accuracy and cost efficiency:

- a MALDI-TOF mass spectrometer, which uses an established analytical method that we have adapted for DNA analysis;
- proprietary biochemical reagents for sample preparation, coated silicon chips known as the SpectroCHIP®, liquid handling hardware to prepare DNA for analysis, and dispensing hardware to dispense analyte onto the SpectroCHIP carrier; and
- bioinformatics software that records, calculates, and reports the data generated by the mass spectrometer.

Our MassARRAY system provides reliable results for a wide range of DNA/RNA analysis applications including single nucleotide polymorphism, or SNP, genotyping detection of mutations, analysis of copy number variants and other structural genome variations, quantitative gene expression analysis, quantitative methylation marker analysis, comparative sequence analysis of haploid organisms, SNP discovery, and oligonucleotide quality control. These applications are provided through proprietary application software that operates on the MassARRAY platform and through the purchase of consumable chips and reagent kits. While the MassARRAY system is versatile across many applications, it is a robust and cost-effective genotyping solution for fine mapping projects enabled through our iPLEX multiplexing assay reagents and chips which permits multiplexed SNP analysis using approximately the same amount of reagents and chip surface area as is used for a single sample analysis.

Our research and development efforts in genetic analysis are committed to producing new and improved components and applications for the MassARRAY system that deliver greater system versatility and excellent data quality at a competitive price per data point. These research and development activities and new applications also facilitate and support our diagnostics initiatives.

We have targeted customers conducting quality genotyping and performing fine mapping studies, candidate gene studies, comparative sequencing, gene expression analysis, and epigenetic analysis in the molecular medicine market. Epigenetic analysis is an important part of cancer and other research areas. DNA methylation analysis is the most frequently studied epigenetic change, and examines changes in the presence or absence of methyl groups in specific areas of the DNA.

We are targeting customers for our genetic analysis technology and products across four segments: biomedical research and molecular medicine; oncology and translational research; clinical research, public health and biodefense; and agriculture and livestock. We believe the market and opportunities for growth for fine mapping genotyping are increasing as more researchers are completing their larger genomic studies such as whole genome scans. Epigenetic analysis is an emerging market that, along with gene expression analysis, is increasingly being utilized by researchers in conjunction with genotyping to attempt to fully understand genetic cause and effect.

As of December 31, 2008, our revenues consisted of sales of MassARRAY hardware, software, consumables, maintenance agreements, and from services contracts through our genetic analysis contract research services business. The impact of our product offerings and contract research services business on future revenues, margins, expenses, and cash flows remains uncertain and depends on many factors as described in Item 1A of this report under the caption "Risk Factors."

We expect revenues from molecular diagnostics through out-licensing and commercialization of our non-invasive prenatal diagnostics technology, including technology for Rhesus D incompatibility using a real-

time polymerase chain reaction platform, to be minimal for the foreseeable future. To the extent that revenues are realized from our molecular diagnostic tests, including non-invasive prenatal diagnostics technology or from our prior disease gene discoveries, if at all, they may fluctuate significantly as revenues will be based upon the occurrence of certain milestones, our reliance upon and the progress made by our collaborative partners, successful product development and commercialization, and product demand, all of which are uncertain and difficult to predict. As a result, our entitlement to, and the timing and amounts of, any revenues from molecular diagnostic products licensing and milestone payments and royalty or revenue sharing payments on future diagnostic or other product sales are uncertain and difficult to predict. To achieve such revenues we will likely be dependent upon the efforts, resources and success of present and future collaborators and licensees who may need to invest significant dollar amounts in research and development efforts, commercialization efforts, clinical trials, and obtaining regulatory approvals over several years. Such revenues, if any, are uncertain and also depend on many factors as described in Item 1A of this report under the caption "Risk Factors."

We have a history of recurring losses from operations and have an accumulated deficit of $526.3 million as of December 31, 2008. Our capital requirements to sustain operations, including research and development projects, have been and will continue to be significant. As of December 31, 2008, we had available cash and cash equivalents and current marketable securities totaling $98.3 million and working capital of $103.2 million.

On July 1, 2008, we closed an underwritten public offering of our common stock totaling 5,500,000 shares of our common stock at $15.50 per share, with the underwriters exercising their option to purchase an additional 825,000 shares on July 8, 2008. Including the additional shares, the offering resulted in aggregate net proceeds of approximately $91.8 million after deducting underwriting discounts, commissions and estimated transaction expenses.

During 2007, we closed a $20.0 million registered direct offering of our common stock to several new and existing investors, as well as a $30.5 million private placement of our common stock. Under the terms of the registered direct offering we issued and sold 6,666,666 shares of our common stock at $3.00 per share, with aggregate net proceeds of approximately $18.3 million after deducting placement agents' fees and transaction expenses. Under the terms of the private placement we issued and sold 3,383,335 shares of our common stock at $9.00 per share, with aggregate net proceeds of approximately $28.1 million after deducting placement agents' fees and estimated transaction expenses.

Critical Accounting Policies

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions in certain circumstances that affect amounts reported in the accompanying consolidated financial statements and related notes. Certain of these accounting policies that we believe are the most critical to our investors' understanding of our financial results and conditions are discussed below. Our significant accounting policies are more fully described in Note 2 to our Consolidated Financial Statements included elsewhere in this report. In preparing these financial statements, management uses its judgment to determine the appropriate assumptions to be used in the determination of certain estimates. Management considers many factors in selecting appropriate financial accounting policies and controls and in developing the estimates and assumptions that are used in the preparation of the consolidated financial statements. Management must apply significant judgment in this process. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an assessment that falls within the range of reasonable estimates. The application of these accounting policies involves the exercise of judgment and use of estimates and assumptions as to future uncertainties and, as a result, actual results could differ from these estimates.

Revenue Recognition

We recognize revenue in accordance with current accounting rules, which primarily include the Securities and Exchange Commission's Staff Accounting Bulletin, or SAB, No. 104, "Revenue Recognition" (SAB 104). In

accordance with SAB 104, revenues are recognized when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed and determinable, and collectibility is reasonably assured. We consider Emerging Issues Task Force No. 00-21, "Accounting for Revenue Arrangements with Multiple Deliverables," (EITF 00-21) and for MassARRAY system sales, the arrangement consideration is allocated among the separate units of accounting based on their relative fair values. The separate units of accounting are typically the system and software itself and maintenance contracts sold at the time of the system sale. Revenue is deferred for fees received before earned. Revenues from sales of consumables are recognized generally upon shipment and transfer of title to the customer. Revenue from sales of MassARRAY systems with standard payment terms of net 30 days are recognized upon shipment and transfer of title to the customer or when all revenue recognition criteria are met. Our contracts do not contain refund or cancellation clauses. Revenues from the sale or licensing of our proprietary software are recognized upon transfer of title to the customer or the duration of the software license. We recognize revenue on maintenance services for ongoing customer support over the maintenance period. Revenues from genetic services are recognized at the completion of key stages in the performance of the service, which is generally delivery of SNP assay information. Grant revenue is recorded as the research expenses relating to the grants are incurred, provided that the amounts received are not refundable if the research is not successful. Amounts received that are refundable if the research is not successful would be recorded as deferred revenue and recognized as revenue upon the grantor's acceptance of the success of the research results.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Significant estimates are as follows:

- *Accrued acquisition and integration costs.* To the extent that exact amounts were not determinable at the time of acquisition, we estimated amounts for direct costs of the acquisition of Gemini Genomics and Axiom Biotechnologies and the related integration costs in accordance with EITF 95-3, "Recognition of Liabilities in Connection with a Purchase Business Combination" and Statement of Financial Accounting Standards No. 141, "Business Combinations" (SFAS 141). Amounts incurred relating to acquisition and integration costs totaled $27.4 million and as of December 31, 2008 and 2007, approximately $0.5 million and $0.7 million remained accrued, respectively. The amount accrued at December 31, 2008, represents our remaining lease payments, net of estimated sublease income of $0.5 million from existing subleased space. If we do not receive all the amounts due to us under non-cancelable subleases, we will incur additional expense.

- *Goodwill and impairment of long-lived assets.* The purchase price allocation for acquisitions requires extensive use of accounting estimates and judgments to allocate the purchase price to the identifiable tangible and intangible assets acquired and liabilities assumed based on their respective fair values. Additionally, we must determine whether an acquired entity is considered to be a business or a set of net assets, because a portion of the purchase price can only be allocated to goodwill in a business combination. Goodwill and intangible assets deemed to have indefinite lives are not amortized, but are subject to annual impairment tests. The amounts and useful lives assigned to other intangible assets impact future amortization. Determining the fair values and useful lives of intangible assets requires the use of estimates and the exercise of judgment. These judgments can significantly affect our net operating results.

  We periodically re-evaluate the original assumptions and rationale utilized in the establishment of the carrying value and estimated lives of our long-lived assets. The criteria used for these evaluations include management's estimate of the asset's continuing ability to generate income from operations and

positive cash flows in future periods as well as the strategic significance of any intangible assets in our business objectives. If assets are considered to be impaired, the impairment recognized is the amount by which the carrying value of the assets exceeds the fair value of the assets. No impairment of long-lived assets was recorded in 2008, 2007 or 2006. Intangible assets totaled $0.1 million, net of accumulated amortization, at December 31, 2008.

- *Allowance for Doubtful Accounts.* We maintain an allowance for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. We evaluate the collectability of our accounts receivable balance based on a combination of factors. We regularly analyze customer accounts, review the length of time receivables are outstanding and review the historical loss rates if the financial condition of our customers were to deteriorate additional allowances could be required.

- *Reserves for obsolete and slow-moving inventory.* We operate in an industry characterized by rapid improvements and changes to technology and products. The introduction of new products by us or our competitors can result in our inventory being rendered obsolete or requiring us to sell items at a discount to cost. We estimate the recoverability of our inventory by reference to our internal estimates of future demands and product life cycles. If we incorrectly forecast demand for our products or inadequately manage the introduction of new product lines, we could materially impact our financial statements by having excess inventory on hand. Our future estimates are subjective and could be incorrect. During 2008, slow-moving inventory reserves of $0.7 million were charged against cost of goods sold and the total reserve was $1.8 million at December 31, 2008.

- *Income taxes.* In accordance with SFAS No. 109, "Accounting for Income Taxes," (SFAS 109), the provision for income taxes is computed using the asset and liability method, under which deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, and for the expected future tax benefit to be derived from tax loss and credit carryforwards. Deferred tax assets and liabilities are determined using the enacted tax rates in effect for the years in which those tax assets are expected to be realized. A valuation allowance is established when it is more likely than not the future realization of all or some of the deferred tax assets will not be achieved. The evaluation of the need for a valuation allowance is performed on a jurisdiction by jurisdiction basis, and includes a review of all available positive and negative evidence. As of December 31, 2007, we have maintained a valuation allowance against U.S. and foreign deferred tax assets that we concluded have not met the "more likely than not" threshold required under SFAS 109.

  Due to the adoption of SFAS No. 123(R) "Share-Based Payment," we recognize excess tax benefits associated with share-based compensation to stockholders' equity only when realized. When assessing whether excess tax benefits relating to share-based compensation have been realized, we follow the with-and-without approach, excluding any indirect effects of the excess tax deductions. Under this approach, excess tax benefits related to share-based compensation are not deemed to be realized until after the utilization of all other tax benefits available to us.

  Effective January 1, 2007, we adopted FASB Interpretation No. (FIN) 48, "Accounting for Uncertainty in Income Taxes—an interpretation of FASB Statement No. 109," (FIN 48) which clarifies the accounting for uncertainty in tax positions. FIN 48 requires that we recognize the impact of a tax position in our financial statements only if that position is more likely than not of being sustained upon examination by taxing authorities, based on the technical merits of the position. Any interest and penalties related to uncertain tax positions will be reflected in income tax expense.

- *Stock-based compensation.* We account for stock-based compensation in accordance with SFAS No. 123(R), "Share-Based Payment," (SFAS 123(R)). Under the provisions of SFAS 123(R), stock-based compensation cost is estimated at the grant date based on the award's fair-value as calculated by the Black-Scholes option valuation model (BSM) and is recognized as expense over the requisite service period. The BSM model requires various highly judgmental assumptions including volatility, forfeiture rates, and expected option life. If any of these assumptions used in the BSM model

change significantly, stock-based compensation expense may differ materially in the future from that recorded in the current period.

Recent Accounting Pronouncements

In May 2008, the FASB issued Statement of Financial Accounting Standards No. 162, "The Hierarchy of Generally Accepted Accounting Principles" (SFAS 162). SFAS 162 identifies the sources of accounting principles and the framework for selecting the principles to be used in the preparation of financial statements that are presented in conformity with generally accepted accounting principles in the United States SFAS 162 was effective November 15, 2008 and the adoption of this pronouncement did not have a material impact on our consolidated financial statements.

In April 2008, the FASB issued FSP FAS 142-3, "Determination of the Useful Life of Intangible Assets" (FSP 142-3). FSP 142-3 amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under SFAS 142. This change is intended to improve the consistency between the useful life of a recognized intangible asset under SFAS 142 and the period of expected cash flows used to measure the fair value of the asset under SFAS 141R and U.S. GAAP. FSP 142-3 is effective for financial statements issued for fiscal years beginning after December 15, 2008. The requirements for determining useful lives must be applied prospectively to intangible assets acquired after the effective date and the disclosure requirements must be applied prospectively to all intangible assets recognized as of, and subsequent to, the effective date. FSP 142-3 could have a material impact on the useful life determination of any intangible asset acquisitions completed in future periods.

In March 2008, the FASB issued SFAS No. 161, "Disclosures about Derivative Instruments and Hedging Activities" (SFAS 161). This statement changes the disclosure requirements for derivative instruments and hedging activities. Entities are required to provide enhanced disclosures about (a) how and why an entity uses derivative instruments, (b) how derivative instruments and related hedged items are accounted for under SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities," and its related interpretations, and (c) how derivative instruments and related hedged items affect an entity's financial position, financial performance, and cash flows. SFAS 161 is effective for financial statements issued for fiscal years and interim periods beginning after November 15, 2008, with early application encouraged. This statement encourages, but does not require, comparative disclosures for earlier periods at initial adoption. The adoption of SFAS 161 is not expected to have a material impact on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 160, "Noncontrolling Interests in Consolidated Financial Statements—an amendment of Accounting Research Bulletin No. 51" (SFAS 160). SFAS 160 establishes accounting and reporting standards for ownership interests in subsidiaries held by parties other than the parent, the amount of consolidated net income attributable to the parent and to the noncontrolling interest, changes in a parent's ownership interest, and the valuation of retained noncontrolling equity investments when a subsidiary is deconsolidated. SFAS 160 also establishes disclosure requirements that clearly identify and distinguish between the interests of the parent and the interests of the noncontrolling owners. SFAS 160 is effective for fiscal years beginning after December 15, 2008. We do not expect the adoption of SFAS 160 to have a material effect on our consolidated results of operations and financial condition.

In September 2006, the FASB issued SFAS No. 157, "Fair Value Measurements" (SFAS 157). This statement establishes a common definition for fair value to be applied to GAAP requiring use of fair value, establishes a framework for measuring fair value, and expands disclosure about such fair value measurements. SFAS 157 is effective for financial assets and financial liabilities for fiscal years beginning after November 15, 2007. Issued in February 2008, FSP 157-1 "Application of FASB Statement No. 157 to FASB Statement No. 13 and Other Accounting Pronouncements That Address Fair Value Measurements for Purposes of Lease Classification or Measurement under Statement 13," removed leasing transactions accounted for under SFAS No. 13 and related guidance from the scope of SFAS 157. FSP 157-2 "Partial Deferral of the Effective Date of

Statement 157" (FSP 157-2), deferred the effective date of SFAS 157 for all nonfinancial assets and nonfinancial liabilities to fiscal years beginning after November 15, 2008. The implementation of SFAS 157 for financial assets and financial liabilities, effective January 1, 2008, did not have a material impact on our consolidated financial statements. See Note 3, "Marketable Securities and Fair Value Measurements" for further discussion on our financial assets.

SFAS No. 141(R), "Business Combinations" (SFAS 141(R)), was issued in December 2007. SFAS 141(R) established principles and requirements for how the acquirer of a business recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any non-controlling interest in the acquiree. SFAS 141(R) also provides guidance for recognizing and measuring the goodwill acquired in the business combination and determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of the business combination. SFAS 141(R) will become effective for fiscal years beginning after December 15, 2008. The impact of adopting SFAS 141(R) on our consolidated financial statements will depend on the economic terms of any future business combination transactions.

On January 1, 2008, we adopted the provision SFAS No. 159, "The Fair Value Option for Financial Assets and Financial Liabilities" (SFAS 159). SFAS 159 allows certain financial assets and liabilities to be recognized, at our election, at fair market value, with any gains or losses for the period recorded in the statement of income. SFAS 159 includes available-for-sales securities in the assets eligible for this treatment. Currently, we record the gains or losses for the period in comprehensive income and in the equity section of the balance sheet. At this time, we have not elected to account for any available-for-sale securities using the provisions of SFAS 159.

On January 1, 2008 we adopted EITF Issue No. 07-1, "Accounting for collaborative Arrangements Related to the Development and Commercialization of Intellectual Property" (EITF 07-1). Companies may enter into arrangements with other companies to jointly develop, manufacture, distribute, and market a product. Often the activities associated with these arrangements are conducted by the collaborators without the creation of a separate legal entity (that is, the arrangement is operated as a "virtual joint venture"). The arrangements generally provide that the collaborators will share, based on contractually defined calculations, the profits or losses from the associated activities. Periodically, the collaborators share financial information related to product revenues generated (if any) and costs incurred that may trigger a sharing payment for the combined profits or losses. The consensus requires collaborators in such an arrangement to present the result of activities for which they act as the principal on a gross basis and report any payments received from (made to) other collaborators based on other applicable GAAP or, in the absence of other applicable GAAP, based on analogy to authoritative accounting literature or a reasonable, rational, and consistently applied accounting policy election. Since our collaborative arrangements do not incorporate such revenue- and cost-sharing arrangements, the adoption of EITF 07-1 did not have an impact on our financial statements.

In June 2007, the FASB ratified EITF No. 07-3, "Accounting for Nonrefundable Advance Payments for Goods or Services Received for Use in Future Research and Development Activities" (EITF 07-3). EITF 07-3 requires that nonrefundable advance payments for goods and services that will be used or rendered in future research and development activities pursuant to executory contractual arrangements be deferred and recognized as an expense in the period that the related goods are delivered or services are performed. We adopted EITF 07-3 as of January 1, 2008, and its adoption did not have a material impact on our consolidated financial statements.

Results of Operations
Years ended December 31, 2008 and 2007

Revenues

Total revenues were $47.1 million and $41.0 million for the years ended December 31, 2008 and 2007, respectively. MassARRAY and other product related revenues are derived from the sale of MassARRAY systems, consumables, sales and licensing of our proprietary software, maintenance contracts, and license fees from end-users.

Consumable sales increased to $19.5 million in 2008 from $16.5 million in 2007. The increase in 2008 compared to 2007 was a result of an increase in our installed base of MassARRAY Compact systems as well as increased demand for our iPLEX genotyping assay.

MassARRAY and other product related revenue increased to $22.7 million in 2008 from $20.8 million in 2007. The increase of $1.9 million was primarily due to an increase in MassARRAY system hardware and software revenue to $19.5 million in 2008 from $18.4 million in 2007, which was attributable to an increase in our selling price during 2008. Revenue from other product sales, including MassARRAY system maintenance contracts, license fees and royalties for the years ended December 31, 2008 and 2007 was $3.2 million and $2.5 million, respectively. Maintenance revenue increased by approximately $0.7 million from the comparative period due to higher service contracts in effect over our installed base.

We recorded genetic analysis service revenues of $4.8 million for the year ended December 31, 2008, compared to $3.5 million in service revenues for the year ended December 31, 2007. The increase from 2007 is attributable to growth in our contract research service business primarily in the commercial, clinical analysis and the academic research markets.

Research and other revenue was $0.1 million in 2008 and $0.1 million 2007. The timing of research revenues depends upon our expenditures on grant research and the receipt of the grant funding from the sponsoring agencies. We expect grant revenue to be minimal going forward.

Domestic and non-U.S. revenues were $23.8 million and $23.3 million, respectively, for the year ended December 31, 2008, and $22.2 million and $18.8 million, respectively, for the year ended December 31, 2007.

Our revenues have historically fluctuated from period to period and likely will continue to fluctuate substantially in the future based upon the unpredictable sales cycle for the MassARRAY system, revenue recognition criteria, economic conditions, the overall acceptance and demand for our new and existing commercial products and services as well as the future adoption rates of our diagnostics assays.

Cost of Product and Service Revenues and Gross Margins

Cost of product revenues were $15.1 million and $14.6 million and gross margins were 64% and 61% for the years ended December 31, 2008 and 2007, respectively. The increase in gross margin for product revenues in 2008 compared to 2007 is attributable to increased consumable sales that generally have higher average gross margins compared to systems sales, along with a favorable mix of new systems at higher selling prices with additional software at higher margins.

Cost of service revenues were $4.5 million and $3.5 million and gross margins were 7.0% and 1.2% for the years ended December 31, 2008 and 2007, respectively. Our genetic analysis contract research service business incurred higher expenses, primarily in salaries and related personnel expenses, as operations increased in scale to accommodate a higher volume of research contracts. Gross margins on contract research service revenues are dependent on the particular market the services are being performed, the size of the projects and the pricing terms.

Our overall gross margins were 58% and 56% for the years ended December 31, 2008 and 2007, respectively. The increase in overall gross margin in 2008 is attributable to increased consumables sales at a higher gross margin, a higher average selling price for new system sales and higher margins in contract research services due to a higher volume of activity.

We believe that gross margin in future periods will be affected by, among other things, the selling price for systems and consumables, consumable sales per MassARRAY system sold, the mix of products and contract research services sold, the mix of systems and consumables sold, competitive conditions, costs of goods, sales volumes, discounts offered, sales through distributors, payor contracts for diagnostics tests, the volume of

diagnostics tests sold and adoption rates of our diagnostic tests, inventory reserves and obsolescence charges required and royalty payment obligations on in-licensed technologies.

Research and Development Expenses

Research and development costs were $27.5 million and $14.4 million for the years ended December 31, 2008 and 2007, respectively. These expenses consist primarily of salaries and related personnel expenses, improvements to our existing products, validation of products under development, and expenses relating to work performed under research contracts.

The increase in research and development expenses of $13.1 million for 2008 compared to 2007 primarily resulted from increased headcount and travel costs of $3.8 million, operating supplies of $2.8 million, clinical sample collection, consulting and collaboration costs of $2.9 million related to our non-invasive prenatal technology development, headcount based overhead allocation expense of $2.5 million, share-based compensation expense of $1.1 million, as well as depreciation and office expenses of $1.0 million. These increases were offset by $1.0 million in the absorption of research and development expenses to cost of service revenue.

We expect our research and development expenses to increase in 2009 compared to 2008, as we increase our investment in the development of non-invasive prenatal nucleic acid based tests and as we continue to invest in new products and applications for our MassARRAY platform.

Sales and Marketing Expenses

Sales and marketing costs were $24.3 million and $17.0 million for the years ended December 31, 2008 and 2007, respectively. These expenses consist primarily of salaries and related expenses for sales and marketing, customer support, and business development personnel and their related department expenses.

The increase in selling and marketing expenses of $7.3 million for 2008 compared to 2007 primarily resulted from increased headcount and travel of $3.1 million, $1.6 million for higher share-based compensation expense, $0.9 million for higher headcount-based overhead allocation charges, $0.4 million for higher advertising, trade shows and public relations expenses, $0.3 million of consultant expenses for sales and marketing projects associated with diagnostic operations, $0.3 million in bad debt expense related to accounts receivable write-offs, $0.3 million for higher operating supplies, $0.3 million for higher office operating expenses and $0.1 million for higher sales bonus compensation.

We expect our sales and marketing headcount and associated expenses to increase in 2009 compared to 2008, as we strengthen our sales force and continue building our commercial development team for our non-invasive prenatal diagnostic technology.

General and Administrative Expenses

General and administrative costs were $18.4 million and $14.1 million for the years ended December 31, 2008 and 2007, respectively. These expenses consist primarily of salaries and related expenses for legal, finance, and human resource personnel, and their related department expenses.

The increase in general and administrative expenses of $4.3 million for 2008 compared to 2007 primarily resulted from increased legal expense of $2.9 million related to ongoing litigation, share-based compensation of $1.6 million, headcount and travel expense of $1.4 million, audit and tax related fees and expenses of $0.9 million, information technology expenses of $0.8 million for computers and software licenses, consultant expenses of $0.3 million and depreciation and other office expenses of $0.3 million. These increases were partially offset by reduced headcount-based overhead allocation of $3.3 million as well as higher absorption of overhead costs of $0.6 million.

We expect general and administrative costs to increase in 2009 compared to 2008, as we build our infrastructure in order to support our anticipated growth as well as continued increases in legal costs due to ongoing litigation.

Interest Income

Interest income was $1.6 million in 2008 compared to $1.8 million in 2007. The decrease in 2008 compared to 2007 was due to a change in our investment policy, which restricted our marketable securities investments exclusively to U.S. Government backed financial instruments that yield a lower overall return compared to our prior investment portfolio, despite higher cash balances following our public offering in July 2008.

Loss on Marketable Securities

Loss on marketable securities was $2.6 million in 2008 compared to $1.1 million in 2007. The recognized loss was due to an other-than-temporary impairment in our investments in auction rate securities. The increase in recognized losses in 2008 compared to 2007 is due to additional declines in the market value of these auction rate securities due to ongoing difficulties in global credit markets. If the credit ratings of the security issuers deteriorate or if uncertainties in these markets continue and any decline in market value of our remaining auction rate security investments is determined to be other-than-temporary, we would be required to adjust the carrying value of the investment through additional impairment charges.

Interest Expense

Interest expense was $139,000 and $17,000 for 2008 and 2007, respectively. The increase in 2008 compared to 2007 is due to higher balances on our asset-backed loan commencing in September 2007.

Income Tax Expense

Income tax expense of $211,000 for the year ended December 31, 2008 was primarily due to statutory tax liabilities resulting from our foreign operations. There was no comparable income tax expense for the year ended December 31, 2007.

Results of Operations
Years ended December 31, 2007 and 2006

Revenues

Total revenues were $41.0 million and $28.5 million for the years ended December 31, 2007 and 2006, respectively. MassARRAY and other product related revenues are derived from the sale of MassARRAY systems, consumables, sales and licensing of our proprietary software, maintenance contracts, and license fees from end-users.

Consumable sales increased to $16.5 million in 2007 from $12.9 million in 2006. The increase in 2007 compared to 2006 was a result of an increase in our installed base of MassARRAY Compact systems as well as demand for our iPLEX genotyping assay.

MassARRAY and other product related revenue increased to $20.8 million in 2007 from $14.1 million in 2006. The increase of $6.7 million was primarily due to an increase in MassARRAY system hardware and software sales to $18.4 million in 2007 from $11.9 million in 2006. Revenue from other product sales, including MassARRAY system maintenance contracts, license fees and royalties, for the years ended December 31, 2007 and 2006 was $2.5 million and $2.2 million, respectively.

We recorded genetic analysis service revenues of $3.5 million for the year ended December 31, 2007, compared to $1.0 million in service revenues for the year ended December 31, 2006. The increase from 2006 is attributable to growth in our contract research service business primarily in the clinical analysis and academic research markets.

Research and other revenue was $0.1 million in 2007 and $0.4 million 2006. During the year ended December 31, 2006, we recognized $0.3 million of revenue related to the license of certain proprietary genetic content to a third party. The timing of research revenues depends upon our expenditures on grant research and the receipt of the grant funding from the sponsoring agencies. We expect grant revenue to be minimal going forward.

Domestic and non-U.S. revenues were $22.2 million and $18.8 million, respectively, for the year ended December 31, 2007, and $16.0 million and $12.5 million, respectively, for the year ended December 31, 2006.

Cost of Product and Service Revenues and Gross Margins

Cost of product revenues was $14.6 million and $11.4 million and gross margins were 61% and 58% for the years ended December 31, 2007 and 2006, respectively. The increase in gross margin for product revenues in 2007 compared to 2006 is attributable to higher systems sales with a favorable mix of new systems at higher margins versus trade-ins and strategic system placements at lower margins, as well as increased consumable sales that generally have higher average gross margins compared to systems sales.

Cost of service revenues was $3.5 million and $0.5 million and gross margins were 1.2% and 49%, respectively, for the years ended December 31, 2007 and 2006. Our genetic analysis contract research service business incurred higher expenses, primarily in salaries and related personnel expenses, as operations continue to become fully functional in anticipation of service contract requirements. Gross margins on contract research service revenues are dependent on the particular contract terms of the work undertaken.

Our overall gross margin was 56% and 58% for the years ended December 31, 2007 and 2006, respectively. The decrease in overall gross margin in 2007 is attributable to lower margins within contract research services as we increase operations to become fully functional, offset by an overall increase in consumables sales that sell at higher average gross margins.

Research and Development Expenses

Research and development costs were $14.4 million and $11.9 million for the years ended December 31, 2007 and 2006, respectively. These expenses consist primarily of salaries and related personnel expenses, improvements to our existing products, validation of products under development, and expenses relating to work performed under research contracts.

The increase in research and development expenses of $2.5 million for 2007 compared to 2006 primarily resulted from increased headcount and travel costs of $2.2 million, consultant and collaboration costs of $1.8 million related to our non-invasive prenatal technology development and MassARRAY product development, operating supplies of $0.9 million, share-based compensation costs of $0.3 million, headcount-based overhead allocation expense of $0.2 million and office expenses of $0.1 million. These increases were offset by $3.0 million in the absorption of cost of service revenue as our contract research service operations became fully functional during 2007.

Sales and Marketing Expenses

Sales and marketing costs were $17.0 million and $11.0 million for the years ended December 31, 2007 and 2006, respectively. These expenses consist primarily of salaries and related expenses for sales and marketing, customer support, and business development personnel and their related department expenses.

The increase in selling and marketing expenses of $6.0 million for 2007 compared to 2006 primarily resulted from increased headcount and travel of $4.0 million, $0.6 million of consultant expenses for sales and marketing projects associated with our non-invasive prenatal diagnostics technology, $0.5 million for advertising and public relations expenses, $0.4 million for higher share-based compensation expense, $0.4 million for higher headcount-based overhead allocation charges and $0.4 million for higher office and operating expenses. These increases were offset by a reduction in start-up costs in 2007 compared to 2006 of $0.3 million related to our China office.

General and Administrative Expenses

General and administrative costs were $14.1 million and $11.4 million for the years ended December 31, 2007 and 2006, respectively. These expenses consist primarily of salaries and related expenses for legal, finance, and human resource personnel, and their related department expenses.

The increase in general and administrative expenses of $2.7 million for 2007 compared to 2006 primarily resulted from increased headcount and travel expense of $1.0 million, share-based compensation of $1.2 million, legal expense of $0.5 million related to our patent portfolio, consultant expenses of $0.4 million, insurance costs and other office expenses of $0.2 million. These increases were partially offset by reduced headcount-based overhead allocation of $0.2 million, lower administrative expenses of $0.1 million and higher absorption of overhead costs of $0.5 million.

Asset Impairment and Restructuring Charges

During 2005, we introduced a cost reduction plan that included a reduction of existing headcount by approximately 30 across all departments by the end of 2005. We incurred a charge of $0.8 million in 2005 relating to severance and related expenses in connection with this headcount reduction. At December 31, 2005, we had an accrued balance of $0.3 million in respect of the restructuring charges representing the remaining payout of severance costs with the remaining charges incurred during 2006. During 2007, the Company incurred no charges related to this restructuring and does not anticipate to incur any further expenses related to this cost reduction plan.

Amortization of Acquired Intangibles

In connection with the acquisition of Gemini Genomics, plc in 2001, we acquired approximately $18.7 million of intangible assets, including clinical data collections and patent rights that were being amortized over three to five years. No amortization was recorded in 2007 and $1.5 million was recorded as amortization in 2006. As of December 31, 2006, these intangible assets were fully amortized.

Interest Income

Interest income was $1.8 million in 2007 compared to $0.9 million in 2006. The increase in 2007 compared to 2006 was due to higher cash, cash equivalents and short-term investment balances as a result of our registered direct offering of our common stock with net aggregate proceeds of approximately $18.3 million after deducting placement agents' fees and transaction expenses in April 2007 and the private placement of our common stock with net aggregate proceeds of approximately $28.1 million after deducting placement agents' fees and transaction expenses in October 2007.

Loss on Marketable Securities

Realized loss on marketable securities was $1.1 million compared to no realized loss in 2006. The realized loss was due to an other-than-temporary impairment on one of our investments in auction rate securities. If the credit ratings of the security issuers deteriorate or if uncertainties in these markets continue and any decline in

market value is determined to be other-than-temporary in our remaining auction rate security investments, we would be required to adjust the carrying value of the investment through additional impairment charges.

Interest Expense

Interest expense was $17,000 and $20,000 for 2007 and 2006, respectively. Our interest expense balance remains lower due to the payoff of credit facilities and capital leases after our private placement funding in June 2006, offset by the utilization of our asset-backed loan commencing in September 2007.

Income Tax Benefit

The deferred tax benefit of $0.6 million for the year ended December 31, 2006 was primarily due to the amortization on the intangible assets, including clinical data collections and patent rights, acquired from Gemini Genomics. There was no comparable benefit for the year ended December 31, 2007.

Liquidity and Capital Resources

As of December 31, 2008, cash, cash equivalents and current marketable securities totaled $98.3 million, compared to $50.8 million at December 31, 2007. Our cash equivalents and current marketable securities are held in U.S. Government securities with ratings of AAA and repurchase agreements collateralized by U.S. Government securities with ratings of AAA.

As of December 31, 2008, we have $5.7 million of auction rate securities, which reflects a $3.7 million adjustment to the principal value of $9.4 million. Additional discussion with respect to the risks and uncertainties associated with our auction rate securities is included in the "Risk Factors" in Item 1A of this report, in "Quantitative and Qualitative Disclosures about Market Risk" in Item 7A of this report and in the notes to our consolidated financial statements included elsewhere in this report.

We have a history of recurring losses from operations and have an accumulated deficit of $526.3 million as of December 31, 2008. Our capital requirements to sustain operations, including research and development projects, have been and will continue to be significant. As of December 31, 2008 and 2007, we had working capital of $103.2 million and $50.8 million, respectively.

On July 1, 2008, we closed an underwritten public offering of our common stock totaling 5,500,000 shares of our common stock at $15.50 per share, with the underwriters exercising their option to purchase an additional 825,000 shares on July 8, 2008. Including the additional shares, the offering resulted in aggregate net proceeds of approximately $91.8 million after deducting underwriting discounts, commissions and estimated transaction expenses.

During 2007, we closed a $20.0 million registered direct offering of our common stock to several new and existing investors, as well as a $30.5 million private placement of our common stock. Under the terms of the registered direct offering we issued and sold 6,666,666 shares of our common stock at $3.00 per share, with aggregate net proceeds of approximately $18.3 million after deducting placement agents' fees and transaction expenses. Under the terms of the private placement we issued and sold 3,383,335 shares of our common stock at $9.00 per share, with aggregate net proceeds of approximately $28.1 million after deducting placement agents' fees and estimated transaction expenses.

We consider the material drivers of our cash flow to be sales volumes, working capital, inventory management and operating expenses. Our principal sources of liquidity are our cash, cash equivalents and current marketable securities. Cash used in operations for the year ended December 31, 2008 was $34.6 million compared to $17.4 million for 2007. The use of cash was primarily a result of the net loss of $44.2 million for the year ended December 31, 2008, increased by $6.5 million from inventory balances due to greater on-hand

systems for anticipated systems sales, $0.1 million from accounts receivable, $0.3 million from other current asset and prepaid expenses, as well as $0.4 million in deferred rent. Cash usages were partially offset by stock-based compensation of $7.3 million, non-cash depreciation and amortization of $2.9 million, a recognized loss on our auction rate securities of $2.6 million, adjustment to our bad debt provision resulting in an expense of $0.4 million, restricted stock charges of $0.2 million, a loss on disposals of fixed assets of $0.2 million, $2.5 million from higher accounts payable and accrued expense balances due to increased operations during 2008, change in deferred revenue of $0.7 million and other changes in our operating assets and liabilities of $0.1 million. At our current and anticipated level of operating loss, we expect to continue to incur an operating cash outflow for the next several years.

Investing activities, other than the net changes in our current marketable securities and restricted cash that provided $1.2 million, consists of purchases for capital equipment that used $4.9 million in cash during the year ended December 31, 2008, compared to $3.5 million and $1.2 million for the same periods in 2007 and 2006, respectively. Additionally, we paid $0.4 million in cash related to our acquisition of CMM that closed in November 2008.

Net cash provided by financing activities was $93.8 million during the year ended December 31, 2008. Financing activities during the year ended December 31, 2008, included net receipts of $91.8 million from the issuance of common stock from our July 2008 underwritten public offering. Additionally, $0.6 million was received on fundings from our asset-backed loan and $2.0 million from the exercise of warrants, stock options and from employee contributions under our employee stock purchase plan, offset by approximately $0.6 million in payments on our asset-backed loan.

The following table summarized our contractual obligations as of December 31, 2008 (in thousands):

Contractual obligations	Total	Less Than 1 Year	1-3 Years	After 3 Years
Open purchase orders	$ 4,435	$ 4,435	$ —	$ —
Long-term debt obligation	1,221	647	574	—
Collaborations	24,178	6,254	2,798	15,125
Operating leases	35,994	6,791	11,838	17,364
Total contractual obligations	$65,828	$18,127	$15,210	$32,489

Future operating lease commitments for leases have not been reduced by future minimum sublease rentals to be received through December 2010 aggregating $0.5 million. Open purchase orders are primarily for inventory items and research and development supplies. Collaborations primarily consist of agreements with institutions to conduct sponsored research and clinical study agreements.

In September 2005, we entered into an amendment to our lease for our corporate headquarters in San Diego. The lease amendment provides for the deferral of approximately $3.2 million of the monthly rent payments by reducing the monthly payments through September 30, 2007 and increasing the aggregate monthly payments by the deferred amount for the remaining term of the lease, from October 1, 2007 to September 30, 2012. The total obligation under the lease remains unchanged. The contractual obligation table above reflects the deferral of these rent payments.

Long-term debt obligations include the associated interest payable on this borrowing. Other commitments and contingencies that may result in contractual obligations to pay are described in the notes to our consolidated financial statements included elsewhere in this report.

Based on our current plans, we believe our cash, cash equivalents and current marketable securities, will be sufficient to fund our operating expenses and capital requirements through 2010. However, the actual amount of

funds that we will need will be determined by many factors, some of which are beyond our control, and we may need funds sooner than currently anticipated. These factors include but are not limited to:

- the size of our future operating losses;
- the level of our and our distributors' success in selling our MassARRAY products and services and LDT services through SCMM;
- the terms and conditions of sales contracts, including extended payment terms;
- our ability to introduce and sell new products and services and successfully reduce inventory levels of earlier products;
- the level of our selling, general and administrative expenses;
- the extent of our investment in diagnostic technology, including prenatal genetic analysis technology, molecular diagnostics and noninvasive prenatal diagnostic technology, development, commercialization, and regulatory approval;
- our success in, and the expenses associated with, researching, developing and commercializing diagnostic products, alone or in collaboration with our partners, and obtaining any required regulatory approval for those products;
- the level of our success alone or in collaboration with our partners in launching and selling any diagnostic products and services;
- the extent of our research and development pursuits, including our level of investment in MassARRAY product research and development, and diagnostic assay and other technology research and development;
- the extent to which we enter into, maintain, and derive revenues from licensing agreements, including agreements to out-license our noninvasive prenatal analysis technology, research and other collaborations, joint ventures and other business arrangements;
- the level of our legal expenses, including those expenses associated with intellectual property protection and those expenses and any damages payments associated with litigation, including intellectual property litigation;
- the extent to which we acquire, and our success in integrating, technologies or companies;
- our ability to liquidate any ARS holdings;
- the level of our expenses associated with the audit of our consolidated financial statements as well as compliance with other corporate governance and regulatory developments or initiatives; and
- regulatory changes and technological developments in our markets.

At December 31, 2008, we had outstanding stand-by letters of credit with financial institutions totaling $1.1 million related to our building and operating leases, which will remain in place until the expiration of our Newton, Massachusetts building lease agreement in December 2010.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Marketable Securities

The primary objective of our investment activities is to preserve principal while at the same time maximizing the income we receive from our investments without significantly increasing risk. Some of the securities that we invest in may have market risk. This means that a change in prevailing interest rates may cause the fair value of the principal amount of the investment to fluctuate. For example, if we hold a security that was issued with a fixed interest rate at the then-prevailing rate and interest rates later rise, the fair value of the principal amount of our investment will probably decline. To minimize this risk in the future, we revised our

investment policy in April 2008 to maintain our portfolio of cash equivalents and marketable securities in a variety of securities, including U.S. Government securities with ratings of AAA, and repurchase agreements collateralized by U.S. Government securities with ratings of AAA. Our investment policy includes a minimum quality rating for all new investments, as well as limits the amount of credit exposure to only issuances from the U.S. Government. If an investment we hold falls below this level, we research the reasons for the fall and determine if we should continue to hold the investment in order to minimize our exposure to market risk of the investment.

We account for our marketable securities in accordance with SFAS No. 115, "Accounting for Certain Investments in Debt and Equity Securities," and originally classified these securities as "available-for-sale." Consistent with our investment policy guidelines in effect when originally purchased, the auction rate security (ARS) investments held by us all had AAA/AA credit ratings at the time of purchase. At December 31, 2008, $9.4 million of principal was invested in ARS. The ARS held are private placement securities with various long-term nominal maturities with interest rates reset through a dutch auction each month, except for one ARS that resets every 92 days. The monthly auctions historically have provided a liquid market for these securities. The investments in ARS represent interests in collateralized debt obligations supported by insurance securitizations and other structured credits, including corporate bonds and to a lesser degree, pools of residential and commercial mortgages. With the liquidity issues experienced in global credit and capital markets, the ARS held at December 31, 2008 have experienced multiple failed auctions as the amount of securities submitted for sale has exceeded the amount of purchase orders.

Due to changes in the underlying assumptions utilized in our discounted cash flow analyses and that our holdings of ARS are not required for operational purposes through 2010, which allows time for the securities to return to full value, we have classified all ARS investments as noncurrent assets on the consolidated balance sheet at December 31, 2008 of $5.7 million. Although the ARS continue to pay interest according to their stated terms, based on changes in assumptions and input from our valuation models and an analysis of other-than-temporary impairment factors, a recognized loss of approximately $2.6 million and $1.1 million was recorded for the years ended December 31, 2008 and 2007, respectively, of which $1.1 million represented the reclassification of previously recorded unrealized losses in other comprehensive income during 2008 and reflects the portion of ARS holdings that we have concluded have an other-than-temporary decline in value. The $2.6 million and $1.1 million impairment charges did not have a material impact on our liquidity or financial flexibility. Any future fluctuation in fair value related to our ARS investments would be recorded as a charge to operations as appropriate.

Since there is a lack of observable market quotes on our investment portfolio of marketable securities in ARS, we utilize valuation models including those that are based on expected cash flow streams and collateral values, including assessments of counterparty credit quality, default risk underlying the security, discount rates and overall capital market liquidity. The valuation of our investment portfolio is subject to uncertainties that are difficult to predict. Factors that may impact our valuation include changes to credit ratings of the securities as well as to the underlying assets supporting those securities, rates of default of the underlying assets, underlying collateral value, discount rates, counterparty risk and ongoing strength and quality of market credit and liquidity. In the event we need to access the ARS investments that are in an illiquid state, we will not be able to do so without the possible loss of principal, until a future auction for these investments is successful or they are redeemed by the issuer or they mature. The market value of these securities may decline.

Foreign currency rate fluctuations

We have foreign subsidiaries whose functional currencies are the Great British Pound, or GBP, the Japanese Yen, or Yen, and the Euro, or EUR. The subsidiaries' accounts are translated from the relevant functional currency to the U.S. dollar using the current exchange rate in effect at the balance sheet date, for balance sheet accounts, and using the average exchange rate during the period for revenues and expense accounts. The effects of translation are recorded as a separate component of stockholders' equity. Our

subsidiaries conduct their business with customers in local currencies. Additionally, we occasionally invoice Australian customers in their local currency. Exchange gains and losses arising from these transactions are recorded using the actual exchange differences on the date of the transaction. We have not taken any action to reduce our exposure to changes in foreign currency exchange rates, such as options or futures contracts, with respect to transactions with our subsidiaries or transactions with our customers where the invoicing currency is not the U.S. dollar.

The table below sets forth our currency exposure (i.e., those transactional exposures that give rise to the net currency gains and losses recognized in the income and expenditure account) on our net monetary assets and liabilities. These exposures consist of our monetary assets and liabilities that are not denominated in the functional currency used by us or our subsidiary having the asset or liability.

	As of December 31, 2008 Net foreign monetary assets/(liabilities)	
Functional currency of operations	**AUS dollars**	**Euro**
	($ in millions)	
USD	$0.5	$(0.1)

A movement of 10% in the U.S. dollar to Australian dollar exchange rate would create an unrealized gain or loss of approximately $38,000. A movement of 10% in the U.S. dollar to Euro exchange rate would create an unrealized gain or loss of approximately $19,000. We had no off balance sheet, or unrecognized, gains and losses in respect of financial instruments used as hedges at the beginning or end of the year ended December 31, 2008. We had no deferred gains or losses during the years ended December 31, 2008, 2007 or 2006.

Inflation

We do not believe that inflation has had a material adverse impact on our business or operating results during the periods presented.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our consolidated financial statements and the Reports of Ernst & Young LLP, our Independent Registered Public Accounting Firm, are included in this report on Pages F-1 through F-28.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. CONTROLS AND PROCEDURES

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the timelines specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

As required by Rule 13a-15(b) under the Exchange Act, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the year covered by this report. Based on the foregoing, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2008 to ensure that (a) the information required to be disclosed by us in the reports that we file or submit under the Securities

Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and (b) such information is accumulated and communicated to our management, including our principal executive officer and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and our management have concluded that the disclosure controls and procedures are effective at the reasonable assurance level. Because of inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, if any, within a company have been detected.

Management's Report on Internal Control Over Financial Reporting

Internal control over financial reporting refers to the process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer, and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, and includes those policies and procedures that:

(1) Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;

(2) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorization of our management and directors; and

(3) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk. Management is responsible for establishing and maintaining adequate internal control over financial reporting for the company, as defined in Exchange Act Rules 13a-15(f).

Management has used the framework set forth in the report entitled Internal Control-Integrated Framework published by the Committee of Sponsoring Organizations of the Treadway Commission, known as COSO, to evaluate the effectiveness of our internal control over financial reporting as of December 31, 2008. Based on our assessment, management, including our Chief Executive Officer and Chief Financial Officer has concluded that our internal controls over financial reporting was effective as of December 31, 2008. The effectiveness of our internal control over financial reporting as of December 31, 2008 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Changes in Internal Control Over Financial Reporting

An evaluation was also performed under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any change in our internal control over financial reporting that occurred during our latest fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm on Internal Control Over Financial Reporting

The Board of Directors and Stockholders of Sequenom, Inc.

We have audited Sequenom, Inc.'s internal control over financial reporting as of December 31, 2008, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Sequenom Inc.'s management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Sequenom, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2008 based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the accompanying consolidated balance sheets of Sequenom, Inc. as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2008 of Sequenom, Inc. and our report dated March 6, 2009 expressed an unqualified opinion thereon.

/s/ ERNST & YOUNG LLP

San Diego, California
March 6, 2009

Item 9B. OTHER INFORMATION

None

PART III

Certain information required by Part III is omitted from this report because we will file with the Securities and Exchange Commission a definitive proxy statement within 120 days after the end of our fiscal year for our annual meeting of stockholder (the "Proxy Statement"), and the information included in the Proxy Statement is incorporated herein by reference.

Item 10. DIRECTORS, AND EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated by reference to our Proxy Statement under the heading "Election of Directors." Information regarding executive officers is set forth in Item 1 of Part I of this report and is incorporated herein by reference.

We have adopted a code of business conduct and ethics for directors, officers (including our principal executive, financial and accounting officers) and all employees, which we refer to as our Code of Business Conduct and Ethics. The Code of Business Conduct and Ethics is available on our website at http://www.sequenom.com. Stockholders may request a free copy of our Code of Business Conduct and Ethics from:

Sequenom, Inc.
Attention: Investor Relations
3595 John Hopkins Court
San Diego, CA 92121-1331
(858) 202-9000

If we make any substantive amendments to the code of business conduct and ethics or grant any waiver from a provision of the code to any executive officer or director, we will promptly disclose the nature of the amendment or waiver on our website. We will promptly disclose on our website (i) the nature of any amendment to the policy that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions and (ii) the nature of any waiver, including an implicit waiver, from a provision of the policy that is granted to one of these specified individuals, the name of such person who is granted the waiver and the date of the waiver.

Section 16(a) Beneficial Ownership Reporting Compliance

Item 405 of Regulation S-K calls for disclosure of any known late filing or failure by an insider to file a report required by Section 16 of the Exchange Act. This disclosure is incorporated by reference from the information in the section entitled "Section 16(a) Beneficial Ownership Reporting Compliance" in the Proxy Statement.

Item 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference from the information in the section entitled "Executive Compensation" in the Proxy Statement.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated herein by reference from the information in the sections entitled "Security Ownership of Certain Beneficial Owners and Management" and "Securities Authorized for Issuance under Equity Compensation Plans" in the Proxy Statement.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated herein by reference from the information in the sections entitled "Certain Transactions" and "Independence of the Board of Directors" in the Proxy Statement.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference from the information in the section entitled "Principal Accountant Fees and Services" in the Proxy Statement.

PART IV

Item 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a)(1) *Financial Statements*

The financial statements of Sequenom, Inc. are included herein as required under Item 8 of this report. See Index to Financial Statements on page F-1.

(a)(2) *Financial Statement Schedules*

Schedule II—Valuation and Qualifying Accounts. The other financial statement schedules have been omitted because they are either not required, not applicable, or the information is otherwise included.

(3) *Exhibits*

The exhibits listed below are required by Item 601 of Regulation S-K. Each management contract or compensatory plan or arrangement required to be filed as an exhibit to this report has been identified.

Exhibit Number	Description of Document
3.1[11]	Restated Certificate of Incorporation of the Registrant.
3.2[15]	Restated bylaws of Registrant, as amended.
3.3[27]	Registrant's Certificate of Designation of Series A Junior Participating Preferred Stock.
4.1[11]	Specimen common stock certificate.
4.2[27]	Rights Agreement dated as of March 3, 2009, between the Registrant and American Stock Transfer and Trust Company, LLC.
4.3[27]	Form of Right Certificate.
10.1[1]	Form of Warrant Agreement between the Registrant and holders of the Series C Preferred Stock warrants.
10.2[11]	Form of Indemnification Agreement between the Registrant and each of its officers and directors.
10.3[1]#	1994 Stock Plan.
10.4[1]#	1994 Stock Plan Form of Non-Qualified Stock Option Grant.
10.5[1]#	1994 Stock Plan Form of Incentive Stock Option Grant.
10.6[1]#	1994 Stock Plan Form of Stock Restriction Agreement.
10.7[1]#	1998 Stock Option/Stock Issuance Plan.
10.8[1]#	1998 Stock Option/Stock Issuance Plan Form of Notice of Grant of Stock Option.
10.9[1]#	1998 Stock Option/Stock Issuance Plan Form of Stock Option Agreement.
10.10[1]#	1998 Stock Option/Stock Issuance Plan Form of Stock Purchase Agreement.
10.11[1]#	1998 Stock Option/Stock Issuance Plan Form of Stock Issuance Agreement.
10.12[22]#	1999 Stock Incentive Plan, as amended.
10.13[1]#	1999 Employee Stock Purchase Plan.
10.14[1]#	1999 Stock Incentive Plan Form of Notice of Grant of Stock Option.
10.15[1]#	1999 Stock Incentive Plan Form of Stock Option Agreement.
10.16[23]#	2006 Equity Incentive Plan, as amended.
10.17[11]#	2006 Equity Incentive Plan Form of Notice of Grant of Stock Option.

Exhibit Number	Description of Document
10.18[11]#	2006 Equity Incentive Plan Form of Stock Option Agreement.
10.19[24]#	2006 Equity Incentive Plan Form of Exercise Notice.
10.20[26]#	2006 Equity Incentive Plan Form of Restricted Stock Unit Award Grant Notice.
10.21[26]#	2006 Equity Incentive Plan Form of Restricted Stock Unit Award Agreement.
10.22[2]	Business Loan Agreement, dated March 3, 2000, between the Registrant and Union Bank of California.
10.23[3]	Building Lease Agreement, dated March 29, 2000, between the Registrant and TPSC IV LLC, a Delaware limited liability company.
10.24[4]#	Employment Agreement between Registrant and Charles Cantor, Ph.D.
10.25[5]#	Exec-U-Care Plan.
10.26[14]#	Employment Agreement, dated July 19, 2004, by and between the Registrant and Clarke Neumann.
10.27[6]*	Diagnostic Platform Benchmarking Study and Evaluation, dated October 25, 2004, by and between the Registrant and Siemens AG.
10.28[6]#	Form of Stock Issuance Agreement under 1999 Stock Incentive Plan.
10.29#	Amended and Restated Employment Agreement, dated December 15, 2008, by and between the Registrant and Harry Stylli, Ph.D.
10.30[7]	Amendment Number One to Lease, dated March 29, 2000, by and between the Registrant and TPSC IV LLC dated September 9, 2005.
10.31[7]	Common Stock Warrant, dated September 9, 2005, issued to Kwacker, Ltd.
10.32[7]#	Employment Agreement Amendment, dated September 12, 2005, by and between the Registrant and Dr. Charles R. Cantor.
10.33[8]*	License Agreement, dated October 14, 2005, by and between the Registrant and Isis Innovation Limited.
10.34[9]	Amended and Restated Securities Purchase Agreement, dated March 30, 2006, by and among the registrant, ComVest Investment Partners II LLC, LB I Group Inc., Pequot Private Equity Fund IV, L.P. and Siemens Venture Capital GmbH.
10.35[9]	Form of Warrant issued pursuant to the Amended and Restated Securities Purchase Agreement dated March 30, 2006.
10.36[10]#	Letter agreement dated April 6, 2006, by and between the Registrant and John E. Lucas.
10.37[11]	Registration Rights Agreement dated June 6, 2006 by and between the Registrant, ComVest Investment Partners II LLC, LB I Group Inc., Pequot Private Equity Fund IV, L.P. and Siemens Venture Capital GmbH.
10.38[12]#	Letter agreement dated August 21, 2006, by and between the Registrant and Paul W. Hawran.
10.39[13]*	Amendment to Exclusive License of Technology Agreement dated October 19, 2006, by and between the Registrant and ISIS Innovation Limited.
10.40[13]*	Supply Agreement dated November 3, 2006, by and between the Registrant and Bruker Daltonics Inc.
10.41[16]#	Form of Restricted Stock Bonus Grant Notice under 2006 Equity Incentive Plan.
10.42[16]#	Form of Restricted Stock Bonus Agreement under 2006 Equity Incentive Plan.
10.43[17]	Letter agreement dated February 14, 2007, by and between the Registrant and Paul Hawran
10.44[17]*	Collaboration and License Agreement dated January 24, 2007, between the Registrant and Lenetix Medical Screening Laboratory, Inc.

Exhibit Number	Description of Document
10.45[18]	Placement Agency Agreement dated April 25, 2007, between the Registrant and Lehman Brothers Inc.
10.46[19]	Letter agreement dated June 25, 2007, by and between the Registrant and Kathleen Wiltsey.
10.47[19]	Letter agreement dated July 2, 2007, by and between the Registrant and Richard Alan Lerner, M.D.
10.48[20]	Form of Purchase Agreement, dated October 25, 2007, by and between the registrant and the various purchasers of shares of the Registrant's common stock.
10.49[21]*	Amendment to Exclusive License of Technology Agreement dated November 5, 2007, by and between the Registrant and ISIS Innovation, Limited.
10.50[25]#	2008 Executive Officer Bonus Program.
10.51#	Non-Employee Director Compensation Policy.
10.52#	Amended and Restated Change in Control Severance Benefit Plan.
10.53#	Deferred Compensation Plan, as amended.
21.1	Subsidiaries of the Registrant.
23.1	Consent of Independent Registered Public Accounting Firm.
31.1	Certification of Principal Executive Officer pursuant to Rule13a-14(a) and Rule 15d-14(a) of the Securities and Exchange Act, as amended.
31.2	Certification of Principal Financial Officer pursuant to Rule13a-14(a) and Rule 15d-14(a) of the Securities and Exchange Act, as amended.
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

\# Management contract or compensatory plan.

* Certain confidential portions of this Exhibit have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the Securities and Exchange Commission.

(1) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (No. 333-91665), as amended.

(2) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 1999.

(3) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2000.

(4) Incorporated by reference to the Registrant's Registration Statement on Form S-1 (No. 333-91665), as amended, which exhibit is hereby supplemented with an additional Schedule A filed with the Registrant's Annual Report on Form 10-K for the year ended December 31, 2000.

(5) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2003.

(6) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004.

(7) Incorporated by reference to the Registrant's Current Report on Form 8-K filed September 14, 2005.

(8) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2005.

(9) Incorporated by reference to the Registrant's Current Report on Form 8-K filed April 3, 2006.

(10) Incorporated by reference to the Registrant's Current Report on Form 8-K filed April 10, 2006.

(11) Incorporated by reference to the Registrant's Current Report on Form 8-K filed June 6, 2006.

(12) Incorporated by reference to the Registrant's Current Report on Form 8-K filed August 25, 2006.

(13) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2006.
(14) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2005.
(15) Incorporated by reference to the Registrant's Current Report on Form 8-K filed December 7, 2007.
(16) Incorporated by reference to the Registrant's Current Report on Form 8-K filed January 24, 2007.
(17) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007.
(18) Incorporated by reference to the Registrant's Current Report on Form 8-K filed April 25, 2007.
(19) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2007.
(20) Incorporated by reference to the Registrant's Current Report on Form 8-K filed October 26, 2007.
(21) Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2007.
(22) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2006.
(23) Incorporated by reference to the Registrant's Current Report on Form 8-K filed June 2, 2008.
(24) Incorporated by reference to the Registrant's Current Report on Form 8-K filed June 6, 2006.
(25) Incorporated by reference to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2007.
(26) Incorporated by reference to the Registrant's Registration Statement on Form S-8 (No. 333-152230) filed July 10, 2008.
(27) Incorporated by reference to the Registrant's Current Report on Form 8-K filed March 4, 2009.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: March 12, 2009

SEQUENOM, INC.

By: /s/ HARRY STYLLI

Harry Stylli, Ph.D.
President and Chief Executive Officer

POWER OF ATTORNEY

Know all men by these presents, that each person whose signature appears below constitutes and appoints Harry Stylli and Paul Hawran, and each of them, as his attorneys-in-fact and agents, each with power of substitution in any and all capacities, to sign any amendments to this annual report on Form 10-K, and to file the same with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that the attorney-in-fact or his substitute or substitutes may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ HARRY STYLLI, PH.D. **Harry Stylli, Ph.D.**	President and Chief Executive Officer and Director (Principal Executive Officer)	March 12, 2009
/s/ PAUL HAWRAN **Paul Hawran**	Chief Financial Officer (Principal Financial and Accounting Officer)	March 12, 2009
/s/ CHARLES R. CANTOR, PH.D. **Charles R. Cantor, Ph.D.**	Chief Scientific Officer and Director	March 12, 2009
/s/ HARRY F. HIXSON, JR., PH.D. **Harry F. Hixson, Jr., Ph.D.**	Chairman of the Board of Directors	March 12, 2009
/s/ ERNST-GUNTER AFTING, PH.D., M.D. **Ernst-Gunter Afting, Ph.D., M.D.**	Director	March 12, 2009
/s/ JOHN FAZIO **John Fazio**	Director	March 12, 2009
/s/ RICHARD A. LERNER, M.D. **Richard A. Lerner, M.D.**	Director	March 12, 2009
/s/ RONALD M. LINDSAY, PH.D. **Ronald M. Lindsay, Ph.D.**	Director	March 12, 2009
/s/ KATHLEEN M.WILTSEY **Kathleen M. Wiltsey**	Director	March 12, 2009

SEQUENOM, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders
Sequenom, Inc.

We have audited the accompanying consolidated balance sheets of Sequenom, Inc. as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2008. Our audits also included the financial statement schedule listed in the Index at Item 15(a)(2). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Sequenom, Inc. at December 31, 2008 and 2007, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2008, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Sequenom, Inc.'s internal control over financial reporting as of December 31, 2008, based on the criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 6, 2009, expressed an unqualified opinion thereon.

/s/ ERNST & YOUNG LLP

San Diego, California
March 6, 2009

SEQUENOM, INC.

CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share information)

	December 31, 2008	December 31, 2007
Assets		
Current assets:		
Cash and cash equivalents	$ 68,338	$ 13,116
Marketable securities	29,991	37,704
Restricted cash	1,371	1,330
Accounts receivable, net	10,642	10,957
Inventories, net	10,631	4,191
Other current assets and prepaid expenses	1,311	1,094
Total current assets	122,284	68,392
Equipment and leasehold improvements, net	9,195	5,959
Intangible assets	114	79
Goodwill	2,398	—
Marketable securities	5,748	929
Other assets	745	687
Total assets	$ 140,484	$ 76,046
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 8,321	$ 8,408
Accrued expenses	8,389	5,760
Accrued acquisition and integration costs	237	237
Deferred revenue	1,444	873
Current portion of asset-backed loan	647	424
Total current liabilities	19,038	15,702
Deferred revenue, less current portion	454	335
Other long-term liabilities	3,958	4,437
Long-term portion of asset-backed loan	574	823
Long-term accrued acquisition and integration costs, less current portion	247	484
Commitments and contingencies		
Stockholders' equity:		
Convertible preferred stock, par value $0.001; authorized shares—5,000,000, no shares issued or outstanding at December 31, 2008 or 2007, respectively.	—	—
Common stock, par value $0.001; authorized shares—185,000,000; issued and outstanding shares 60,943,469 and 44,888,656 at December 31, 2008 and 2007, respectively	61	44
Additional paid-in capital	641,098	536,022
Accumulated other comprehensive income	1,328	319
Accumulated deficit	(526,274)	(482,120)
Total stockholders' equity	116,213	54,265
Total liabilities and stockholders' equity	$ 140,484	$ 76,046

See accompanying notes.

SEQUENOM, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share information)

	Year ended December 31,		
	2008	2007	2006
Revenues:			
Consumables	$ 19,535	$ 16,530	$ 12,930
MassARRAY and other product related	22,724	20,835	14,121
Services	4,817	3,524	1,023
Research and other	73	113	422
Total revenues	47,149	41,002	28,496
Costs and expenses:			
Cost of consumables and products revenue	15,109	14,594	11,369
Cost of services revenue	4,481	3,483	518
Research and development	27,455	14,352	11,939
Selling and marketing	24,299	17,015	10,993
General and administrative	18,436	14,133	11,432
Restructuring and long-lived asset impairment charge	—	—	10
Amortization of acquired intangibles	—	—	1,511
Total costs and expenses	89,780	63,577	47,772
Loss from operations	(42,631)	(22,575)	(19,276)
Interest income	1,592	1,781	906
Loss on marketable securities	(2,584)	(1,071)	—
Interest expense	(139)	(17)	(20)
Other (expense) income, net	(181)	(101)	191
Loss before income tax	(43,943)	(21,983)	(18,199)
Income tax (expense) benefit	(211)	—	622
Net loss	$(44,154)	$(21,983)	$(17,577)
Net loss per share, basic and diluted	$ (0.83)	$ (0.57)	$ (0.71)
Weighted average shares outstanding, basic and diluted	53,129	38,865	24,842

See accompanying notes.

SEQUENOM, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share information)

	Common Stock		Additional Paid-In Capital	Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2006	13,409,542	$ 13	$453,823	$ 467	$(442,560)	$ 11,743
Net loss	—	—	—	—	(17,577)	(17,577)
Unrealized loss on available-for-sale securities	—	—	—	(1)	—	(1)
Translation adjustment	—	—	—	190	—	190
Comprehensive loss	—	—	—	—	—	(17,388)
Share-based compensation	—	—	1,169	—	—	1,169
Exercise of stock options	13,434	—	45	—	—	45
Purchases under Employee Stock Purchase Plan	16,773	—	26	—	—	26
Issuance of common stock, net of issuance costs	19,999,885	20	29,835	—	—	29,855
Balance at December 31, 2006	33,439,634	$ 33	$484,898	$ 656	$(460,137)	$ 25,450
Net loss	—	—	—	—	(21,983)	(21,983)
Unrealized loss on available-for-sale securities	—	—	—	(804)	—	(804)
Translation adjustment	—	—	—	467	—	467
Comprehensive loss	—	—	—	—	—	(22,320)
Share-based compensation	—	—	3,058	—	—	3,058
Exercise of stock options	165,536	—	446	—	—	446
Exercise of warrants	1,197,012	1	1,255	—	—	1,256
Purchases under Employee Stock Purchase Plan	36,473	—	102	—	—	102
Issuance of common stock, net of issuance costs	10,050,001	10	46,263	—	—	46,273
Balance at December 31, 2007	44,888,656	$ 44	$536,022	$ 319	$(482,120)	$ 54,265
Net loss	—	—	—	—	(44,154)	(44,154)
Unrealized gain on available-for-sale securities	—	—	—	898	—	898
Translation adjustment	—	—	—	111	—	111
Comprehensive loss	—	—	—	—	—	(43,145)
Share-based compensation	—	—	7,276	—	—	7,276
Exercise of stock options and restricted stock	340,936	1	1,718	—	—	1,719
Exercise of warrants	9,093,302	9	139	—	—	148
Purchases under Employee Stock Purchase Plan	107,781	—	568	—	—	568
Issuance of common stock, net of issuance costs	6,512,794	7	95,375	—	—	95,382
Balance at December 31, 2008	60,943,469	$ 61	$641,098	$1,328	$(526,274)	$116,213

SEQUENOM, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year ended December 31,		
	2008	2007	2006
Operating activities			
Net loss	$(44,154)	$(21,983)	$(17,577)
Adjustments to reconcile net loss to net cash used in operating activities:			
Stock-based compensation	7,276	3,058	1,169
Depreciation and amortization	2,893	1,940	3,569
Loss on marketable securities	2,584	1,071	—
Loss on disposal of fixed assets	232	—	65
Bad debt expense	400	142	103
Restricted stock	161	—	—
Deferred taxes	—	—	(697)
Deferred rent	(442)	1,631	2,356
Other non-cash items	41	462	650
Changes in operating assets and liabilities:			
Accounts receivable	(115)	(6,044)	(2,505)
Inventories	(6,492)	(1,565)	1,710
Other current assets and prepaid expenses	(212)	(396)	83
Other assets	(56)	(107)	8
Accounts payable and accrued expenses	2,471	4,975	412
Deferred revenue	686	(554)	202
Other liabilities	111	(52)	(283)
Net cash used in operating activities	(34,616)	(17,422)	(10,735)
Investing activities			
Purchase of equipment, leasehold improvements, and intangible assets	(4,878)	(3,513)	(1,229)
Restricted cash	(41)	75	1,243
Cash paid for acquisition	(400)	—	—
Purchases of marketable securities	(44,483)	(70,781)	(32,160)
Sales of marketable securities	24,012	(47,648)	10,646
Maturities of marketable securities	21,683	5,621	2,676
Net cash used in investing activities	(4,107)	(20,950)	(18,824)
Financing activities			
Repayment of long-term debt	(637)	(70)	(200)
Proceeds from long-term debt	610	1,318	—
Payments on capital lease obligations	—	—	(193)
Proceeds from issuance of common stock, net of issuance costs	91,782	46,273	29,855
Proceeds from exercise of warrants, stock options and ESPP purchases	2,011	1,803	71
Net cash provided by financing activities	93,766	49,324	29,533
Net increase (decrease) in cash and cash equivalents	55,043	10,952	(26)
Effect of exchange rate changes on cash and cash equivalents	179	232	73
Cash and cash equivalents at beginning of year	13,116	1,932	1,885
Cash and cash equivalents at end of year	$ 68,338	$ 13,116	$ 1,932
Supplemental disclosure of cash flow information:			
Interest paid	$ 134	$ 12	$ 20
Supplemental disclosure of non cash investing activities:			
Common stock issued for acquisition	$ 3,600	$ —	$ —

See accompanying notes.

1. Nature of the Business

We are a diagnostic testing and genetics analysis company committed to providing products, services, diagnostic testing, applications and genetic analysis products that translate the results of genomic science into solutions for biomedical research, translational research, molecular medicine applications, and agricultural, livestock, and other areas of research. Our development and commercialization efforts in various diagnostic areas include non-invasive prenatal diagnostics, oncology, infectious diseases, and other disorders. Our proprietary MassARRAY system is a high performance DNA analysis platform that quantitatively and precisely measures the amount of genetic target material and variations therein. The system is able to deliver reliable and specific data from complex biological samples and from genetic target material that is available only in trace amounts. We have used our MassARRAY technology and our extensive collections of DNA samples from diseased and healthy individuals to identify disease-related genes that predispose significant portions of the population to major diseases. Based on our discoveries, we have developed diagnostic and therapeutic content for potential partner out-licensing and commercial development opportunities. We are researching, developing and pursuing the commercializion of various non-invasive molecular diagnostic tests for prenatal genetic disorders and diseases, oncology, infectious diseases, and other diseases and disorders.

2. Summary of Significant Accounting Policies and Significant Accounts

Reverse Stock Split

On May 31, 2006, in conjunction with our annual meeting of stockholders, our stockholders approved amendments to our certificate of incorporation to effect a reverse stock split of our common stock and to increase the number of authorized shares of common stock to 185,000,000. On June 1, 2006, we completed a 1-for-3 reverse stock split of our common stock. Accordingly, all share, warrant, option and per share information for all periods presented has been restated to account for the effect of the reverse stock split.

Basis of Presentation and Consolidation

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (GAAP) and include the accounts of Sequenom, Inc. and our wholly-owned subsidiaries located in the United States, Germany, the United Kingdom, Japan, Hong Kong and India. All significant intercompany accounts and transactions are eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires us to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Accrued Acquisition and Integration Costs

To the extent that exact amounts were not determinable at the time of acquisition, we estimated amounts for direct costs of the acquisition of Gemini Genomics and Axiom Biotechnologies and the related integration costs in accordance with Emerging Issues Task Force No 95-3, "Recognition of Liabilities in Connection with a Purchase Business Combination" (EITF 95-3). Amounts accrued relating to acquisition and integration costs totaled $27.4 million and as of December 31, 2008, approximately $0.5 million remained accrued. The amount accrued at December 31, 2008, represents all remaining lease payments, net of estimated income from subleased space. If we do not receive all the amounts due to us under non-cancelable subleases, we will incur additional expense.

Goodwill and Purchased Intangible Assets

Goodwill is recorded when the consideration paid for an acquisition exceeds the fair value of the identified net tangible and intangible assets acquired. Other purchased intangible assets, including such items as lab accreditations, patent rights and licenses, are amortized on a straight-line basis over the estimated remaining useful lives of the respective assets, all of which have an estimated useful lives of five years.

In accordance with Statement of Financial Accounting Standards No. 141, "Business Combinations," (SFAS 141) and SFAS No. 142, "Goodwill and Other Intangible Assets" (SFAS 142), we annually evaluate our goodwill and purchased intangibles at the reporting unit level during the fourth quarter each fiscal year or more frequently if we believe indicators of impairment are present. SFAS 142 requires that goodwill and certain intangible assets be assessed for impairment using fair value measurement techniques. Specifically, goodwill impairment is determined using a two-step process. The first step of the goodwill impairment test is used to identify potential impairment by comparing the fair value of a reporting unit with its carrying amount, including goodwill. Goodwill is allocated to reporting units based upon the type of products under development by the acquired company, which initially generated the goodwill. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is considered not impaired and the second step of the impairment test is unnecessary. If the carrying amount of a reporting unit exceeds its fair value, the second step of the goodwill impairment test is performed to measure the amount of impairment loss. The second step of the goodwill impairment test compares the implied fair value of the reporting unit's goodwill with the carrying amount of that goodwill. If the carrying amount of the reporting unit's goodwill exceeds the implied fair value of that goodwill, an impairment loss is recognized in an amount equal to that excess. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination. That is, the fair value of the reporting unit is allocated to all of the assets and liabilities of that unit (including any unrecognized intangible assets) as if the reporting unit had been acquired in a business combination and the fair value of the reporting unit was the purchase price paid to acquire the reporting unit. The fair value is determined using a combination of the discounted cash flow analysis as well as market comparisons. The determination of fair values requires significant judgment and estimates. Due to the close of the acquisition of CMM during the fourth quarter of 2008, a separate evaluation for annual impairment was not performed.

We periodically re-evaluate the original assumptions and rationale utilized in the establishment of the carrying value and estimated lives of our long-lived assets in accordance with SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." The criteria used for these evaluations include management's estimate of the asset's continuing ability to generate income from operations and positive cash flows in future periods as well as the strategic significance of any intangible assets in our business objectives. If assets are considered to be impaired, the impairment recognized is the amount by which the carrying value of the assets exceeds the fair value of the assets.

Reserves for Obsolete and Slow-moving Inventory

We operate in an industry characterized by rapid improvements and changes to our technology and products. The introduction of new products by us or our competitors can result in our inventory being rendered obsolete or requiring us to sell items at a discount. We estimate the recoverability of our inventory by reference to our internal estimates of future demands and product life cycles. If we incorrectly forecast demand for our products or inadequately manage the introduction of new product lines, we could materially impact our consolidated financial statements by having excess inventory on hand. Our future estimates are subjective and could be incorrect. During 2008, slow-moving and obsolete inventory reserves of $0.7 million were charged against cost of goods sold and the total reserve was $1.8 million at December 31, 2008.

Shipping and Handling Costs

Shipping and handling costs are included within cost of product revenue on the statement of operations.

Cash and Cash Equivalents

Cash equivalents consist of short-term, highly liquid investments with maturities at date of purchase of three months or less.

Marketable Securities

We account for marketable securities in accordance with SFAS No. 115, "Accounting for Certain Investments in Debt and Equity Securities." We determined the appropriate classification of marketable securities was "available-for-sale" at the time of purchase. As such, at December 31, 2008 and 2007, all of our investments in marketable securities were reported at fair value. Fair value is determined based on observable market quotes or valuation models using assessments of counterparty credit worthiness, credit default risk or underlying security and overall capital market liquidity. Declines in fair value that are considered other-than-temporary are charged to earnings and those that are considered temporary are reported as a component of accumulated other comprehensive income (OCI) in stockholders' equity. We use the specific identification method of determining the cost basis in computing realized gains and losses on the sale of its available-for-sale securities.

Historically we have invested in auction rate securities, commercial paper of prime quality, certificates of deposit, guaranteed bankers acceptance and U.S. Government instruments, and by policy, limit the amount of credit exposure to any one issuer. At December 31, 2008 and 2007, approximately $9.4 million and $20.9 million, respectively, of principal were invested in auction rate securities (ARS). The ARS held are private placement securities with various long-term nominal maturities with interest rates reset through a dutch auction each month, except for one ARS that resets every 92 days. The monthly auctions historically have provided a liquid market for these securities. The investments in ARS represent interests in collateralized debt obligations supported by insurance securitizations and other structured credits, including corporate bonds and to a lesser degree, pools of residential and commercial mortgages.

Consistent with our investment policy guidelines, the ARS investments held by us all had AAA/AA credit ratings at the time of purchase. With the liquidity issues experienced in global credit and capital markets, the $9.4 million principal value of ARS held by us at December 31, 2008 have experienced multiple failed auctions as the amount of securities submitted for sale has exceeded the amount of purchase orders and we have been unable to liquidate.

Restricted Cash

Restricted cash and investments of $1.4 million as of December 31, 2008 are held in interest bearing cash accounts with restrictions of withdrawal, in support of certain borrowing agreements and stand-by letters of credit. Restricted cash totaled $1.3 million at December 31, 2007.

Concentration of Risks

We grant credit generally on an unsecured basis to customers throughout North America, Europe, and Asia. We establish an allowance for doubtful accounts based upon factors surrounding the credit risk of specific

customers, historical trends, and other information. To reduce credit risk, certain sales are secured by letters of credit from commercial banks. The regional concentration of accounts receivables were as follows:

Region	December 31, 2008	Percent of receivable balance	December 31, 2007	Percent of receivable balance
		(In thousands)		
Europe	$ 3,624	34%	$ 2,748	25%
Asia	3,467	33%	2,063	19%
North America	3,551	33%	6,146	56%
Total	$10,642	100%	$10,957	100%

Our Asia-based major distributors represented $10.1 million and $7.9 million, or 24% and 22%, of our total product revenues during the year ended December 31, 2008 and 2007, respectively. At December 31, 2008, no customer had a year end accounts receivable balance greater than 10% of the total balance outstanding and no customer represented more than 10% of total world-wide revenue for the year ended December 31, 2008.

Our products incorporate components that are available from only one or a limited number of suppliers. Many of these components are manufactured with lead times, which can be significant. Shortages of various essential materials could occur due to interruption of supply. If we were unable to procure certain such components from suppliers or sub-contractors, it could affect our ability to meet demand for our products, which would have an adverse effect upon our results.

Inventories

Inventories are stated at the lower of cost (first-in, first-out) or market value. The components of inventories were as follows:

	December 31,	
	2008	2007
	(In thousands)	
Raw materials	$ 7,560	$3,053
Work in process	282	—
Finished goods	2,789	1,138
Total	$10,631	$4,191

Inventories are shown net of excess and obsolescence reserves of $1.8 million and $1.1 million at December 31, 2008 and 2007, respectively.

Equipment and Leasehold Improvements

Equipment is stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets (generally 3 to 5 years, or the lease term, whichever is shorter). Leasehold improvements are amortized using the straight-line method over the estimated useful life of the improvement or the remaining term of the lease, whichever is shorter. The maximum estimated useful life of any leasehold improvement is 15 years from the completion of the improvement. Maintenance and repairs are charged to operations as incurred. When assets are sold, or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any gain or loss is included in operating expense.

Equipment and leasehold improvements and related accumulated depreciation and amortization were as follows:

	December 31,	
	2008	2007
	(In thousands)	
Laboratory equipment	$ 18,793	$ 14,545
Leasehold improvements	4,537	4,470
Office furniture and equipment	7,670	6,261
	31,000	25,276
Less accumulated depreciation and amortization	(21,805)	(19,317)
	$ 9,195	$ 5,959

Depreciation expense for the years ended December 31, 2008, 2007 and 2006 was $2.8 million, $1.7 million, and $1.6 million, respectively.

Intangible Assets

Intangible assets consisted of the following:

		December 31, 2008		December 31, 2007	
	Weighted Average Life	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
		(In thousands)			
Clinical data collections	5	$13,552	$(13,552)	$13,552	$(13,552)
Purchased patent rights and licenses	5	4,449	(4,449)	4,449	(4,370)
Lab accreditation	5	117	(3)	—	—
Total		$18,118	$(18,004)	$18,001	$(17,922)

Intangible assets are amortized using the straight-line method over their estimated useful lives. Amortization of intangible assets for the years ended December 31, 2008, 2007 and 2006 was $0.1 million, $0.3 million, and $2.0 million, respectively.

Warranty Cost and Reserves

In accordance with Financial Accounting Standards Board (FASB) Interpretation No. 45, "Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others," we provide a warranty provision related to the sales of our MassARRAY equipment based on our experience of returns and repairs required under the warranty period.

We generally provide a one-year warranty on our MassARRAY Compact system and related equipment. We establish an accrual for estimated warranty expenses associated with system sales based on historical amounts. This expense is recorded as a component of cost of product revenue.

Changes in our warranty liability during the three years ended December 31, 2008 are as follows (in thousands):

Balance as of December 31, 2005	$ 405
Additions charged to cost of revenues	939
Repairs and replacements	(664)
Balance as of December 31, 2006	$ 680
Additions charged to cost of revenues	314
Repairs and replacements	(468)
Balance as of December 31, 2007	$ 526
Additions charged to cost of revenues	385
Repairs and replacements	(305)
Balance as of December 31, 2008	$ 606

Fair Value of Financial Instruments

Financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities, are carried at cost, which management believes approximates fair value because of the short-term maturity of these instruments. The fair value of our asset-backed loan approximated their carrying value because the terms are equivalent to borrowing rates currently available to us for debt with similar terms and maturities.

Accounts Receivable

Trade accounts receivable are recorded at net invoice values. We consider receivables past due based on the contractual payment terms. We review our exposure to amounts receivable and reserves specific amounts if collectibility is no longer reasonably assured. We also reserve a percentage of our trade receivable balance based on collection history. We re-evaluate such reserves on a regular basis and adjust our reserves as needed. Amounts determined to be uncollectible are charged or written off against the reserve.

Revenue Recognition

We recognize revenue in accordance with current accounting rules, which primarily include the Securities and Exchange Commission's Staff Accounting Bulletin No. 104, "Revenue Recognition" (SAB 104). In accordance with SAB 104, revenues are recognized, when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed and determinable and collectibility is reasonably assured. We consider EITF No. 00-21, "Accounting for Revenue Arrangements with Multiple Deliverables," and for MassARRAY system sales, the arrangement consideration is allocated among the separate units of accounting based on their relative fair values. The separate units of accounting are typically the system and software itself and maintenance contracts sold at the time of the system sale. Revenue is deferred for fees received before earned. Revenues from sales of consumables are recognized generally upon shipment and transfer of title to the customer. Revenue from sales of MassARRAY systems with standard payment terms of net 30 to 60 days are recognized upon shipment and transfer of title to the customer or when all revenue recognition criteria are met. Our contracts do not contain refund or cancellation clauses. Revenues from the sale or licensing of our proprietary software are recognized upon transfer of title to the customer. We recognize revenue on maintenance services for ongoing customer support over the maintenance period. Revenues from genetic services

are recognized at the completion of key stages in the performance of the service, which is generally delivery of single nucleotide polymorphism (SNP) assay information. Grant revenue is recorded as the research expenses relating to the grants are incurred, provided that the amounts received are not refundable if the research is not successful. Amounts received that are refundable if the research is not successful would be recorded as deferred revenue and recognized as revenue upon the grantor's acceptance of the success of the research results.

Research and Development Costs

Research and development costs are expensed as incurred. These costs include personnel expenses, fees paid to collaborators, laboratory supplies, facilities, miscellaneous expenses and allocation of corporate costs. These expenses are incurred during proprietary research and development activities, as well as providing services under collaborative research agreements and grants.

Foreign Currency Translation and Transactions

The financial statements of the our German, United Kingdom, Japan, Hong Kong and Indian subsidiaries are measured using, respectively, the Euro ("EUR"), Great British pound ("GBP"), the Japanese Yen ("JPY"), the Hong Kong Dollar ("HKD") and Rupee ("INR"), as the functional currency. Assets and liabilities of these subsidiaries are translated at the rates of exchange at the balance sheet date. Income and expense items are translated at the average daily rate of exchange during the reporting period. Resulting remeasurement gains or losses are recognized as a component of other comprehensive income. Transactions denominated in currencies other than the local currency are recorded based on exchange rates at the time such transactions arise. Subsequent changes in exchange rates result in transaction gains and losses, which are reflected in income as unrealized (based on period-end translations) or realized upon settlement of the transaction. Transaction gains or losses were not material for the years ended December 31, 2008, 2007, and 2006.

Income Taxes

In accordance with SFAS No. 109 "Accounting for Income Taxes," (SFAS 109) the provision for income taxes is computed using the asset and liability method, under which deferred tax assets and liabilities are recognized for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, and for the expected future tax benefit to be derived from tax loss and credit carryforwards. Deferred tax assets and liabilities are determined using the enacted tax rates in effect for the years in which those tax assets are expected to be realized. A valuation allowance is established when it is more likely than not the future realization of all or some of the deferred tax assets will not be achieved. The evaluation of the need for a valuation allowance is performed on a jurisdiction by jurisdiction basis, and includes a review of all available positive and negative evidence. As of December 31, 2008, we have maintained a valuation allowance against U.S. and foreign deferred tax assets that we concluded have not met the "more likely than not" threshold required under SFAS 109.

Due to the adoption of SFAS No. 123(R) "Share-Based Payment" (SFAS 123(R)), we recognize excess tax benefits associated with share-based compensation to stockholders' equity only when realized. When assessing whether excess tax benefits relating to share-based compensation have been realized, we follow the with-and-without approach, excluding any indirect effects of the excess tax deductions. Under this approach, excess tax benefits related to share-based compensation are not deemed to be realized until after the utilization of all other tax benefits available to us.

Effective January 1, 2007, we adopted FIN No. 48 "Accounting for Uncertainty in Income Taxes—an interpretation of FASB Statement No. 109," (FIN No. 48), which clarifies the accounting for uncertainty in tax positions. FIN 48 requires that we recognize the impact of a tax position in our financial statements only if that

position is more likely than not of being sustained upon examination by taxing authorities, based on the technical merits of the position. Any interest and penalties related to uncertain tax positions will be reflected in income tax expense.

Stock-based Compensation

Effective January 1, 2006, we adopted the provisions of SFAS 123(R). Under this method, share based compensation cost is measured at grant date based on the estimated fair value of the award and is recognized as expense over the requisite service period for all share based awards granted, modified or cancelled after January 1, 2006. Our net loss for the years ended December 31, 2008, 2007 and 2006, includes the following compensation expense related to our share based compensation awards:

	(In thousands)		
	2008	2007	2006
Research and development expense	$1,306	$ 521	$ 251
Selling and marketing expense	1,430	601	168
General and administrative expense	3,396	1,936	750
	$6,132	$3,058	$1,169

SFAS 123(R) requires that cash flows resulting from tax deductions in excess of the cumulative compensation cost recognized for options exercised (excess tax benefits) be classified as cash inflows from financing activities and cash outflows from operating activities. Due to our net loss position, no tax benefits have been recognized in the consolidated statements of cash flows.

We have not recognized, and do not expect to recognize in the near future, any tax benefit related to stock-based compensation cost as a result of the full valuation allowance of our net deferred tax assets and our net operating loss carryforwards.

We account for options granted to non-employees in accordance with EITF No. 96-18, "Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services," and SFAS No. 123(R). The fair value of these options at the measurement dates was estimated using the Black-Scholes pricing model. Total stock-based compensation for options granted to non-employees for the year ended December 31, 2008, 2007, and 2006, was $731,000, $128,000 and $0, respectively. Stock-based compensation for options granted to non-employees is included in general and administrative, research and development and selling and marketing expenses in the statement of operations for 2008 and 2007 totaling $0, $181,000 and $550,000, and $39,000, $24,000 and $65,000, respectively.

Comprehensive Income (Loss)

In accordance with SFAS No. 130, "Reporting Comprehensive Income," unrealized gains or losses on our available-for-sale securities and foreign currency translation adjustments are included in other comprehensive income (loss).

Net Loss Per Share

In accordance with SFAS No. 128, "Earnings Per Share," basic net loss per share is computed by dividing the net loss for the period by the weighted average number of common shares outstanding during the period. Diluted net loss per share is computed by dividing the net loss for the period by the weighted average number of common and common equivalent shares outstanding during the period. Common stock equivalents consisting of stock options, warrants and restricted stock were not included in the computation of diluted net loss per share as their effect was anti-dilutive for all periods presented.

Recent Accounting Pronouncements

In May 2008, the FASB issued Statement of Financial Accounting Standards No. 162, "The Hierarchy of Generally Accepted Accounting Principles" (SFAS 162). SFAS 162 identifies the sources of accounting principles and the framework for selecting the principles to be used in the preparation of financial statements that are presented in conformity with generally accepted accounting principles in the United States. SFAS 162 was effective November 15, 2008 and the adoption of this pronouncement did not have a material impact on our consolidated financial statements.

In April 2008, the FASB issued FSP FAS 142-3, "Determination of the Useful Life of Intangible Assets" (FSP 142-3). FSP 142-3 amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under SFAS 142. This change is intended to improve the consistency between the useful life of a recognized intangible asset under SFAS 142 and the period of expected cash flows used to measure the fair value of the asset under SFAS 141R and U.S. GAAP. FSP 142-3 is effective for financial statements issued for fiscal years beginning after December 15, 2008. The requirements for determining useful lives must be applied prospectively to intangible assets acquired after the effective date and the disclosure requirements must be applied prospectively to all intangible assets recognized as of, and subsequent to, the effective date. FSP 142-3 could have a material impact on the useful life determination of any intangible asset acquisitions completed in future periods.

In March 2008, the FASB issued SFAS No. 161, "Disclosures about Derivative Instruments and Hedging Activities" (SFAS 161). This statement changes the disclosure requirements for derivative instruments and hedging activities. Entities are required to provide enhanced disclosures about (a) how and why an entity uses derivative instruments, (b) how derivative instruments and related hedged items are accounted for under SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities," and its related interpretations, and (c) how derivative instruments and related hedged items affect an entity's financial position, financial performance, and cash flows. SFAS 161 is effective for financial statements issued for fiscal years and interim periods beginning after November 15, 2008, with early application encouraged. This statement encourages, but does not require, comparative disclosures for earlier periods at initial adoption. The adoption of SFAS 161 is not expected to have a material impact on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 160, "Noncontrolling Interests in Consolidated Financial Statements—an amendment of Accounting Research Bulletin No. 51" (SFAS 160). SFAS 160 establishes accounting and reporting standards for ownership interests in subsidiaries held by parties other than the parent, the amount of consolidated net income attributable to the parent and to the noncontrolling interest, changes in a parent's ownership interest, and the valuation of retained noncontrolling equity investments when a subsidiary is deconsolidated. SFAS 160 also establishes disclosure requirements that clearly identify and distinguish between the interests of the parent and the interests of the noncontrolling owners. SFAS 160 is effective for fiscal years beginning after December 15, 2008. We do not expect the adoption of SFAS 160 to have a material effect on our consolidated results of operations and financial condition.

In September 2006, the FASB issued SFAS No. 157, "Fair Value Measurements" (SFAS 157). This statement establishes a common definition for fair value to be applied to GAAP requiring use of fair value, establishes a framework for measuring fair value, and expands disclosure about such fair value measurements. SFAS 157 is effective for financial assets and financial liabilities for fiscal years beginning after November 15, 2007. Issued in February 2008, FSP 157-1 "Application of FASB Statement No. 157 to FASB Statement No. 13 and Other Accounting Pronouncements That Address Fair Value Measurements for Purposes of Lease Classification or Measurement under Statement 13," removed leasing transactions accounted for under SFAS

No. 13 and related guidance from the scope of SFAS 157. FSP 157-2 "Partial Deferral of the Effective Date of Statement 157" (FSP 157-2), deferred the effective date of SFAS 157 for all nonfinancial assets and nonfinancial liabilities to fiscal years beginning after November 15, 2008. The implementation of SFAS 157 for financial assets and financial liabilities, effective January 1, 2008, did not have a material impact on our consolidated financial statements. See Note 3, "Marketable Securities and Fair Value Measurements" for further discussion on our financial assets.

SFAS No. 141(R), "Business Combinations" (SFAS 141(R)), was issued in December 2007. SFAS 141(R) established principles and requirements for how the acquirer of a business recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any non-controlling interest in the acquiree. SFAS 141(R) also provides guidance for recognizing and measuring the goodwill acquired in the business combination and determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of the business combination. SFAS 141(R) will become effective for fiscal years beginning after December 15, 2008. The impact of adopting SFAS 141(R) on our consolidated financial statements will depend on the economic terms of any future business combination transactions.

On January 1, 2008, we adopted the provision SFAS No. 159, "The Fair Value Option for Financial Assets and Financial Liabilities" (SFAS 159). SFAS 159 allows certain financial assets and liabilities to be recognized, at our election, at fair market value, with any gains or losses for the period recorded in the statement of income. SFAS 159 includes available-for-sales securities in the assets eligible for this treatment. Currently, we record the gains or losses for the period in comprehensive income and in the equity section of the balance sheet. At this time, we have not elected to account for any available-for-sale securities using the provisions of SFAS 159.

On January 1, 2008 we adopted EITF Issue No. 07-1, "Accounting for collaborative Arrangements Related to the Development and Commercialization of Intellectual Property" (EITF 07-1). Companies may enter into arrangements with other companies to jointly develop, manufacture, distribute, and market a product. Often the activities associated with these arrangements are conducted by the collaborators without the creation of a separate legal entity (that is, the arrangement is operated as a "virtual joint venture"). The arrangements generally provide that the collaborators will share, based on contractually defined calculations, the profits or losses from the associated activities. Periodically, the collaborators share financial information related to product revenues generated (if any) and costs incurred that may trigger a sharing payment for the combined profits or losses. The consensus requires collaborators in such an arrangement to present the result of activities for which they act as the principal on a gross basis and report any payments received from (made to) other collaborators based on other applicable GAAP or, in the absence of other applicable GAAP, based on analogy to authoritative accounting literature or a reasonable, rational, and consistently applied accounting policy election. Since our collaborative arrangements do not incorporate such revenue- and cost-sharing arrangements, the adoption of EITF 07-1 did not have an impact on our financial statements.

In June 2007, the FASB ratified EITF No. 07-3, "Accounting for Nonrefundable Advance Payments for Goods or Services Received for Use in Future Research and Development Activities" (EITF 07-3). EITF 07-3 requires that nonrefundable advance payments for goods and services that will be used or rendered in future research and development activities pursuant to executory contractual arrangements be deferred and recognized as an expense in the period that the related goods are delivered or services are performed. We adopted EITF 07-3 as of January 1, 2008, and its adoption did not have a material impact on our consolidated financial statements.

3. Acquisition

On November 14, 2008, we completed our asset acquisition of the Center for Molecular Medicine, LLC (CMM). The assets are now part of our wholly owned subsidiary, the Sequenom Center for Molecular Medicine (SCMM). Under the terms of the Agreement, we paid to CMM $4.0 million for certain assets related to CMM's business in advanced molecular pathology laboratory services relating to diagnostics, translational research and clinical trials, less all cash and cash equivalents. Ninety percent of the purchase price comprised of 187,794 shares of our common stock (valued at $3.6 million) and the remainder of the purchase price of $0.4 million paid in cash, which was deposited into an escrow account. The escrow account will remain in place for 18 months following the closing of the transaction to satisfy potential indemnification claims. The acquisition of CMM provides us with a laboratory that has the required accreditations and certifications already in place to process our screening tests, which we anticipate commercializing during 2009. These factors have contributed to the purchase price for the acquisition of CMM, which resulted in the preliminary recognition of goodwill of approximately $2.4 million.

In connection with this transaction we have commenced a valuation study of the intangible assets acquired in order to allocate the purchase price in accordance with SFAS 141. In accordance with SFAS 141, we have preliminarily allocated the excess purchase price over the fair value of net tangible assets and identifiable intangible assets acquired to goodwill. We believe the preliminary fair values assigned to the CMM assets acquired were based on reasonable assumptions. The purchase price has been initially allocated as follows (in thousands):

Net tangible assets	$ 1,485
Identifiable intangible asset	117
Goodwill	2,398
Total consideration	$ 4,000

We anticipate that the final fair value allocation of the purchase price will be completed during the first quarter of 2009. No supplemental pro forma information is presented for the acquisition due to the immaterial effect of the acquisition on our results of operations.

4. Marketable Securities and Fair Value Measurements

Marketable securities

The estimated market value of all ARS holdings at December 31, 2008 and 2007 was $5.7 million and $19.0 million, respectively. At December 31, 2008, the market value reflects an aggregate $3.7 million impairment adjustment to the principal value of $9.4 million and at December 31, 2007 reflects an aggregate $1.9 million impairment adjustment to the principal value of $20.9 million. Although the ARS continue to pay interest according to their stated terms, based on valuation models and an analysis of other-than-temporary impairment factors, we recognized a loss of approximately $2.6 million and $1.1 million for the years ending December 31, 2008 and 2007, respectively, reflecting the portion of ARS holdings that we have concluded have an other-than-temporary decline in value. Approximately $1.0 million of the recorded loss for the year ended December 31, 2008, represented the reclassification of previously recorded unrealized losses in other comprehensive income and that we have now concluded have an other-than-temporary decline in value. At December 31, 2007, we had recorded an unrealized loss of approximately $0.8 million in accumulated other comprehensive income as a reduction in stockholders' equity, reflecting adjustments to ARS holdings that we had concluded have a

temporary decline in value. During 2008, the adjustments previously recorded to other comprehensive income at December 31, 2007, have been recognized as an other-than-temporary decline in value and are included within the $2.6 million of loss on marketable securities for the year ended December 31, 2008. During 2008, we reclassified our remaining ARS investments to non-current marketable securities available for sale as we do not have a need to access these fund for operational purposes.

In April 2008 we revised our investment policy to maintain our portfolio of cash equivalents and marketable securities in a variety of securities, including U.S. Government securities with ratings of AAA, and repurchase agreements collateralized by U.S. Government securities with ratings of AAA at the time of acquisition. Our investment policy includes a minimum quality rating for all new investments, as well as limits the amount of credit exposure to only issuances from the U.S. Government. If an investment we hold falls below this level, we research the reasons for the fall and determine if we should continue to hold the investment in order to minimize our exposure to market risk of the investment.

Fair Value Measurements

SFAS 157 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. SFAS 157 also establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value:

Level 1—Quoted prices in active markets for identical assets or liabilities. We have determined that our investments in money market accounts, certificates of deposit and U.S. Government securities meet the criteria for definition within the Level 1 hierarchy.

Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. These inputs include quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. We have determined that our investments in commercial paper meet the criteria for definition within the Level 2 hierarchy.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. We have determined that our investments in ARS meet the criteria for definition within Level 3 hierarchy.

The fair values of our investments in ARS instruments are estimated utilizing a discounted cash flow analysis valuation model as of December 31, 2008. This analysis considers, among other items, the collateral underlying the security investments, the credit quality of the counterparty, the timing of expected future cash flows, the default risk underlying the security, discount rates, the expected time until a successful auction and the overall capital market liquidity. These securities were also compared, when possible, to other observable market data with similar characteristics to the securities. Management has also reviewed the valuation input criteria, which generally consists of the price of credit protection, information available on the trading of senior and subordinated securities and other debt in the market place for comparable types of maturities, the current credit rating of the trust sponsor and/or bond insurer, as well as the ultimate maturity and the underlying collateral of the securities and have deemed them to be reasonable assumptions in determining fair value. The valuation of our ARS investments is subject to uncertainties that are difficult to predict. Factors that may impact our valuation include changes to credit ratings of the securities, as well as to the underlying assets supporting those securities,

rates of credit default of the underlying assets, underlying collateral value, discount rates, counterparty risk and the ongoing strength and quality of market credit and liquidity.

Based on the underlying assumptions utilized in our valuation of ARS and that our holdings of ARS are not required for operational purposes in 2009, we have classified these investments as long-term on the consolidated balance sheet at December 31, 2008 and valuation adjustments determined to be other-than-temporary are recorded to the statement of operations, as appropriate.

We endeavor to utilize the best available information in measuring fair value. Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. All of the available for sale securities have a contractual maturity at December 31, 2008 of one year or less. The following table sets forth our financial assets and liabilities that were accounted for at fair value on a recurring basis as of December 31, 2008:

Description	Total	Level 1	Level 2	Level 3
		(in thousands)		
Cash and cash equivalents	$ 68,338	$68,338	$—	$ —
Restricted cash	1,371	1,371	—	—
Marketable securities, current[1]	29,991	29,991	—	—
Marketable securities, non-current[1]	5,748	—	239	5,509
Total	$105,448	$99,700	$239	$5,509

[1] Gains or losses considered to be temporary are recorded to other comprehensive income (loss) at each measurement date. Other than temporary losses are recorded to operations at each measurement date.

The following table presents our assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) as defined in SFAS 157 at December 31, 2008:

	Level 3 Auction Rate Securities
	(in thousands)
Balance at December 31, 2007	$ 19,018
Transfers from Level 3	(239)
Total gains or (losses):	
Included in operations	(2,323)
Recognized loss previously included in other comprehensive income (loss)	762
Included in other comprehensive income (loss)	—
Purchases and settlements, net	(11,709)
Balance at December 31, 2008	$ 5,509
Losses included in operations (or changes in net assets) for the period relating to assets still held at December 31, 2008	
Total losses for the year ended December 31, 2008, included in operations	$ (2,584)
Total change in unrealized losses included in other comprehensive income (loss)	$ 824

At December 31, 2007, short-term investments, including restricted investments, consisted of the following:

	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Market Value
		(In thousands)		
Short-term—auction rate securities	$18,913	$—	$(824)	$18,089
Cash equivalents	9,037	—	(11)	9,026
Corporate bonds	7,481	—	(4)	7,477
Corporate notes	2,066	27	—	2,092
United States government agencies	1,011	8	—	1,020
Total short-term marketable securities	$38,508	$ 35	$(839)	$37,704

5. Segment Reporting

SFAS No. 131, "Disclosures About Segments of an Enterprise and Related Information," requires the use of a management approach in identifying segments of an enterprise. All of our activities are now operated within one business segment and financial results are prepared and reviewed by management as a single operating segment. Accordingly we report the consolidated results of our activities without segmental disclosure. We periodically evaluate the benefit of operating in distinct segments and will report accordingly when such distinction is made.

6. Acquisition and Integration Costs

As of December 31, 2008, we had $0.5 million remaining in accrued acquisition costs, relating to the acquisition of Gemini Genomics in 2001, comprising facility exit costs. We have subleased all of our surplus space within this facility and received sub-lease income, which we set against lease expense, of $0.3 million, $0.3 million, and $0.2 million for the years ended December 31, 2008, 2007 and 2006, respectively. If we do not receive all the amounts due to us under non-cancelable subleases, we will incur additional lease expense.

The activity in the years ended December 31, 2008 and 2007, respectively, was as follows (in millions):

	Balance at December 31, 2007	Increase in accrual	Deductions	Balance at December 31, 2008
Costs to close facilities and exit lease commitments	$0.7	$—	$(0.2)	$0.5

	Balance at December 31, 2006	Increase in accrual	Deductions	Balance at December 31, 2007
Costs to close facilities and exit lease commitments	$1.0	$—	$(0.3)	$0.7

7. Asset-backed Loan

On August 31, 2007, we signed an amendment to our existing asset-backed loan line that had previously expired. Under the terms of this amendment, we may elect to have individual minimum fundings of $100,000 up to an aggregate limit of $3.0 million through December 23, 2008. All borrowings are secured by the underlying financed equipment.

As of December 31, 2008, we had an aggregate $1.2 million outstanding on this asset-backed loan line relating to four fundings with interest rates from 10.6% to 9.73% to be repaid in 36 monthly installments. Our right to borrow funds under this facility expired in December 2008.

8. Commitments and Contingencies

Building Leases

We lease facilities in the United States, Germany, China, United Kingdom, India and Japan. In total, we lease space in nine buildings under leases that expire at various dates through September 2015. Total rent expense under these leases was approximately $5.0 million in 2008, 2007 and 2006, respectively.

In September 2005, we entered into an amendment to our lease for our corporate headquarters in San Diego. The lease amendment provides for the deferral of approximately $3.2 million of the monthly rent payments by reducing the monthly payments during the period commencing October 1, 2005 and ending September 30, 2007 and increasing the aggregate monthly payments by the deferred amount for the remaining term of the lease, from October 1, 2007 to September 30, 2015. The total obligation under the lease remains unchanged. Rent expense is calculated on a straight-line basis. In connection with the lease amendment, we issued our landlord a warrant to purchase 50,000 shares of our common stock with an exercise price of $2.64 per share. The warrants are exercisable and have a ten year term. The fair value of the warrants, calculated using the Black-Scholes model, was recorded as prepaid rent and is being amortized as rent expense over the remaining life of the lease.

The following is a schedule of future minimum lease payments at December 31, 2008:

Year Ending December 31,	Operating Leases
	(In thousands)
2009	$ 6,791
2010	6,438
2011	5,400
2012	5,171
2013	4,309
Thereafter	7,885
	$35,994

The above operating leases expire at various dates through 2015. Certain leases contain extension, return, or renewal provisions for two years at existing lease rates and/or purchase options. Future operating lease commitments for leases have not been reduced by future minimum sublease rentals aggregating $0.5 million.

Letters of Credit

At December 31, 2008, we had outstanding stand-by letters of credit with financial institutions totaling $1.1 million related to our building and operating leases, which will remain in place until the expiration of the Newton, Massachusetts building lease agreement in December 2010.

Collaboration, Development, and Licensing Agreements

In October 2005, we acquired exclusive rights in certain countries, including the United States, United Kingdom and other countries in Europe and elsewhere, to non-invasive prenatal diagnostic intellectual property from Isis Innovation Ltd. (ISIS), the technology transfer company of the University of Oxford. The intellectual property covers non-invasive prenatal genetic diagnostic testing on fetal nucleic acids derived from plasma or serum on any platform including mass spectrometry and real time polymerase chain reaction amplification platforms. In October 2006 and November 2007 we entered into additional related agreements with other entities, as well as amendments to the ISIS agreement that expanded the licensed applications and territory. Under the terms of this agreement and its amendments, we have paid up-front fees totaling $0.8 million and are required to pay up to approximately $0.5 million in aggregate milestone payments upon the achievement of initial sales or tests performed of various products or the issuance of a patent, as well as royalties on product sales.

We have entered into various license agreements since 1996 allowing us to utilize certain patents rights. If these patents are used in connection with a commercial product sale, we will pay royalties based on a percentage of the related product revenues. During the years ended December 31, 2008, 2007, and 2006, the amount of royalties incurred in connection primarily with product sales was $0.1 million, $0.1 million, and $0.1 million, respectively.

Litigation

In November 2001, we and certain of our current or former officers and directors were named as defendants in a class action shareholder complaint filed by Collegeware USA in the U.S. District Court for the Southern District of New York (now captioned In re Sequenom, Inc. IPO Securities Litigation) Case No. 01-CV-10831. Similar complaints were filed in the same District Court against hundreds of other public companies that conducted initial public offerings of their common stock in the late 1990s and 2000. In the complaint, the plaintiffs allege that our underwriters, certain of our officers and directors and we violated the federal securities laws because our registration statement and prospectus contained untrue statements of material fact or omitted material facts regarding the compensation to be received by and the stock allocation practices of the underwriters. The plaintiffs seek unspecified monetary damages and other relief. In October 2002, our officers and directors were dismissed without prejudice pursuant to a stipulated dismissal and tolling agreement with the plaintiffs. In February 2003, the District Court dismissed the claim against us brought under Section 10(b) of the Securities Exchange Act of 1934, without giving the plaintiffs leave to amend the complaint with respect to that claim. The District Court declined to dismiss the claim against us brought under Section 11 of the Securities Act of 1933.

In September 2003, pursuant to the authorization of a special litigation committee of our board of directors, we approved in principle a settlement offer by the plaintiffs. In September 2004, we entered into a settlement agreement with the plaintiffs. In February 2005, the District Court issued a decision certifying a class action for settlement purposes and granting preliminary approval of the settlement subject to modification of certain bar orders contemplated by the settlement. In August 2005, the District Court reaffirmed class certification and preliminary approval of the modified settlement. In February 2006, the District Court dismissed litigation filed against certain underwriters in connection with the claims to be assigned to the plaintiffs under the settlement. In April 2006, the District Court held a final fairness hearing to determine whether to grant final approval of the settlement. In December 2006, the U.S. Court of Appeals for the Second Circuit vacated the District Court's decision certifying as class actions the six lawsuits designated as "focus cases." Thereafter the District Court ordered a stay of all proceedings in all of the lawsuits pending the outcome of plaintiffs' petition to the Second Circuit for rehearing *en banc*. In April 2007, the Second Circuit denied plaintiffs' rehearing petition, but clarified

that the plaintiffs may seek to certify a more limited class in the District Court. Accordingly, the settlement as originally negotiated was terminated pursuant to stipulation and will not receive final approval. Plaintiffs filed amended complaints in the six focus cases in August 2007. Sequenom is not one of the focus case issuers. In September 2007, Sequenom's named officers and directors again extended the tolling agreement with the plaintiffs. Also in September 2007, the plaintiffs moved to certify the classes alleged in the focus cases and to appoint class representatives and class counsel in those cases. The focus case issuers filed motions to dismiss the claims against them in November 2007 and an opposition to plaintiffs' motion for class certification in December 2007. The District Court denied the motions to dismiss in March 2008. On October 2, 2008, the plaintiffs withdrew their class certification motion. A deadline for the focus case defendants to answer the amended complaints has not been set.

On June 5, 2008, we were named as a defendant in a complaint filed by plaintiffs Beckman Coulter Inc. and Orchid Cellmark Inc. in the United States District Court for the Southern District of California. In the complaint, the plaintiffs allege that we are infringing three patents owned by Orchid Cellmark Inc. and licensed to Beckman Coulter Inc. by making and selling our iPLEX products and teaching our customers how to use the products. The plaintiffs seek a permanent injunction enjoining us from further infringement, and unspecified monetary damages, including lost profits, enhanced damages pursuant to 35 U.S.C. § 284, costs, attorneys' fees and other relief as the court deems just and proper. On August 15, 2008, we filed an answer and counter claims against plaintiffs seeking declaratory judgments that the patents are not infringed and are invalid and/or unenforceable. Discovery is currently in progress. We believe that the plaintiffs' claims are without merit and will vigorously defend against the claims advanced in the complaint.

On October 30, 2008, we filed a patent infringement suit against Ibis Biosciences, Inc., a subsidiary of Isis Pharmaceuticals, Inc. The complaint was served on the defendant in February 2009. Ibis has been acquired by Abbott Molecular. The lawsuit was filed in the United States District Court for the District of Delaware. The lawsuit alleges that the sale or offer for sale of the Ibis T5000 Biosensor System and related technology infringes three U.S. patents: 6,300,076, 6,500,621 and 7,419,787. We are seeking a permanent injunction enjoining the defendant from further infringement and monetary damages, including enhanced damages pursuant to 35 U.S.C. § 284, costs, attorneys' fees and other relief as the court deems just and proper.

In addition, from time to time, we may be involved in litigation relating to claims arising out of our operations in the normal course of business.

9. Related Party Transactions

We had the following transactions with parties related to certain of our Board members:

- Boston University. Dr. Charles Cantor is our Chief Scientific Officer, a member of our Board and was previously the chair and professor of the department of biomedical engineering and biophysics, and Director of the Center for Advanced Biotechnology at Boston University. We have agreements with Boston University in which Dr. Cantor participates under which we paid $0.9 million, $0.4 million, and $0.4 million, respectively We recorded product revenue for MassARRAY hardware and consumables, totaling $0.1 million, $0.1 million, and $0.1 million, in the years ended December 31, 2008, 2007 and 2006, respectively.
- University of California, San Diego. Dr. Cantor is adjunct professor in the department of bioengineering at the University of California, San Diego, or UCSD. We recorded product revenue for MassARRAY hardware and consumables, totaling $24,000, $2,000 and $42,000 in the years ended December 31, 2008, 2007 and 2006, respectively.

- Dr. Richard Lerner is a member of our Board of Directors and is President of The Scripps Research Institute. For the years ended December 31, 2008, 2007, and 2006, we have recorded product revenue for MassARRAY hardware and consumables totaling approximately $30,000, $318,000, and $101,000, respectively.

At December 31, 2008, we had a the following receivable and payable balances with the above related parties:

Related party	Receivables	Payables
	(in thousands)	
Boston University	$ 5	$ 90
Scripps Research Institute	13	—
UCSD	—	—
Total	$ 18	$ 90

At December 31, 2007, we had the following receivable and payable balances with the above related parties:

Related party	Receivables	Payables
	(in thousands)	
Boston University	$ 27	$118
UCSD	—	—
Total	$ 27	$118

10. Stockholders' Equity

On July 1, 2008, we closed an underwritten public offering of our common stock totaling 5,500,000 shares of our common stock at $15.50 per share, with the underwriters exercising their option to purchase an additional 825,000 shares on July 8, 2008. Including the additional shares, the offering resulted in aggregate net proceeds of approximately $91.8 million after deducting underwriting discounts, commissions and estimated transaction expenses.

During 2007, we closed a $20.0 million registered direct offering of our common stock to several new and existing investors, as well as a $30.5 million private placement of our common stock. Under the terms of the registered direct offering we issued and sold 6,666,666 shares of our common stock at $3.00 per share, with aggregate net proceeds of approximately $18.3 million after deducting placement agents' fees and transaction expenses. Under the terms of the private placement we issued and sold 3,383,335 shares of our common stock at $9.00 per share, with net aggregate proceeds of approximately $28.1 million after deducting placement agents' fees and estimated transaction expenses.

Stock Compensation Plans

On May 31, 2006, the stockholders approved our 2006 equity incentive plan, or 2006 plan, as the successor to our 1999 stock option plan, or 1999 plan. In connection with the adoption of the 2006 plan, we terminated the automatic annual increase feature under the 1999 plan and resolved to cease to grant additional stock awards under the 1999 plan following the effectiveness of the 2006 plan. The aggregate number of shares of common

stock that may be issued under the 2006 plan is 8,188,620, plus the number of shares subject to any stock awards under the 1999 plan that terminate or are forfeited or repurchased and would otherwise have been returned to the share reserve under the 1999 plan.

Stock Options

The estimated fair value of each stock option award granted was determined on the date of grant using the Black-Scholes option valuation model with the following weighted-average assumptions for stock option grants during the years ended December 31, 2008, 2007 and 2006:

	2008	2007	2006
Risk free interest rates	3.17%	4.51%	4.95%
Volatility	87%	82%	101%
Dividend yield	0%	0%	0%
Expected option term (years)	6.6	6.4	6.7
Weighted average fair value of stock option grants to employees	$8.81	$4.09	$1.65

The risk-free interest rate assumption is based upon observed interest rates appropriate for the expected term of our employee stock options. The expected volatility is based on the historical volatility of our stock. We have not paid any dividends on common stock since our inception and do not anticipate paying dividends on common stock in the foreseeable future. The computation of the expected option term is based on a weighted-average calculation combining the average life of stock options that have already been exercised or cancelled with the estimated life of all unexercised stock options.

SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Pre-vesting forfeitures were estimated to be 10.4% based on historical experience. Our determination of fair value is affected by our stock price as well as a number of assumptions that require judgment. Changes in forfeiture estimates impact compensation cost in the period in which the change in estimate occurs.

A summary of the status of our stock option plans as of December 31, 2008 and of changes in stock options outstanding under the plans during the years ended December 31, 2008, 2007 and 2006 is as follows:

Outstanding	Shares Subject to Options	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2005	1,829,242	$13.21		
Granted	2,159,660	1.95		
Canceled	(689,685)	10.43		
Exercised	(13,434)	3.37		
Outstanding at December 31, 2006	3,285,783	$ 6.45		
Granted	2,232,976	5.38		
Canceled	(270,452)	5.20		
Exercised	(168,071)	2.98		
Outstanding at December 31, 2007	5,080,236	$ 6.16		
Granted	1,705,652	11.63		
Canceled	(265,892)	6.73		
Exercised	(281,925)	4.55		
Outstanding at December 31, 2008	6,238,071	$ 7.70	7.76	$83,428,931
Options vested and exercisable at December 31, 2008	2,956,730	$ 7.88	6.91	$42,749,936

As of December 31, 2008, there was $14.8 million of unamortized compensation cost related to unvested stock option awards, which is expected to be recognized over a remaining weighted-average vesting period of 2.4 years. Cash received from stock option exercises for the years ended December 31, 2008 and 2007 was $1,295,000 and $446,000, respectively.

At December 31, 2008, 1,824,020 shares were available for future option grants.

A further breakdown of the options outstanding as of December 31, 2008 is as follows:

Range of Exercise Prices	Options Outstanding	Weighted Average Remaining Life in Years	Weighted Average Exercise Price	Options Exercisable	Weighted Average Exercise Price of Options Exercisable
$1.69 – $1.83	397,394	7.49	$ 1.75	243,230	$ 1.75
$1.85 – $1.87	1,082,373	7.43	$ 1.87	708,925	$ 1.87
$1.89 – $3.30	726,239	6.94	$ 2.76	529,610	$ 2.87
$3.39 – $4.60	771,245	7.84	$ 4.35	421,007	$ 4.33
$4.62 – $4.81	212,375	7.95	$ 4.68	83,547	$ 4.67
$4.93	633,912	8.52	$ 4.93	209,361	$ 4.93
$4.97 – $8.16	835,535	8.75	$ 7.46	176,447	$ 7.28
$8.22 – $11.04	711,945	8.18	$ 9.27	264,144	$ 9.46
$11.07 – $20.58	648,877	7.82	$17.01	177,669	$15.67
$22.20 – $105.00	218,176	4.64	$54.88	142,790	$71.45
$1.69 – $105.00	6,238,071	7.76	$ 7.70	2,956,730	$ 7.88

Restricted Stock Awards and Deferred Compensation

On January 18, 2007, we granted restricted stock awards to certain executive officers and employees. At December 31, 2007, 57,126 shares with a weighted average grant date fair value of $4.60 per share remained outstanding and 7,247 shares were cancelled prior to vesting. The awards fully vested on January 18, 2008.

On October 18, 2007, we granted 50,000 restricted stock units to an executive officer with a grant date fair value of $11.04. These units vest over 4 years, with 13/48th of the units vesting 13 months after the grant date, then vest in equal monthly installments thereafter. At December 31, 2008, 14,542 units have vested and 35,458 units remain outstanding and unvested.

On January 29, 2008, we granted 18,628 restricted stock awards and 20,974 restricted stock units to certain executive officers and employees with a weighted average grant date fair value of $8.16 per share. During 2008, restricted stock awards totaling 1,781 were cancelled. The remaining stock awards will be fully vested on January 29, 2009 and the restricted stock units will be fully vested on February 28, 2009.

On July 17, 2008, we granted 55,555 restricted stock units to an executive officer with a grant date fair value of $20.00 per share. These units vest over 4 years, with 13/48th of the units vesting 13 months after the grant date, then vest in equal monthly installments thereafter. At December 31, 2008, all units remain outstanding and unvested.

Employee Stock Purchase Plan

In 1999, we adopted the 1999 Employee Stock Purchase Plan, or 1999 ESPP. As of December 31, 2008, we had reserved 851,676 shares of common stock for issuance under the 1999 ESPP. Beginning in 2001, the amount of authorized shares available under the 1999 ESPP automatically increases each January 1st by an amount equal to 1% of the outstanding common stock on the last trading day of the prior year, subject to an annual increase limitation of 166,666 shares. The 1999 ESPP provides for a series of concurrent offering periods, each with a maximum duration of 24 months. Shares are purchased semi-annually at 85% of the lower of the beginning or end of the period price.

In October 2006, our Board of Directors approved a change to all offerings under the 1999 ESPP that commence on or after February 1, 2007. New offerings are for a duration of six months and consist of one purchase interval, but do not impose either an individual or all-participant limitation on the number of shares purchasable on a purchase date, although the 1999 ESPP limits stock purchases to $25,000 per individual per calendar year. Participants had the option of: continuing under the current plan offering period until its expiration, or withdrawing from the current offering prior to its expiration and enrolling in the new offering commencing on February 1, 2007. Those employees not electing to enroll in the new offering period continued under the then current offering until the 24 month offering period expires. On July 31, 2008, the final 24 month offering period expired and all ESPP participants are now under six month offering periods. As of December 31, 2008, employees have contributed approximately $0.4 million to the current offering of the 1999 ESPP, since the beginning of the offering period that commenced August 1, 2008. For the year ended December 31, 2008 and 2007, we have recognized approximately $360,000 and $11,000, respectively, as share-based compensation expense related to the 1999 ESPP Plan.

Warrants

In connection with the acquisition of Axiom Biotechnologies in 2002, we assumed an outstanding warrant to purchase 7,333 Axiom ordinary shares at an exercise price of $10.50, which was adjusted to become a warrant

to purchase 1,535 shares of our common stock at an exercise price of $50.19 per share. As of December 31, 2008, this warrant has not been exercised and expires in December 2011.

In connection with an amendment to our lease for our corporate headquarters in San Diego, California in September 2005, we issued to the landlord a warrant to purchase 50,000 shares of our common stock with an exercise price of $2.64 per share. The warrant expires in October 2015. As of December 31, 2008, the warrant remains outstanding and exercisable.

In connection with the private placement financing completed in June 2006, we issued to the investors warrants to purchase an aggregate of 11,999,999 shares of our common stock at an exercise price of $2.10 per share. These warrants contain anti-dilution provisions that adjust the exercise price and number of shares subject to the warrants upon reorganization, mergers, stock splits and combinations, reclassifications of our common stock, stock dividends, or other issuances of our common stock at purchase prices less than the warrants' exercise price (other than certain exempt issuances, such as sales of common stock to our employees or conversions of convertible securities and options that were outstanding prior to the issuance of the warrants). During 2008, investors exercised all remaining warrants of 11,301,499 in a series of cashless exercises to purchase 8,982,521 shares of our common stock. As of December 31, 2008, no warrants remain unexercised with the investor group from our private placement completed in June 2006.

Additionally in connection with the June 2006 private placement financing, we issued to our placement agent a warrant to purchase 866,666 shares of our common stock at an exercise price of $2.52 per share. This warrant contains anti-dilution provisions that adjust the exercise price and number of shares subject to the warrants upon reorganization, mergers, stock splits and combinations, reclassifications of our common stock, or stock dividends, but not for other issuances of our common stock. During 2007 the placement agent transferred portions of the warrant to certain of its employees. During 2008, the placement agent and its transferees had exercised warrants in both cash and cashless exercises to purchase an aggregate of 110,781 shares of our common stock. As of December 31, 2008, warrants to purchase an aggregate of 7,500 shares remained outstanding and exercisable and expire in June 2011.

11. Income Taxes

On July 13, 2006, the FASB issued FIN 48, which clarifies the accounting for uncertainty in income taxes recognized in an entity's financial statements in accordance with SFAS 109, and prescribes a recognition threshold and measurement attributes for financial statement disclosure of tax positions taken or expected to be taken on a tax return. Under FIN 48, the impact of an uncertain income tax position on the income tax return must be recognized at the largest amount that is more-likely-than-not to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. Additionally, FIN 48 provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. FIN 48 was effective for fiscal years beginning after December 15, 2006.

We adopted the provisions of FIN 48 on January 1, 2007. There were no unrecognized tax benefits as of the date of adoption and there are no unrecognized tax benefits included in the balance sheet at December 31, 2008.

Our practice is to recognize interest and/or penalties related to income tax matters in income tax expense. We had no accrual for interest and penalties on our balance sheets at December 31, 2008 and 2007 and have recognized no interest and/or penalties in the statement of operations for the year ended December 31, 2008.

We are subject to taxation in the U.S., foreign and various state jurisdictions. Our tax years for 1994 and forward are subject to examination by the Federal and California tax authorities due to the carryforward of unutilized net operating losses and research and development credits.

We completed a Section 382/383 analysis regarding the limitation of net operating loss and research and development credit carryforwards in April 2008. As of December 31, 2008, we have updated our unrecognized tax benefits under FIN 48. Due to the existence of the valuation allowance, future changes in our unrecognized tax benefits will not impact our effective tax rate.

The reconciliation of income tax computed at the Federal statutory tax rate to the expense/(benefit) for income taxes is as follows:

	December 31,		
	2008	2007	2006
		(In thousands)	
Tax at statutory rate	$(15,380)	$ (7,694)	$(6,370)
State taxes, net of federal benefit	(2,525)	(1,263)	(1,010)
Change in valuation allowance	29,532	(108,313)	6,950
Credits and other	(11,416)	117,270	(192)
	$ 211	$ —	$ (622)

The 2008 income tax expense of $211,000 and the 2006 income tax benefit of $0.6 million are comprised of foreign current and deferred taxes.

Deferred income taxes reflect the net effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of our deferred tax assets and liabilities are shown below. A full valuation allowance has been recorded, as realization of such assets is uncertain.

	December 31,	
	2008	2007
	(In thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 32,221	$ 3,759
Capitalized research expenses	11,387	13,120
Other, net	8,684	6,136
Total deferred tax assets	52,292	23,015
Valuation allowance	(52,292)	(23,015)
Net deferred tax assets (liabilities)	$ —	$ —

At December 31, 2008, we have federal and state tax net operating loss carryforwards of approximately $74.7 million and $74.7 million, respectively. The federal and state tax loss carryforwards are reduced by the Section 382 limitation. The federal tax loss carryforwards will begin to expire in 2021, unless previously utilized.

We also have German net operating loss carryforwards of approximately $11.0 million, which may be carried forward indefinitely. We have discontinued operations in the United Kingdom (U.K.) and therefore, have removed our U.K. net operating loss carryforwards of $35.6 million from our deferred tax schedule as of December 31, 2007.

We also have federal and California research and development tax credit carryforwards of approximately $1.8 million and $8.9 million, respectively. The federal research and development credits have been reduced by the Section 383 limitation. The federal research and development tax credit carryforwards will begin to expire in 2011 unless previously utilized. The California research and development credit carryforward indefinitely.

12. Savings and Pension Plans

We have a 401(k) savings plan covering most United States employees. In the United Kingdom we make contributions to defined contribution pension plans. Under these plans, individual employees may make contributions to the plan, which can be matched by us in an amount determined by the Board of Directors or as determined by local statutes. We made no matching contributions in 2008, 2007 and 2006.

13. Geographic Information

We have wholly-owned subsidiaries located in Germany, the United Kingdom, India, Hong Kong and Japan and have customer and vendor relationships worldwide. The following table presents information about us by geographic area. There were no material amounts of transfers between geographic areas. Included in the consolidated balance sheets and consolidated statements of operations are the following domestic and foreign components at December 31, 2008, 2007 and 2006:

	December 31,		
	2008	2007	2006
		(In thousands)	
Current assets:			
United States	$111,717	$ 59,992	$ 29,953
Europe	6,911	6,313	3,225
Asia	3,656	2,087	1,230
	$122,284	$ 68,392	$ 34,408
Equipment and leasehold improvements, net:			
United States	$ 8,655	$ 5,559	$ 4,149
Europe	433	276	374
Asia	107	124	5
	$ 9,195	$ 5,959	$ 4,528
Other assets:			
United States	$ 8,928	$ 1,695	$ 945
Europe	77	—	—
	$ 9,005	$ 1,695	$ 945
Total assets:			
United States	$129,300	$ 67,245	$ 35,047
Europe	7,344	6,590	3,599
Asia	3,840	2,211	1,235
	$140,484	$ 76,046	$ 39,881
Revenues:			
United States	$ 23,806	$ 22,243	$ 15,947
Europe	13,272	10,821	7,829
Asia	10,071	7,938	4,720
	$ 47,149	$ 41,002	$ 28,496
Net income (loss):			
United States	$ (21,256)	$(12,690)	$(13,035)
Europe	(6,856)	(2,527)	661
Asia	(16,042)	(6,766)	(5,203)
	$ (44,154)	$(21,983)	$(17,577)

14. Selected Quarterly Financial Data (unaudited)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
	(In thousands, except share information)				
2008					
Net sales	$10,574	$12,845	$ 11,570	$ 12,160	$ 47,149
Gross profit	5,903	7,383	7,042	7,231	27,559
Net loss	(8,626)	(9,743)	(10,371)	(15,414)	(44154)
Net loss per share, basic and fully diluted	$ (0.19)	$ (0.21)	$ (0.18)	$ (0.25)	$ (0.83)
Shares used in calculated per share amounts, historical, basic and fully diluted	45,330	47,147	59,115	60,775	53,129
2007					
Net sales	$ 9,892	$10,153	$ 9,844	$ 11,113	$ 41,002
Gross profit	5,466	5,998	5,371	6,090	22,925
Net loss	(3,768)	(4,807)	(5,493)	(7,915)	(21,983)
Net loss per share, basic and fully diluted	$ (0.11)	$ (0.13)	$ (0.14)	$ (0.18)	$ (0.57)
Shares used in calculated per share amounts, historical, basic and fully diluted	33,447	38,008	40,262	43,618	38,865

15. Subsequent Events

On February 27, 2009, we completed an asset purchase agreement among us, our wholly owned subsidiary SCMM, SensiGen, LLC, a Michigan limited liability company (SensiGen), and George Smith (solely to act as the representative of the members of SensiGen), in which SCMM acquired certain assets from SensiGen related to their business in gene-based molecular diagnostic tests relating to cervical cancer, head and neck cancer, chronic kidney disease and lupus (the Transaction). Under the terms of the Transaction, we paid to SensiGen cash consideration of approximately $1.9 million, and issued common stock of 92,679 shares utilizing the minimum floor price of $20.94 per share as defined by the Transaction. An additional $1,300,000 (the Milestone Amount) will be payable to SensiGen upon the completion of certain triggering events as provided for in the Transaction with any shares of our common stock issued as consideration for the Milestone Amount to be priced at the average closing price of our common stock over the ten trading day period ending on the third trading day prior to the applicable triggering event for such payment. In connection with this transaction we have commenced a valuation study of the intangible assets acquired in order to allocate the purchase price in accordance with SFAS 141(R). We anticipate this valuation study to be completed in the second quarter of 2009.

Assets acquired in the Transaction include intellectual property, trade secrets and other general intangibles related to the SensiGen's AttoSense™ portfolio of tests, including tests for the detection and monitoring of human papillomavirus, systemic lupus erythematosus, chronic kidney disease and inflammatory bowel disease.

On January 27, 2009, we commenced an exchange offer to acquire all of the outstanding shares of common stock of EXACT Sciences Corporation in an all-stock exchange valued at approximately $41.0 million. The exchange offer was subsequently terminated by us on January 28, 2009.

On March 3, 2009, our Board of Directors adopted a Share Purchase Rights Plan (the Rights Plan). The terms of the Rights Plan provide for a dividend distribution of one preferred share purchase right (a Right) for each outstanding share of our common stock, par value $0.001 per share. Common Shares that are newly issued after the record date of March 20, 2009, will also carry Rights.

The Rights have certain anti-takeover effects and will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our Board of Directors. The Rights should not interfere with any merger or other business combination approved by the Board of Directors since the Rights may be amended to permit such acquisition or redeemed by us at $0.001 per Right prior to the earliest of (i) the time that a person or group has acquired beneficial ownership of 15% or more of the Common Shares or (ii) the final expiration date, as defined by the Rights Plan.

Schedule II—SEQUENOM, INC.

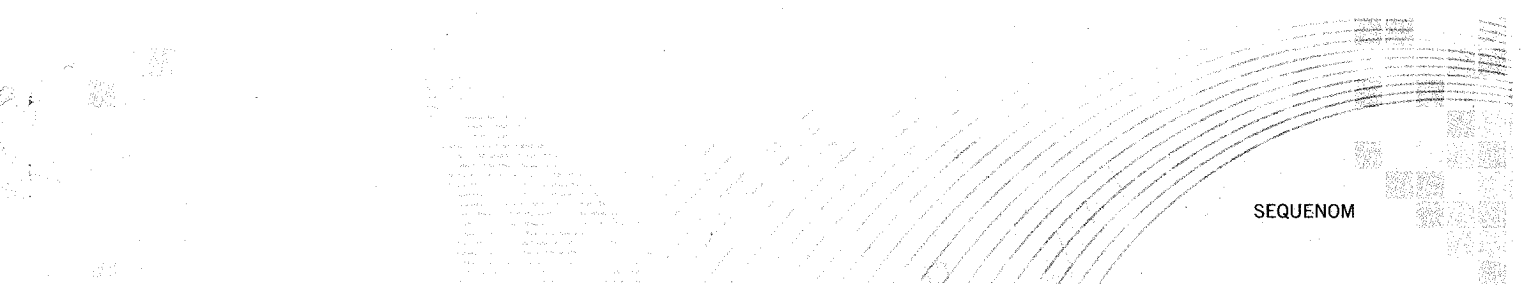
Valuation and Qualifying Accounts
($ in thousands)

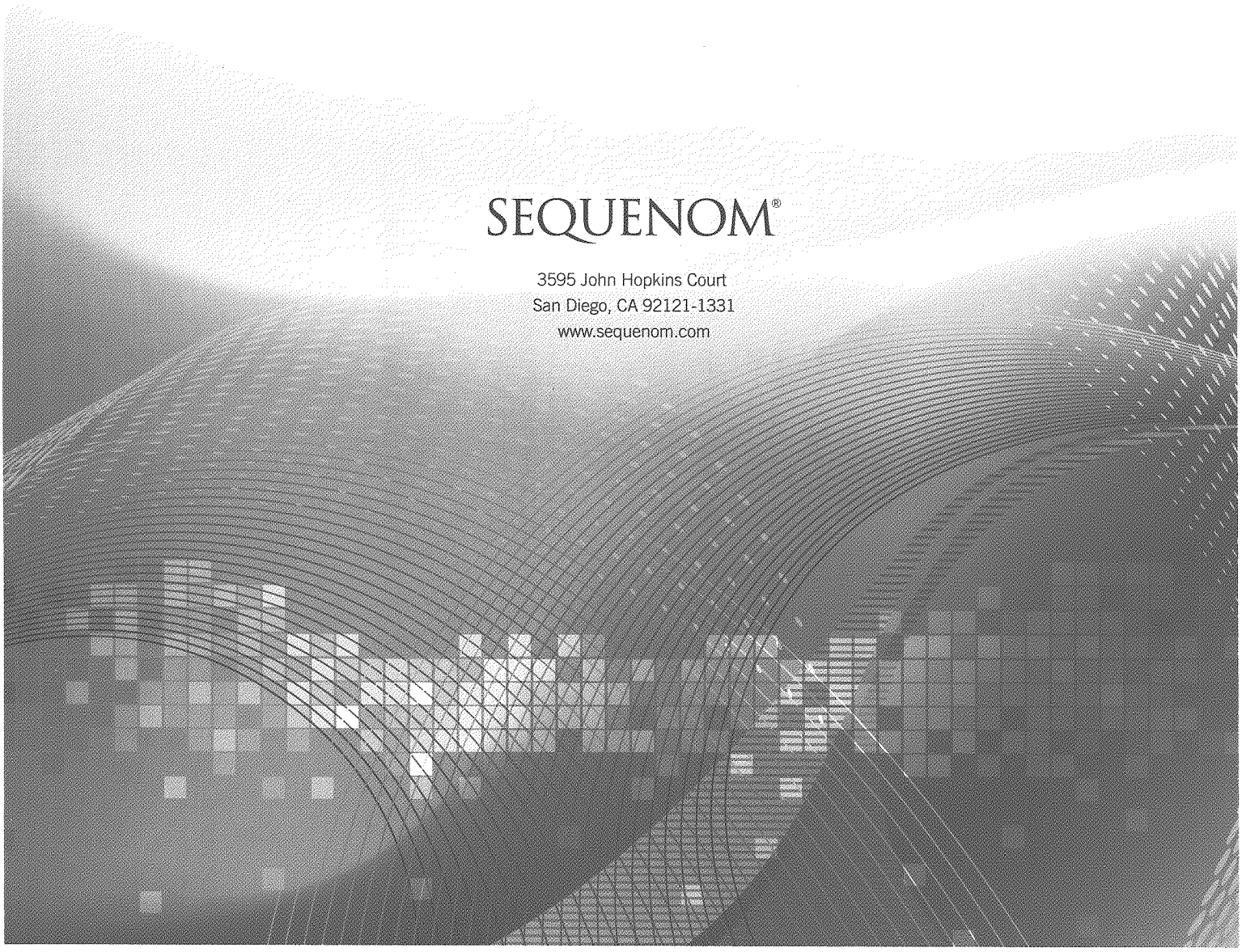
Description	Balance at Beginning of Period	Charged to Costs and Expenses	Deductions	Balance at End of Period
Year ended December 31, 2008:				
Allowance for doubtful accounts	$ 186	$ 281	$ 62	$ 405
Reserve for obsolete or excess inventory	1,089	1,180	460(1)	1,809
Year ended December 31, 2007:				
Allowance for doubtful accounts	$ 117	$ 143	$ 74	$ 186
Reserve for obsolete or excess inventory	1,082	185	178(1)	1,089
Year ended December 31, 2006:				
Allowance for doubtful accounts	$ 25	$ 96	$ 4	$ 117
Reserve for obsolete or excess inventory	3,142	(696)	1,364(1)	1,082

(1) Write off of obsolete or excess inventory

Stockholders, investors, and others seeking more information about the company may access the company's proxy statement and other documents filed with the SEC's web site at **http://www.sec.gov** and also by contacting:

Investor Relations, Sequenom, Inc.
3595 John Hopkins Court
San Diego, CA 92121-1331
Phone (858) 202-9000





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