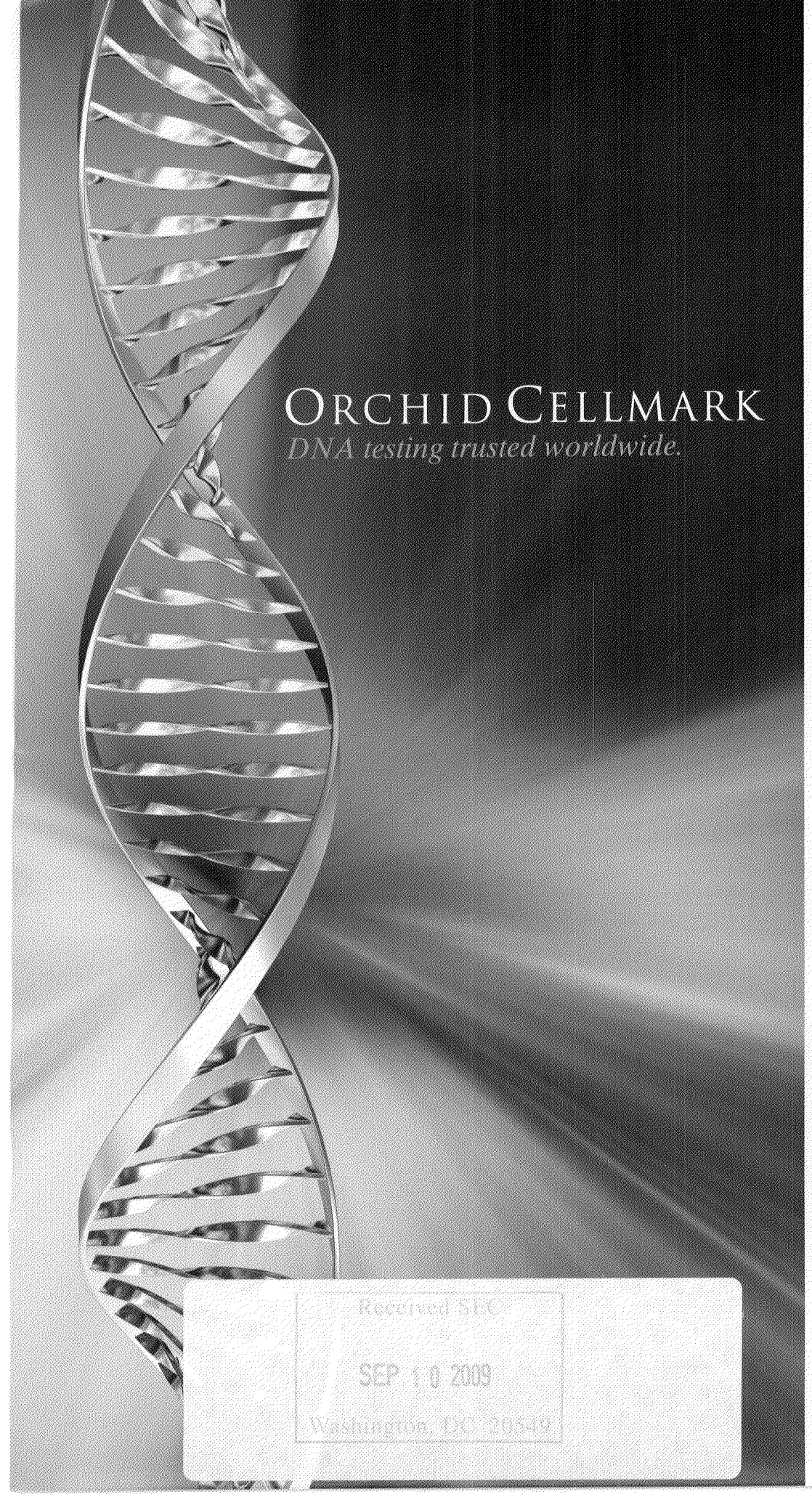
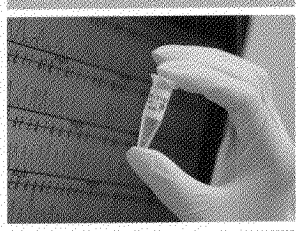


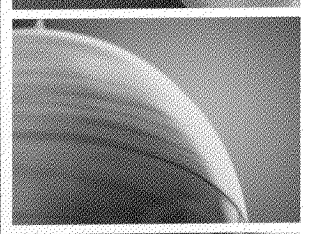
ORCHID CELLMARK

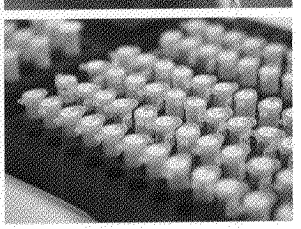
DNA testing trusted worldwide.

At the forefront of the DNA identity testing community.

2008 ANNUAL REPORT







ORCHID CELLMARK Corporate Profile

Orchid Cellmark is a leading provider of human identity DNA testing services primarily for forensic and family relationship applications. Orchid Cellmark is one of the largest providers of forensic DNA testing services and its DNA laboratory results are used by the police and the criminal justice system to assist with the identification of perpetrators and the exclusion of suspects, as well as for the exoneration of individuals who may have been wrongfully convicted. Orchid Cellmark provides DNA family relationship testing to public and private child services organizations and to individuals seeking to verify parentage. The Company also serves immigration and security authorities for DNA testing as an important tool for verifying the identification of individuals seeking entry to, or residence in, our geographic markets. Orchid Cellmark's strong market positions in these segments reflect the reputation for quality and customer service that the Company's accredited laboratories have built in its two decades of operations.

To Our Fellow Shareholders,

When law enforcement agencies, prosecutors, defense attorneys and other legal professionals in the United States and the United Kingdom demand the Gold Standard of DNA testing, they invariably turn to our Company, Orchid Cellmark. We have emerged as one of the leading international providers of DNA testing services for forensic applications and other DNA identity testing. Whether it be for high profile law enforcement cases, untold numbers of violent crimes or our efforts with the Innocence Projects in various states, we help protect the fairness of our judicial system. In short, our Company plays a critical role in ensuring the scales held by Justitia, the Roman goddess of justice and the universal representation of fairness and impartiality, remain in balance.

2008 was clearly a challenging year for all of us, as citizens, businesspeople and individuals. At Orchid Cellmark, we were fortunate to anticipate many of the challenges we would face as the year progressed and took appropriate actions where and when we could. For example, it was a year where we managed our cash well, our number one priority. We ended the year with $15 million in cash. This was due in large part to our continuing Company-wide emphasis on controlling costs and right-sizing our businesses for the current environment.

Our full year revenues for 2008 were $57.6 million compared to $60.3 million for the full year of 2007. The decrease in total revenues for 2008 was largely due to lower revenues in the U.K. that were reduced by 8% due to the unfavorable exchange rate. Approximately $2.3 million of the $2.7 million decline in total revenues was attributable to the exchange rate movement of the British pound as compared to the U.S. dollar. In addition to the impact of the adverse exchange rate, the decrease in U.K.-based revenues for 2008 was also due to lower volumes in the Company's scrapie susceptibility testing, forensics and immigration businesses. On the other hand, U.S. revenues rose by 3% in 2008 reflecting increases in the U.S. paternity testing business and revenue associated with the Company's acquisition of ReliaGene Technologies, Inc. in late 2007.

Rebound in U.S. Casework Business

Overall, we were pleased with the performance of our U.S. operation as our focus on operational efficiency helped to moderate the impact of the uneven revenue flow at some of our facilities.

Based on the number of cases we processed, our casework business was robust in 2008, which is an indicator of the high cost-benefit ratio we deliver to our clients. Casework, while similar in practice to CODIS business, can originate from an array of sources including municipalities, agencies and other organizations, and has thus been largely unaffected by procurement changes as seen in our CODIS business.

Dallas has been our primary facility for handling casework business in the U.S. Back in 2006, we identified the Dallas facility as a key to our success and focused on organizing it for maximum efficiency and profitability. Since then, we have experienced increasing returns from this effort beginning in 2007, and culminating in 2008, as sales at this facility increased well over 50% in the fourth quarter of 2008 compared to the 2007 fourth quarter, while gross margins rose significantly relative to all prior quarters of 2007 and 2008. The volume of samples processed through the Dallas facility has, so far, more than offset the price pressure the entire sector is experiencing.

Paternity determination is the second leg of our U.S. business and we saw strong growth in that segment in 2008. Orchid Cellmark's DNA paternity testing involves the scientific determination of whether or not a tested individual can be the biological father of a child. Clearly, this is an important and highly personal matter which affects a number of individuals, most importantly, the child. Orchid Cellmark is very sensitive to this and understands the importance of an accurate, confidential and timely service.

Our overall U.S. paternity business did well in 2008, largely as the result of increased volume due to the acquisition of ReliaGene and winning a sizeable contract from the State of Florida. Similar to the results we achieved with our efforts in our Dallas facility, our Dayton facility enjoyed notable success in 2008 and is a good example of a well run, highly efficient facility.

CODIS Business Slows But Backlogs Build

During 2008, our CODIS business suffered from two factors: first, the inability of two of our largest CODIS customers to ship collected samples due to temporary staff shortages; and secondly, a change in National Institute of Justice (NIJ) procedures that allow CODIS awards for outsourcing to be controlled by the receiving state instead of solely by the NIJ. We believe both factors are temporary and expect that the latter could significantly help our business in the long run.

In the past, the NIJ completed the award process for the states in a fairly timely manner; however, because these contracts were awarded essentially based on price, several states complained that they were not receiving the quality they desired. As a result of this feedback, the NIJ started allowing states to control the award process beginning in the summer of 2008. However, we believe this process change combined with state budget considerations across the U.S. are causing the release of bids to take much longer than originally anticipated.

In the meantime, we believe that state backlogs are building and these samples will ultimately be put out for bid. In addition, the expansion of CODIS testing from only convicted felons to other arrestees varies by state to the extent of offenses included in the enabling legislation. CODIS legislation is progressing in a number of states with California, Maryland and the federal government implementing arrestee testing laws as of January 1st of 2009. South Carolina, Michigan, Missouri, Alabama, Colorado, Florida, and Arkansas recently passed arrestee testing laws, and numerous other states are actively attempting to expand their CODIS testing laws including Washington, Massachusetts, Vermont, New Hampshire, New Jersey, Nebraska, Ohio and Indiana. Today 21 states have laws that require CODIS testing of arrestees. We believe this testing law expansion will increase the burden on an overwhelmed public lab system and ultimately further increase the number of samples that are put out to bid.

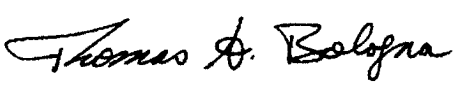
UK Transitions Successfully to Direct Supplier of DNA-Related Forensic Services

As we began 2008, our prospects in the U.K. were somewhat cloudy since we had to replace over 70%, or £4.5 million in British pounds, of the Forensic Alliance Limited (FAL) business lost as a result of their being acquired by LGC, as well as the scrapie susceptibility testing business that was ending due to the completion of that program as a result of its success. By the fourth quarter of 2008, largely as a result of the tender business along with other U.K. business we secured, our 2008 U.K. forensics crime revenue run rate made up completely for the loss of the FAL/LGC-related business despite the adverse effect of the foreign exchange rate. This is a considerable achievement given that the FAL/LGC business represented approximately 42% of our U.K. revenues for 2007. On the whole, we achieved a successful transition of our U.K. operations from a subcontractor of forensic DNA testing to a high quality direct supplier to the U.K. police forces. We are pleased to see our U.K. forensics business is growing and are enthusiastic about its future, given the opportunities presented by the National Procurement Plan.

2008–Year of Accomplishments and Challenges

In summary, 2008 was a year of accomplishments for Orchid Cellmark. Despite our clear and continuing progress, we share your frustration with the state of the financial markets and the current market valuation of the Company. I want to personally thank our shareholders for the support you've shown me and the Company this past year, despite the difficult challenges we faced. Our entire team here at Orchid Cellmark appreciates that support. I also want to express the deepest gratitude to our customers whose faith in our people and services motivates us every day.

Sincerely,



Thomas A. Bologna
President and Chief Executive Officer
Orchid Cellmark Inc.

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

FORM 10-K

(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

☐ **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: 000-30267

ORCHID CELLMARK INC.
(Exact name of registrant as specified in its charter)

Delaware	**22-3392819**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
4390 US Route One, Princeton, NJ	**08540**
(Address of principal executive offices)	**(Zip code)**

Registrant's telephone number, including area code: (609) 750-2200

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

Title of each class	Name of each exchange on which registered
Common Stock, $.001 Par Value Per Share	**The NASDAQ Stock Market LLC**
Preferred Share Purchase Rights	**The NASDAQ Stock Market LLC**

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

None
(Title of Class)

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 Exchange 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, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

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

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

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant (without admitting that any person whose shares are not included in such calculation is an affiliate) computed by reference to the price at which the common stock was last sold as of the last business day of the registrant's most recently completed second fiscal quarter was approximately $77,523,342.

As of March 11, 2009, the registrant had 29,966,562 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required in Part III of this Annual Report on Form 10-K is incorporated by reference from the registrant's Proxy Statement for the Annual Meeting of Stockholders to be held on June 11, 2009.

ORCHID CELLMARK INC.

FORM 10-K

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PART I

The following Business section contains forward-looking statements, which involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors. See Item 1A. Risk Factors below for a discussion of these factors.

Orchid Cellmark Inc. including all its subsidiaries and affiliates are collectively referred to herein as the "Company," "us" or "we."

Item 1. BUSINESS

We are engaged in the provision of DNA testing services that generate genetic profile information by analyzing an organism's unique genetic identity. We are also engaged in the provision of non-DNA forensic laboratory services.

The process of identifying unique variations in a genome is referred to as DNA testing. An individual's identity can be confirmed with almost absolute certainty through DNA testing. First used to establish human identity in 1985, DNA testing has become the standard method used for forensic identification and to confirm paternity and other family relationships. DNA testing has also been used in agricultural applications for selective trait breeding and related applications. DNA testing is sometimes also referred to in the industry as DNA fingerprinting, DNA typing, DNA profiling or genotyping.

Our business is primarily focused on DNA testing for human identity and to a lesser degree for agricultural applications. In the human identity area, we provide DNA testing services for forensic, family relationship and, to a lesser extent, security applications. Forensic DNA testing is primarily used in the following ways: .to establish and maintain DNA profile databases of individuals arrested for or convicted of crimes; to analyze and compare evidence from crime scenes with these databases to identify possible suspects; and to confirm that a suspect committed a particular crime or to exonerate a falsely accused or convicted person. Forensic DNA testing can also be used to confirm a victim's identity. Family relationship DNA testing is used to establish whether two or more people are genetically related. It is most often used to determine a biological father in a paternity case. It can also be used to confirm a genetic relationship for purposes of immigration and adoption, estate settlement, genealogy and ancestry. DNA testing has also been used by individuals and employers in security applications to establish and store a person's genetic profile for identification purposes in the event of an emergency or accident. In agricultural applications, we provide DNA testing services for selective trait breeding. We provide agricultural susceptibility testing to enable farmers to breed sheep resistant to scrapie, a fatal, degenerative disease that affects the nervous systems of sheep and goats. We also provide genetic marker analysis in animals that can be used to confirm relationships.

We have operations in the United States, or the US, and in the United Kingdom, or the UK, and the majority of our current customers are based in these two countries. We provide our DNA testing services to various government agencies, private individuals and commercial companies. During the years ended December 31, 2008, 2007 and 2006, we recorded total revenues of $57.6 million, $60.3 million and $56.9 million, respectively, of which $31.2 million, $30.3 million and $29.3 million, respectively, were from our US operations. We recorded international revenues, primarily in the UK, of $26.4 million, $30.0 million and $27.6 million for the years ended December 31, 2008, 2007 and 2006, respectively.

Our principal executive offices are located at 4390 US Route One, Princeton, New Jersey, 08540. Our telephone number is (609) 750-2200 and our website address is *www.orchid.com.* Our Corporate Code of Business Conduct and Ethics as well as our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K and all amendments to these reports, which have been filed with the Securities and Exchange Commission, or SEC, are available free of charge through the Investor Relations section on our website as soon as reasonably practicable after such materials have been electronically filed with, or furnished to,

the SEC. The public may also read and copy any materials we file with the SEC at the SEC's Public Reference Room, 100 F Street, NE, Washington, D.C. 20549. The public may also obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Because we file reports and other information with the SEC electronically, the public may obtain access to those documents at the SEC's internet website: *www.sec.gov*. We include our website address in this Annual Report on Form 10-K as an inactive textual reference only.

Background

All living organisms contain DNA, which encodes genetic information in cells. DNA determines the structure, function and behavior of cells and individual hereditary characteristics. DNA was first used to confirm human identity in 1985 and has since been used to revolutionize many applications involving individual identification, particularly in connection with forensic investigations. The introduction of DNA testing into the criminal justice system, both in the US and abroad, has been characterized as the most significant improvement in forensic science since the introduction of fingerprinting over 100 years ago. DNA evidence left behind at a crime scene affords prosecutors a means of identifying a suspect with almost absolute certainty. In addition, DNA evidence has proved to be the best currently available method for a wrongfully accused individual to prove his or her innocence.

After the first phase of the human genome sequence was completed in 2000, attention turned from mapping the sequence of the genome to identifying genetic differences between individuals and applying this knowledge to the healthcare and other related fields. In recent years, scientists have analyzed large portions of DNA to determine the sequence of nucleotide bases within the human genome and within the genomes of plant and animal species. Scientists hope to understand and use this molecular level knowledge to transform traditional approaches to medicine, agriculture and other fields. The increasing availability of non-human genomic data is driving the use of genetic variability information for animal identification, which is expected to produce improved characteristics in livestock or crops and protect humans against animal-borne diseases.

Technologies Utilized

All DNA testing currently used for identity purposes examines specific segments of DNA that exhibit variability between different individuals and animals. Two forms of such variability are known as short tandem repeats, or STRs, which we utilize in DNA testing services for forensic, family relationship and security applications, and single nucleotide polymorphisms, or SNPs, which we utilize in DNA testing services for agricultural applications and in some of our forensic DNA testing services.

STRs

An STR is a portion of DNA in which small segments are repeated a variable number of times. Typically, there are 10 to 25 possible variations of a given human STR marker, with each person having just one or two variations. By looking at a moderate number of STRs, a DNA profile is determined that is virtually unique for each individual. STRs are the most common genetic markers used to determine identity in forensic, paternity and security applications.

A DNA profile can be determined from any type of biological specimen containing nuclear DNA, including blood or a tissue sample, such as a cheek swab. These specimens may be used for determining profiles of suspects, victims and criminals and for paternity testing. The STR markers used to establish a person's identity are selected specifically to be able to confirm identity without inadvertently providing other information about the individual, such as information concerning the individual's current health or susceptibility to certain diseases or adverse responses to medications.

A DNA profile can also be determined from DNA contained in biological evidence from a crime scene, such as blood stains, semen, hair, skin, bone, teeth and even minute traces of saliva resident on cigarette butts or

postage stamps. DNA profiles derived from crime scene evidence can be compared with that of a suspect or victim, and can be catalogued in a database for future comparison, much like fingerprints. DNA testing can also be used to confirm that a suspect committed a particular crime or exonerate a falsely accused or convicted person. In various countries around the world, DNA samples are collected from suspected or convicted criminals, profiled and entered into national databases. Evidence from crime scenes in which no suspect has yet been identified can be analyzed and compared with this database to possibly identify a suspect. In the US, there are 13 standard STR markers that are analyzed by public and private forensic laboratories to establish DNA profiles. These profiles can then be uploaded to the FBI-managed national criminal database known as the Combined DNA Index System, or CODIS, as well as to individual state databases. In the UK, 10 standard STR markers are used to compile the UK National DNA Database, or NDNAD.

DNA testing may also be used in paternity and other family relationship testing. Since DNA markers are inherited, the profile of a child can be compared with that of the alleged father to confirm or exclude him as the child's biological father. Similarly, DNA markers can prove family relationships for several other purposes including individuals immigrating to a country or for children being adopted. Individuals and employers have also used DNA testing to establish and store a person's genetic identity for future reference in the event of an emergency or accident.

SNPs

The second form of variability in DNA involves a change in a SNP, which is the most common form of genetic variation. We use SNPs to determine commercially desirable qualities, such as disease resistance, in animals. Analyzing SNPs in animals can also provide breeders with genetic data relating to such characteristics as meat quality and milk production. We also use SNPs for some of our forensic DNA testing services.

Testing Services

In the human identity area, we provide DNA testing services for forensic, family relationship and, to a lesser extent, security applications. In agricultural applications, we provide DNA testing services for selective trait breeding.

Based on our review of publicly available information regarding contract sizes and competitor activity, supplemented by industry publications and third-party market assessment data, we believe we are one of the largest providers of forensic and family relationship testing in the US, and we are also a recognized leading provider of such services in the UK. Based on these same sources, we believe that the US and UK are some of the largest existing markets for DNA testing services today, and the majority of our current customers are based in these countries. We conduct forensic DNA testing primarily for government agencies. We perform family relationship testing services for both government agencies and private individuals. We market security DNA testing services to government agencies, commercial companies and private individuals. We perform agricultural DNA testing services for government agencies and members of the agricultural community. We have four accredited laboratories in the US and one in the UK, which provide all of our DNA testing services.

In the US and UK, a significant amount of our current testing activity is under established contracts with a number of different government agencies. These contracts are usually awarded through a sealed bid process and, when awarded, typically have a term from one to three years. We believe that our experience as a reliable provider of services to government agencies is a valued credential that can be used in securing both new contracts and renewing existing contracts.

We intend to continue to develop and evaluate new technologies for enhancing our laboratory processes, including instrumentation, automation and new testing methodologies, which we expect will enable us to reduce our costs and improve the quality of our service offerings. All of the reagents and instruments utilized in our services are highly specialized. We are currently in negotiations with the supplier through which we purchase the

majority of reagents and other components for use in our DNA testing services regarding a multi-year purchase agreement. While comparable reagent kits and instruments are available from multiple suppliers in the event of a supply problem, switching suppliers would require obtaining the approval of certain of our customers and may necessitate changing instruments on which we perform DNA testing services, which could require significant capital investment.

Human Identity DNA Testing Services

Forensic DNA Testing Services

We are a leading forensic DNA testing provider and are known for the high quality of our services and the expertise of our staff. We test a variety of forensic evidence samples collected at crime scenes, also known as casework. Testing services may be provided to implicate or exclude a known suspect, or may be provided in the absence of a suspect to generate a DNA profile of a perpetrator for use in searching criminal DNA databases. Although the majority of forensic testing services are done for criminal justice agencies, we also provide testing services for defense attorneys. Casework testing may be provided on an individual case basis or under contract. Government contract services are usually awarded through a competitive bid process in which specifications are issued in the form of a request for proposal, or RFP, or in the form of an invitation to bid, or ITB, and vendors respond with a sealed bid by a specified date. These contracts typically have a term of one to three years.

In addition to casework testing, we also provide DNA identification profiles of individuals for inclusion in national, state and local criminal DNA databases. In the US, DNA specimens are collected from convicted criminals and certain arrestees and are tested by our laboratories to provide DNA profiles for inclusion in the CODIS database, as well as individual state databases. In the UK, under the UK Police and Criminal Evidence Act, or PACE, DNA specimens are also collected from certain arrestees and are tested in our UK laboratory to provide DNA profiles for inclusion in the NDNAD. DNA evidence from criminal cases with no known suspects may be screened against these databases to help identify a possible suspect.

In the US, the CODIS database currently stores the DNA profiles of over 6.5 million convicted offenders and over 248,000 forensic case DNA profiles. To date, more than 80,000 criminal investigations have been aided in the US by matching DNA profiles generated from crime scene evidence against the CODIS database. In the UK, the NDNAD currently stores more than 4.7 million DNA profiles, and through the use of this database more than 364,000 suspect to crime scene matches have been made since the database's inception in 1995. We anticipate volume growth in CODIS and a relatively stable market for NDNAD work based on legislation in both the US and the UK. In the US, there have been a number of contracts awarded by states to address the backlog of cases with no known suspect for screening against the CODIS database. At this time, 44 states have passed felon DNA testing legislation and 13 states have passed arrestee DNA testing legislation. DNA testing is also starting to be used in the US for non-violent crimes like burglary and auto theft. The UK has had considerable success using DNA evidence to solve property crimes.

Our forensic testing services are performed in our accredited facilities located in Nashville, Tennessee, Dallas, Texas, and in Abingdon, UK. During the year ended December 31, 2008, we completed the process of integrating the testing services performed in our former New Orleans facility acquired from ReliaGene Technologies, Inc., or ReliaGene, into our other US facilities. The lease for the New Orleans facility expired as of January 31, 2009. We anticipate that our current facilities should serve our near term capacity needs for forensic testing services. We have selectively focused certain services in specific facilities, where appropriate, to maximize economies of scale, and at the same time have implemented activities to decrease costs and increase capacity as appropriate.

Our forensic testing facilities in the US are accredited by the American Society of Crime Lab Directors/ Laboratory Accreditation Board, or ASCLD/LAB, and the National Forensic Science Testing Center, or NFSTC. All of our forensic testing facilities also maintain ISO 17025 Forensic Quality Services, or FQS-I, accreditation and our UK forensic testing laboratory also maintains ISO 9001:2000 accreditation.

The value of DNA testing in solving crimes is increasingly being recognized and we anticipate that federal and state governments in the US will allocate greater resources to support wider use of DNA testing. This is evidenced by the US legislation known as "The Justice for All Act of 2004," encompassed in the US DNA Testing Initiative, in which the federal government indicated its intent to allocate more than $1 billion over fiscal years 2005 to 2009 towards reducing the backlog of forensic testing that currently exists in the US criminal justice system. Additional federal legislation in the US was passed that allows for a significant expansion of forensic DNA testing of arrestees and includes provisions for DNA testing of illegal immigrants. Through a process directed by the National Institute of Justice, or NIJ, states may apply for federal funds to assist in testing the enormous backlog of untested cases with no known suspect. Portions of the funds awarded to the states are designated for outsourcing to private sector laboratories. Contracts are awarded through the NIJ or by the states receiving the federal funds under competitive procurement. Such contracts are awarded based on a matrix of criteria including price, experience, capacity and quality, and are usually for a term of one to three years with options to extend under certain circumstances. Virtually all contracts require ASCLD/LAB, ISO 17025 FQS-I or NFSTC accreditation. We provide a full range of forensic DNA testing services to UK police forces, from the routine analysis of DNA samples for submission to the NDNAD to the analysis of evidence for the most serious crimes. This testing is provided through our UK facility. UK government funding for DNA analysis increased significantly in past years through its DNA Expansion Plan and we believe that the UK government and police forces will continue to support the use of DNA testing in forensic cases.

Prior to April 30, 2008, a significant portion of our UK revenues were derived through our agreement with Forensic Alliance Ltd., or FAL, who was acquired by LGC Ltd., or LGC, in 2005. LGC is a provider of analytical and diagnostic services and one of our competitors in providing DNA testing services in the UK. Our prior agreement with LGC was terminated effective July 15, 2007 and we then entered into a series of temporary extension agreements with LGC. LGC is now providing DNA testing services directly to several police forces in the UK that were previously serviced by us on a subcontract basis. We continue to provide some DNA testing services to police forces through LGC on a limited basis. We also continue to focus on providing our services directly to UK police forces. In 2007, we were successful in winning forensic work with different UK police forces and, in February 2008, we were awarded, overall, a significant portion of the service packages we bid on in the North West/South West and Wales regional tender. We were awarded work from nine of the fourteen police forces that participated in this tender. Under the terms of the award, we are providing forensic services, including DNA testing of database crime scene samples, forensic casework and database testing services under the UK Police and Criminal Evidence Act, or PACE, for multiple police forces that collectively tendered their work. This award followed a rigorous and competitive bidding process. We believe that the actions we have taken to date have placed us in a position to successfully transition from our prior reliance on revenues derived from LGC to directly providing these services to police forces in the UK. In addition, we expect approximately 29 police forces in the UK to tender their work through the UK's National Procurement Plan, a formalized bidding process implemented in 2008. We submitted our first tender under the National Procurement Plan in the first quarter of 2009, with tendering expected to continue through a 24-month period.

Each of our forensic DNA testing facilities has broad capabilities in handling the complex evidence samples related to casework. Further, we have developed, and continue to develop, processes and procedures designed to allow us to handle larger testing volumes to the extent required under specific contracts, or in response to the expanding government initiatives to reduce the backlog of no-suspect cases. We have continued to expand our service offerings in forensic testing with new technology or novel approaches for special cases, new services to help solve non-violent crimes and our DNA Express Service, which provides accelerated testing services at a premium price in the US market. Specialty testing services include Y chromosome STR analysis, which is important in sexual assault analysis, as well as mitochondrial DNA testing and SNP based testing, both of which are beneficial in analyzing very small or extremely degraded DNA samples.

Family Relationship DNA Testing Services

Family relationship DNA testing is used to establish that two or more people are genetically related, and is most often used to determine a biological father of a particular child in a paternity case. It can also be used to

confirm a genetic relationship for purposes of immigration, adoption, estate settlement, genealogy, ancestry and storing genetic profiles. We offer paternity DNA testing services to both governmental agencies and private customers. Laboratory testing is done in our accredited laboratories located in East Lansing, Michigan, Dayton, Ohio and Abingdon, UK. As stated above, we completed the process of integrating the testing services performed in our former New Orleans facility acquired from ReliaGene into our other facilities and have completely exited that facility as of January 31, 2009.

Government paternity testing

The government paternity testing market in the US and UK, which comprises the majority of our paternity testing services, involves tests ordered by state or county governmental agencies commonly referred to as Child Support Enforcement Agencies, or CSEAs. In the US, CSEAs are required by law to identify the biological father of a child if the child is born out of wedlock, or in the case of divorce, if a presumptive father files a successful motion to have biological paternity questioned. In the US, effective October 1, 2006, the federal government decreased its reimbursement percentage of the costs of paternity testing incurred by CSEAs from 90% to 66%, which has caused us to experience severe pricing pressure in our government funded paternity services. The federal government reimburses the CSEAs, provided they abide by certain federal regulations. These regulations, which have aided the expansion of the market, provide incentives to the CSEAs to increase effectiveness and efficiency in their paternity establishment measures. We provide services to our government paternity clients under contracts which typically have a term of one to three years and are awarded in a competitive bidding process. The contract bidding process is highly competitive and the criteria used to determine the awards vary. Typically, specifications are issued in the form of a RFP or ITB and vendors respond with a sealed bid by a specified date. In some cases, contracts are awarded solely on the basis of price, while in other cases, a scoring matrix to achieve the desired mix of price, quality and service is used. In the UK, there is only one child support agency, administered in 2008 by the Department for Work and Pensions, responsible for helping to identify the biological father of a child. We were selected in a competitive bidding process as the exclusive provider of such paternity testing services to this agency in 2005 and this contract was extended for a further 12 months in August 2008.

Private paternity testing

Private paternity testing is relationship DNA testing marketed and provided to private individuals. Our private paternity DNA testing services are provided in the US and UK to members of the public and legal and healthcare professionals. In addition to offering services directly to individuals, we have relationships with firms and individuals acting as our marketing agents in the US. We typically supply products and materials to these marketing agents and in return, the agent agrees to exclusively utilize our services for their customers seeking private paternity testing.

Immigration and other DNA testing

We also provide testing services to private individuals wishing to immigrate to the US, Canada and the UK, as well as to certain foreign government immigration agencies. This testing is done to verify claimed family relationships for visa applications. We provide this testing under contract or from an approved vendor list.

Our other DNA testing services include testing which is designed to help ensure that workers on high-risk assignments could be accurately identified in the event of an emergency or accident, to confirm Native American genetic lineage for tribal enrollment and DNA profiling to allow individuals to preserve their genetic history.

Agricultural DNA Testing Services

Scrapie Genotyping

Through our facility in the UK, we conducted genotyping services under the UK government's project to help British farmers breed sheep with reduced susceptibility to the animal disease scrapie. The project has been

part of the National Scrapie Plan, or NSP, for the UK developed by the Department for Environment, Food and Rural Affairs, or DEFRA, in conjunction with the Agriculture and Rural Affairs Departments in Scotland and Wales. Scrapie, one of the transmissible spongiform encephalopathies, is an untreatable, fatal disease, similar to mad-cow disease, that affects sheep worldwide. Our genotyping service identifies sheep with SNPs associated with a genetic resistance to scrapie. DEFRA has provided the testing free of charge to sheep farmers as part of the NSP in order to help farmers breed sheep that are less susceptible to this disease. At the end of 2008, the NSP was concluded after over 3 million sheep had been tested under the scheme and a significant improvement in the resistance to scrapie had been established in the UK flock. Our agreement with DEFRA expires in March 2009. DEFRA will continue to have a requirement for scrapie genotyping for monitoring purposes but at a much reduced volume and it is uncertain that we will be awarded the contract for such testing. Therefore we expect our future agricultural testing services revenues will not be significant to our operating results.

Intellectual Property

We currently own, or have exclusive licenses to, 57 US issued patents and 67 foreign issued patents, and have received a notice of allowance for two additional patent applications. Additionally, we have 54 pending patent applications, of which 12 are US applications and 42 are foreign patent applications. Of our existing patent portfolio, both issued and pending, approximately one-half primarily relates to microfluidic technology. The microfluidic technology patents do not relate to our business of DNA testing services. The remainder of our patent portfolio includes methods to identify and utilize SNPs. We have sought and intend to continue to seek patent protection for novel uses of SNPs in the genetic testing field. In cases where novel uses of SNPs have already been patented by a third party, we may need to obtain a license for the use of this technology to make use of or sell services or products using such technology. As of December 31, 2008, the majority of patents that we own or exclusively license have approximately six years remaining before they expire.

Our patent strategy is to protect existing intellectual property relevant to our focused business of DNA testing services. We rely on both patent and trade secret protection of our intellectual property. However, we cannot be certain that patents will be issued from any of our patent applications or that any issued patents will have sufficient breadth to offer meaningful protection. In addition, issued patents owned by us or patents licensed to us may be successfully challenged, invalidated, circumvented or determined to be unenforceable so that our patent rights would not create an effective competitive barrier. The laws of some foreign countries may not protect our proprietary rights to the same extent as US laws. Our strategy will continue to concentrate on protection of our intellectual property as it relates to our DNA testing services. Our existing patent portfolio continues to reflect our international scope and includes pursuing patent protection mainly in North America and Europe.

We continue to maintain a number of out-license agreements that rely on technology we own claimed under US patent numbers 5,888,819, 6,013,431 and 6,004,744. We also provide agricultural testing services that rely on the technology claimed in the aforementioned patents, as well as technology we exclusively license claimed under patent number 5,846,710. We license these patents under exclusive agreements with Saint Louis University.

On June 5, 2008, we and Beckman Coulter, Inc., or Beckman, filed suit against Sequenom, Inc., or Sequenom, in the United States District Court for the Southern District of California alleging infringement of U.S. patent numbers 5,888,819, 6,004,744 and 6,537,748. This lawsuit seeks damages and injunctive relief. Sequenom filed an answer and counterclaims on August 15, 2008. A reply to the counterclaims was filed on August 29, 2008. This suit is in the process of fact discovery.

We further attempt to protect our trade secrets by entering into confidentiality agreements with third parties, employees and consultants. Our employees and certain of our consultants also sign agreements requiring that they assign to us their interests in discoveries, inventions, patents and copyrights arising from their work for us, maintain the confidentiality of our intellectual property and refrain from unfair competition with us during their

employment and, in some cases, for a period of time after their employment with us, which includes solicitation of our employees and customers. We cannot assure you that these agreements will not be breached or invalidated. In addition, we cannot assure you that third parties will not independently discover or invent competing technologies or reverse engineer our trade secrets or other technologies.

We have 37 trademarks for which we have received registrations or notices of allowance in the US and elsewhere. We also have one trademark application pending. Some of the key trademarks for which we have either received registrations or notices of allowance include the Orchid logo, Orchid Cellmark, 1-800-DNA-TEST and Ready-to-Know.

This Annual Report on Form 10-K contains references to some of our trademarked products and services, for which we have filed registration applications with the US Patent and Trademark Office. All other trademarks or trade names referred to in this Annual Report on Form 10-K are the property of their respective owners.

Government Regulation

In the US, the paternity and forensic testing industries are not regulated by any governmental agency. Rather, each industry establishes and maintains standards and quality through voluntary third-party accreditation. The most widely recognized body covering paternity testing is the American Association of Blood Banks, or AABB. For forensic testing, the principal US entities that afford accreditation are ASCLD/LAB and NFSTC. All of our US facilities are accredited by the appropriate agency relative to the type of testing performed at that facility. Many of our contracts require us to maintain some or all of these accreditations.

In the UK, the NDNAD requires us, as a provider of forensic testing in the UK, to comply with the ISO 17025 standards described above.

In the US and UK, we are also subject to numerous environmental and safety laws and regulations, including those governing the use and disposal of hazardous materials. The cost of any possible violation of these regulations could have an adverse effect on our business and results of operations.

Employees

As of December 31, 2008, we had 427 employees. None of our employees are represented by a collective bargaining agreement, nor have we experienced any work stoppages. We believe that we maintain good relationships with our employees. Our success will depend in part on our ability to attract and retain skilled and experienced employees, including our ability to recruit an adequate number of trained DNA analysts.

Competition

In each of our markets, we compete with other companies offering services that are similar to those that we offer. In addition, in the US, government laboratories also provide forensic DNA testing services for their jurisdictions, which is a significant share of the testing done. Some of our competitors have greater financial, operational, sales and marketing resources and more experience in research and development and commercialization than we have. Moreover, some competitors may have greater name recognition than we do, and may offer discounts on their services or products as a competitive tactic.

In the field of forensic DNA testing, our competitors include the following entities: Global Options Group, Sorenson Genomics, and Laboratory Corporation of America in the US, along with Forensic Science Service, LGC and Key Forensics in the UK. Our competitors in the field of family relationship testing include the following entities: Laboratory Corporation of America, DNA Diagnostics, Sorenson Genomics, and Paternity Testing Corporation in the US, along with Crucial Genetics, Anglia DNA, LGC, Forensic Science Service, DadCheck, DNA Bioscience, The Paternity Company, DNA Now and DNA Diagnostics in the UK.

Item 1A. RISK FACTORS

If any of the matters included in the following risks were to occur, our business, financial condition, results of operations, cash flows or prospects could be materially adversely affected. In such case, the value of our common stock could decline and you could lose all or part of your investment.

Risks Related to Our Business

If we fail to maintain the service contracts we have with various governmental agencies or fail to enter into additional contracts, we would lose a significant source of revenues.

We currently derive almost all of our revenues from the forensic, family relationship and agricultural testing fields. These services are heavily dependent upon contracts with various governmental agencies, which are typically open to bid and usually have a term from one to three years. The process and criteria for these awards are typically complex and highly competitive, particularly with respect to the price of the services offered. Bid awards also are subject to protests which can be expensive to prosecute or defend and which may delay the awarding of a contract. Although we have not previously been debarred or disqualified for breach or non-performance of any contract, if such debarment or disqualification were to occur, we may not be awarded future government contracts. For example, we expect approximately 29 police forces in the UK to tender their work through the UK's National Procurement Plan over the next two years. If we are unable to successfully bid on a significant portion of this work, our UK revenues and results of operations could be adversely affected. We may not be able to maintain any of our existing governmental contracts or be the successful bidder on any additional governmental contracts which may become available in the future, or we may not be able to negotiate terms acceptable to us in connection with any governmental contract awarded to us, which could adversely affect our results of operations and financial condition.

The market in which we participate is intensely competitive and price sensitive, and if we do not compete effectively, our operating results may be harmed.

The market for DNA testing services is intensely competitive and we expect competition to intensify in the future. Pricing pressures and increased competition generally could result in reduced sales, reduced margins or the failure of our services to increase market share. In each of our markets, we compete with other companies offering services that are similar to those that we offer. In addition, in the US, government laboratories also provide forensic DNA testing services for their jurisdictions, which is a significant portion of all forensic DNA testing done in the US. Some of our competitors have greater financial, operational, sales and marketing resources and more experience in research and development and commercialization than we have. Moreover, some competitors may have greater name recognition than we do, and may offer discounts on their services or products as a competitive tactic.

Many of our customers, or the contracts on which we bid, are price sensitive, and a critical aspect of our business is determining the appropriate prices for our services. As the market for our services matures, or as new competitors compete with our services, we may be unable to renew our agreements with existing customers, attract new customers at the same price or based on the same pricing model as previously used, or win competitive bids with governmental agencies. As a result, it is possible that competitive dynamics in our market may require us to change our pricing model or reduce our prices, which could harm our revenue, gross margin and operating results. In addition, our ability to obtain awards under the UK's National Procurement Plan will directly impact our UK revenues over the next few years, and if our bidding under this plan is unsuccessful, our business and financial condition could be adversely impacted.

We cannot guarantee the receipt of work from our government contracts.

We regularly compete in an open bid forum in order to secure or renew contracts with various law enforcement and governmental agencies for the provision of DNA-based testing services. A contract award may

be subject to funding obligations by the applicable government and there can be no assurances that such funding will be renewed. Many contracts with governmental agencies allow for the agency to terminate a contract at any time if funding is not available to pay for our services. There also may be operational factors that disrupt the flow of work to us. For example, a previous shipment of samples from a state lab under a CODIS contract was delayed because the state did not have adequate personnel to prepare the samples for shipment to our test facility. Thus, we are not always able to rely on a fixed amount of revenue based on services provided under the contract. These administrative and operational issues beyond our control may delay the receipt of work under an award, which may have an adverse effect on our results of operations during a given fiscal period.

If general economic trends degrade, trends in government spending and, therefore, demand for DNA testing services may change and reduce demand for our services, which would have a materially negative impact on our business.

A majority of our revenue is derived from contracts with various law enforcement and governmental agencies for the provision of DNA-based testing services. A contract award may be subject to funding obligations by the applicable government and there can be no assurances that such funding will be renewed. Many contracts with governmental agencies allow for the agency to terminate a contract at any time if funding is not available to pay for our services. Many national, state and local government entities are currently experiencing severe financial distress due to global economic conditions. Current economic conditions may adversely affect the ability of our government customers to fund their operating budgets. As a result our government customers may reduce budgets, which could have a negative effect on our revenue, gross margin and operating results. Any adverse impact of economic conditions on us is difficult to predict but it may result in reductions in demand for our DNA testing services. If events negatively impact the economy, our results of operations may be adversely affected.

Recent turmoil across various sectors of the financial markets may negatively impact our business, financial condition and/or operating results.

Recently, the various sectors of the credit markets and the financial services industry have been experiencing a period of unprecedented turmoil and upheaval characterized by the disruption in credit markets and availability of credit and other financing, the failure, bankruptcy, collapse or sale of various financial institutions and an unprecedented level of intervention from the United States federal government. While the ultimate outcome of these events cannot be predicted, they may have a material adverse effect on our ability to obtain financing necessary to effectively execute our long-term strategies, and this could have a material adverse effect on the market price of our common stock and our business, financial condition and results of operations.

We cannot guarantee that we will be awarded a significant portion of the service packages under the UK's National Procurement Plan.

We expect approximately 29 police forces in the UK to tender their work through the UK's National Procurement Plan, a formalized bidding process implemented in 2008. We submitted our first tender under the National Procurement Plan in the first quarter of 2009, with tendering expected to continue through a 24-month period. Although we were awarded, overall, a significant portion of the service packages we bid on in the North West/South West and Wales regional tender, we cannot guarantee that we will win a significant portion of the service packages under the National Procurement Plan. If we are unsuccessful in securing a sufficient number of service packages under the National Procurement Plan, our business would be materially adversely affected.

The change in the method of awarding CODIS contracts has adversely affected our CODIS business.

Prior to 2008, the NIJ administered all federally-funded CODIS awards to the participating states, including the selection of the DNA testing vendor. Starting in 2008, however, the states were given the option to apply for grants from the NIJ and administer the awards directly. Each state would then select the vendor, or vendors, to

process the DNA samples, rather than the NIJ making that selection. As a result of this new award option, the number of states issuing CODIS bids in 2008 decreased significantly. We believe that states are building up their backlogs of DNA samples and that such states will eventually move to administer the awards in order to bring down the backlog. We also believe that excess CODIS capacity has been built-up in the private sector and this may affect pricing in the future. If states do not put this CODIS work out to competitive bidding in a timely manner or if we are unsuccessful in securing a sufficient number of CODIS awards at acceptable prices in the future, our business would be materially adversely affected.

We currently rely primarily on a single supplier for the majority of reagents and other components for the performance of our DNA testing services.

We are currently negotiating a multi-year purchase agreement with one supplier through which we purchase the majority of reagents and other components for use in our DNA testing services. In the event that we are unable to obtain supplies from this supplier, we do have the ability to purchase reagents and components from other suppliers. However, if we had to switch to a different supplier or multiple suppliers, we would be required to obtain the approval of certain of our customers and we may be required to also change the instruments on which we perform DNA testing services, which could require significant capital investment. In addition, we receive and expect to continue to receive substantial discounts based upon reaching a specific threshold of purchases per year of reagents and other components from our current supplier. If we fail to reach the required threshold of purchases in any one year, our future discounts on purchases of reagents and other components from our current supplier would decrease, which could have an adverse effect on our financial results.

Our future sales and marketing efforts may not be successful in achieving revenue growth.

We plan to continue to market our services to governmental agencies, commercial companies and private individuals. Our ability to successfully obtain new business, and where appropriate, enter into and maintain agreements with our customers, depends in part on the quality and pricing of our services. If we are unable to successfully implement our marketing plans, fail to maintain or enhance the quality of our services, or fail to offer attractive pricing for our services, our results of operations and financial condition could be adversely affected.

We have limited sales and marketing resources, and as a result, we may not achieve our expected levels of revenue.

We currently have limited sales and marketing resources and we are subject to the possibility that our competitors may recruit our employees. As of December 31, 2008, only one of our key sales and marketing employees had an employment contract with us. We also do not maintain key man life insurance policies for any of our key sales and marketing employees. Our sales and marketing resources are used to market our services to governmental agencies, commercial companies and private individuals. If our limited sales and marketing resources become inadequate, our expected levels of revenue and financial condition could be adversely affected.

Work awarded to us in the UK may be subject to unanticipated TUPE expenses.

DNA testing work awarded to us in the UK may be subject to the hiring or compensatory obligations under the UK's Transfer of Undertakings (Protection of Employment), or TUPE, regulations. TUPE is the UK employment legislation that governs the transfer of employment obligations from one party to another. If we are unable to properly anticipate the amount of TUPE-related expenses, we may not realize the benefits of a DNA testing contract awarded us. If we are obligated to pay a significant amount of TUPE-related expenses in connection with any award, our financial results could be adversely affected.

Future acquisitions or mergers could disrupt our ongoing operations, increase our expenses and adversely affect our revenues.

Although we have no commitments or agreements with respect to any acquisitions or mergers at present, we anticipate that a portion of our future growth may be accomplished either by acquiring or merging with existing businesses. Factors that will affect the success of any potential acquisition or merger to be made by us include our ability to integrate acquired personnel, operations, products and technologies into our organization effectively, to motivate personnel and to retain customers of acquired or merged businesses. We may not be able to identify suitable acquisition or merger opportunities, obtain necessary financing for an acquisition on acceptable terms or successfully integrate acquired personnel and operations. While we have not experienced material disruption to our ongoing business or distraction to our management and employees as a result of past acquisitions, we may experience such disruptions or distractions in the future.

Our failure to comply with applicable government and industry regulations or to maintain accreditations may affect our ability to develop, produce or market our potential services and may adversely affect our results of operations.

All of our laboratories maintain required industry accreditations for paternity and forensic testing both in the US and the UK, and voluntary accreditation by the New York State Department of Health and by the Standards Council of Canada. In addition, our UK laboratory must maintain ISO 17025 accreditation in order to continue to provide forensic testing services. We cannot assure you that we will be able to maintain our accreditations. The loss of our accreditations could adversely affect our existing contracts which, in many cases, require that we maintain these accreditations, and could adversely affect our ability to enter into new contracts. As a result, our revenues could be eliminated or significantly reduced.

Our development and testing activities also involve the controlled use of hazardous materials. We are subject to laws and regulations governing the use, storage, handling and disposal of such materials and certain waste products, as well as the conveyance, processing and storage of biological specimens. If we were in violation of any laws or regulations pertaining to the handling or use of hazardous materials, the remediation costs could be significant and could have an adverse effect on our operations and financial condition.

International sales are subject to increased costs and other risks, which could affect our revenues.

Our business includes international sales which are subject to certain inherent risks, including difficulties in collecting accounts receivable, potentially longer payment cycles, increased costs associated with maintaining international marketing efforts, currency fluctuations as they impact reported results, changes in regulatory requirements and difficulties in enforcement of contractual obligations and intellectual property rights. During 2008, we derived nearly 46% of our revenues from international sales. The significant percentage of our revenue derived from our UK operations makes us vulnerable to future fluctuations in the exchange rate. For the year ended December 31, 2008, as compared to 2007, our UK revenues were unfavorably impacted approximately 8%, as a result of the exchange rate movement of the British pound as compared to the US dollar and future material adverse exchange rate movements would have an additional unfavorable translation impact on our consolidated financial results.

We had an accumulated deficit of $324 million as of December 31, 2008. If we fail to reach profitability and need to raise additional capital to fund our current and future operating plans or obtain such capital on unfavorable terms, then we may have to take further cost-cutting measures.

We have expended significant resources developing our facilities and funding commercialization activities. As a result, we have incurred significant losses to date. We had net losses of $4.5 million, $3.0 million and $11.3 million for the years ended December 31, 2008, 2007 and 2006, respectively. We anticipate that our existing cash on hand will be sufficient to fund our operations at least through the next twelve months. If we fail to reach cash

flow self sufficiency, we may need to raise additional funds through the sale of equity, convertible debt or equity-linked securities and/or we may have to further review our existing operations to determine new cost cutting measures, such as further consolidation of operational facilities and/or reductions in staff. We may not be able to raise additional funds or raise funds on terms that are acceptable to us. If future financing is not available to us, or is not available on terms acceptable to us, we may not be able to fund our future operating needs. If we raise funds through equity or convertible securities, our stockholders may experience dilution and our stock price may decline.

We may be held liable for any inaccuracies associated with our services, which may require us to defend ourselves in costly litigation.

We provide forensic, family relationship and agricultural testing services. Claims may be brought against us for incorrect identification of family relationships or other inaccuracies. Litigation of these claims in most cases is covered by our existing insurance policies. However, we could expend significant funds during any litigation proceeding brought against us and litigation can be a distraction to management. If a court were to require us to pay damages that are not covered by our existing insurance policies, the amount of such damages could significantly harm our financial condition, and even if covered, damages could exceed our insurance policy coverage limits. We currently maintain professional liability insurance with a maximum coverage limitation of $10 million. We have been named a defendant in a number of minor suits relating to our DNA testing services, including claims of incorrect results. None of the outcomes of these suits have had a material adverse effect on our business to date.

Our improvement of existing technologies and our ability to capture and develop future technologies to be utilized in our service offerings may not be commercially successful, which could adversely affect our revenues.

We are currently developing and commercializing a limited number of services based on our technologies in DNA testing of humans and for agricultural purposes. These services involve uses of products, software and technologies that require validation for commercial application, and we cannot assure you that we or our customers will be able to recognize a cost-effective, commercial benefit in using our technology. In addition, any assays we develop utilizing SNP analysis technology may not be useful in assisting in food safety testing. Only a limited number of companies have developed or commercialized services based on SNP technology to date. Accordingly, even if we or our customers are successful in developing effective assays utilizing SNP technology for food safety testing, we cannot assure you that these discoveries will lead to commercially successful service offerings. If we fail to successfully develop our SNP technologies or any services based on such technologies, we may not achieve a competitive position in the market.

We may be unable to hire an adequate number of DNA analysts or successfully apply new technology.

Our growth and future operating results will depend, in part, upon our ability to recruit an adequate number of trained DNA analysts. Our growth and future operating results will also depend, in part, upon our ability to apply new technologies to automate and improve our DNA testing services to take advantage of new technologies. There can be no assurance that our development efforts will result in any additional commercially viable or successful improvements or efficiencies to our testing processes. Any potential improvements to the testing process may require substantial additional investment and possibly regulatory approvals, prior to implementation. Our inability to recruit trained DNA analysts, to develop improvements to our testing processes, to increase efficiencies, or to achieve market acceptance of such improvements could have a material adverse effect on our business, financial condition and results of operations.

Our ability to provide services may be seriously impaired by the occurrence of a natural disaster affecting any one or more of our laboratories.

Should we experience the occurrence of a natural disaster affecting one or more of our laboratories such that we would be unable to continue to provide services out of a particular facility for an extended period of time, and we were not able to scale up operations at our other facilities in order to continue to provide such services, we would be at risk of losing significant contractual revenue from governmental agencies. Many of our governmental agency contracts allow for the agency to terminate the contract early if we became unable to continue to render such services for an extended period of time, usually 90 days or more, for any reason, including the occurrence of a natural disaster. While we have multiple facilities, and may be able to shift operations from one facility to another in the event of a natural disaster, thereby mitigating the effects thereof, we cannot assure you that any such transition will take place.

Although we carry insurance for recovery in the instance of a natural disaster, the limits of this insurance are $24 million, and it is possible that our coverage will not be the same in all locations or that a loss in such an instance could exceed our ability to recover such costs.

Our success will depend partly on our ability to operate without misappropriating the intellectual property rights of others.

We may be sued for infringing, or may initiate litigation to determine that we are not infringing, on the intellectual property rights of others. Intellectual property litigation is costly, and could adversely affect our results of operations. If we do not prevail in any intellectual property litigation, we might have to pay damages, and we could be required to stop the infringing activity, or be required to obtain a license to or design around the intellectual property in question. If we are unable to obtain a required license on acceptable terms, or are unable to practice non-infringing technologies or processes, we may be unable to sell some of our services, which would result in reduced revenues. We are named a defendant in a patent litigation matter. However, we believe we had the right to practice such technology by virtue of a third-party agreement, and we are actively engaged in defending this litigation. Other than the foregoing, we are not aware of any assertions that we are misappropriating the intellectual property rights of others.

If we cannot enter into new development or licensing agreements, we may be unable to further enhance our service offerings.

Our strategy for developing and commercializing technologies and services based on our discoveries depends upon our ability to enter into development and licensing arrangements. Our ability to enter into advantageous licensing or development agreements will depend in part upon whether or not companies that have technology complimentary to ours are willing or able to enter into an agreement with us, and on our ability to allocate financial resources to such investment. We also may have to rely on our collaborators and licensees or licensors for marketing or distribution of our services. If we are unable to enter into such development and licensing arrangements or implement our strategy to develop and commercialize additional services, it would have a material adverse effect on our results of operation and financial condition. If we enter into collaborations or licensing arrangements, we may be forced to relinquish rights to certain of our technologies, or grant licenses to third parties on terms that are unfavorable to us.

If our patent applications do not result in issued patents, our competitors may obtain rights to commercialize our discoveries, which would harm our competitive position.

Our success will depend, in part, on our ability to obtain patent protection on our proprietary technologies and services and to enforce such protection. We may not be able to obtain new patents for these technologies and services. We also may not have the resources to aggressively protect and enforce existing patent protection. We may need to obtain a license from certain third parties with respect to any patent covering technologies or methodologies which we wish to incorporate into our service offerings, but we may not be able to acquire such licenses on terms acceptable to us, if at all.

The scope of our issued patents may not provide us with adequate protection of our intellectual property, which would harm our competitive position.

Any issued patents that cover our proprietary technologies may not provide us with substantial protection or be commercially beneficial to us. The issuance of a patent may be challenged with respect to its validity or its enforceability. The US Patent and Trademark Office (or a court of appropriate jurisdiction), or any one of a number of foreign patent offices where we have pursued patent protection, may invalidate one or more of our patents. In addition, third parties may have patents of their own which could, if asserted, prevent us from practicing our proprietary technologies, including the methods we use to conduct DNA testing. If we are otherwise unable to practice our patented technologies, we may not be able to commercialize our technologies or services. We currently believe that there may be at least one company actively infringing our proprietary single base primer extension technology. However, we have not completed an analysis of this third party's practices or of the practices of any other third parties and cannot form a conclusion at this time as to infringement.

We may need to initiate lawsuits to protect or enforce our patents and other intellectual property rights, which could result in the forfeiture of these rights.

In order to protect or enforce our patent rights, we may need to initiate patent litigation against third parties. These lawsuits could be expensive, take significant time and divert management's attention from other business concerns. These lawsuits could result in the invalidation or a limitation in the scope of our patents or forfeiture of the rights associated with our patents. We cannot assure you that we will prevail in any future litigation or that a court will not find damages or award other remedies in favor of the opposing party in any of these suits. During the course of these suits, there may be public announcements of the results of hearings, motions and other interim proceedings or developments in the litigation. Securities analysts or investors may perceive these announcements to be negative, which could cause the market price of our stock to decline.

Other rights and measures that we rely upon to protect our intellectual property may not be adequate to protect our services and could reduce our ability to compete in the market.

In addition to patents, we rely on a combination of trade secrets, copyright and trademark laws, non-disclosure agreements and other contractual provisions and technical measures to protect our intellectual property rights. While we require employees, collaborators, consultants and other third parties to enter into confidentiality and/or non-disclosure agreements where appropriate, any of the following could still occur:

- the agreements may be breached;
- we may have inadequate remedies for any breach;
- proprietary information could be disclosed to our competitors; or
- others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose such technologies.

To our knowledge, we have never been materially harmed by a breach under any of the circumstances listed above. However, if our intellectual property is disclosed or misappropriated, it would harm both our ability to protect our rights and our competitive position. The pursuit of a remedy for such an alleged breach may require a substantial amount of our resources, time, effort and expenses.

Our ability to utilize our net operating loss carryforwards may be limited.

As of December 31, 2008, our net operating loss, or NOL, carryforwards were $249.3 million and $122.7 million for federal and state income tax purposes, respectively. Some of the federal and state NOL carryforwards we have generated or acquired have begun to expire. Utilization of our NOL carryforwards to offset future taxable income, if any, may be substantially limited due to "change of ownership" provisions in the Tax Reform Act of 1986, or the Act. The Act provides for a limitation on the annual use of NOL carryforwards and research

and development credits following certain ownership changes, as defined by the Act, which could significantly limit our ability to utilize or sell these carryforwards and research and development credits. We have determined that an ownership change, as defined by the Act, occurred in 1999 and as a result $41.4 million of our NOL carryforwards are limited. We may have experienced other ownership changes, as defined by the Act, as a result of past financings and may experience others in connection with future financings. Accordingly, our ability to utilize the aforementioned federal NOL carryforwards may be further limited in the future.

Risks Associated with Our Common Stock

Future issuance of our securities may dilute the rights of our stockholders.

Our Board of Directors has the authority to issue shares of preferred stock and to determine the price, preferences, privileges and other terms of those shares. Our Board of Directors may exercise this authority without any further approval of our stockholders. Additionally, if we need to raise additional funds through the sale of equity, convertible debt or equity-linked securities, your percentage ownership in us on a diluted basis will be reduced. These transactions may dilute the value of our outstanding common stock. We may also issue securities that have rights, preferences and privileges senior to our common stock.

We have various mechanisms in place that stockholders may not consider favorable, which may discourage takeover attempts and may prevent or frustrate attempts by stockholders to change our direction or management.

Certain provisions of our certificate of incorporation and by-laws, as well as Section 203 of the Delaware General Corporation Law and our adoption of a stockholder rights plan, may discourage, delay or prevent a change in control or the ability of stockholders to change our direction or management, even if the changes would be beneficial to stockholders. These provisions include:

- authorizing the issuance of "blank check" preferred stock that could be designated and issued by our Board of Directors to increase the number of outstanding shares and thwart a takeover attempt;
- creating a classified board of directors with staggered, three-year terms, which may lengthen the time required to gain control of our Board of Directors;
- prohibiting cumulative voting in the election of directors, which will allow a majority of stockholders to control the election of all directors;
- requiring super-majority voting to effect certain amendments to our certificate of incorporation and by-laws;
- limiting who may call special meetings of stockholders;
- prohibiting stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of stockholders; and
- establishing advance notice requirements for nominations of candidates for election to our Board of Directors or for proposing matters that can be acted upon by stockholders at stockholder meetings.

In addition, pursuant to our stockholder rights plan, each share of our common stock has an associated preferred share purchase right. The rights will not trade separately from the common stock until, and are exercisable only upon, the acquisition or the potential acquisition through tender offer by a person or group of 15% or more of our outstanding common stock.

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

The market prices for securities of companies quoted on The NASDAQ Stock Market, or NASDAQ, including our market price, have in the past been, and are likely to continue in the future to be, very volatile. Between January 1, 2007 and December 31, 2008, the closing price of our common stock ranged from a low of $0.55 to a high of $7.03. The market price of our common stock has been, and likely will continue to be, subject to substantial volatility depending upon many factors, many of which are beyond our control, including:

- announcements regarding the results of development efforts by us or our competitors;
- announcements regarding the acquisition of technologies or companies by us or our competitors;
- changes in our existing development or licensing arrangements or formation of new development or licensing arrangements;
- the loss of existing business;
- our inability to secure new contractual relationships for our DNA testing services or new volume of testing samples at acceptable prices;
- technological innovations or new service offerings developed by us or our competitors;
- changes in our intellectual property portfolio;
- developments or disputes concerning our proprietary rights;
- issuance of new or changed securities analysts' reports and/or recommendations applicable to us;
- additions or departures of our key personnel;
- our operating losses; and
- continued economic uncertainty with respect to the valuation of certain technology companies and other market conditions.

The liquidity of our common stock could be adversely affected if we are delisted from the NASDAQ Global Market.

We are not in compliance with the $1.00 minimum bid price requirement for continued inclusion on the NASDAQ Global Market pursuant to Marketplace Rule 4450. The closing price of our common stock has been below $1.00 per share since November 20, 2008. The NASDAQ temporarily suspended the enforcement of continued listing rule relating to the minimum bid price on October 16, 2008. The temporary suspension was continued in January 2009 and will remain in effect until April 19, 2009. We can achieve compliance if our common stock closes at $1.00 per share or more for at least 10 consecutive business days within a 180-day grace period.

If the temporary suspension of the minimum bid price is not continued and the closing price of our common stock continues to be under $1.00, we expect that NASDAQ will provide notice some time during the second quarter of 2009 that our common stock will be delisted from the NASDAQ Global Market. In the event of such notification, we would have an opportunity to appeal NASDAQ's determination. If faced with delisting, we may submit an application to transfer the listing of our common stock to the NASDAQ Capital Market. Alternatively, if our common stock is delisted by NASDAQ, our common stock would be eligible to trade on the OTC Bulletin Board, another over-the-counter quotation system, or on the pink sheets where an investor may find it more difficult to dispose of or obtain accurate quotations as to the market value of our common stock. We cannot assure you that our common stock, if delisted from the NASDAQ Global Market, will be listed on a national securities exchange, a national quotation service, the OTC Bulletin Board or the pink sheets.

We have not yet determined what action, if any, we will take in response to a delisting notice from NASDAQ, although we intend to monitor the closing bid price of our common stock subsequent to April 19, 2009, and to consider available options if our common stock does not trade at a level likely to result in our regaining compliance with the NASDAQ minimum closing bid price requirement.

There can be no assurance that we will be able to maintain the listing of our common stock on the NASDAQ Global Market. Delisting from NASDAQ would make trading our common stock more difficult for investors, potentially leading to further declines in our share price. Without a NASDAQ listing, stockholders may have a difficult time getting a quote for the sale or purchase of our stock, the sale or purchase of our stock would likely be made more difficult and the trading volume and liquidity of our stock would likely decline. Delisting from NASDAQ would also result in negative publicity and would also make it more difficult for us to raise additional capital. The absence of such a listing may adversely affect the acceptance of our common stock as currency or the value accorded it by other parties. Further, if we are delisted, we would also incur additional costs under state blue sky laws in connection with any sales of our securities. These requirements could severely limit the market liquidity of our common stock and the ability of our stockholders to sell our common stock in the secondary market.

If we are delisted from the NASDAQ Global Market and we are not able to transfer the listing of our common stock to the NASDAQ Capital Market, our common stock likely will become a "penny stock." In general, regulations of the SEC define a "penny stock" to be an equity security that is not listed on a national securities exchange or the NASDAQ and that has a market price of less than $5.00 per share, subject to certain exceptions. If our common stock becomes a penny stock, additional sales practice requirements would be imposed on broker-dealers that sell such securities to persons other than certain qualified investors. For transactions involving a penny stock, unless exempt, a broker-dealer must make a special suitability determination for the purchaser and receive the purchaser's written consent to the transaction prior to the sale. In addition, the rules on penny stocks require delivery, prior to and after any penny stock transaction, of disclosures required by the SEC.

If our common stock were subject to the rules on penny stocks, the market liquidity for our common stock could be severely and adversely affected. Accordingly, the ability of holders of our common stock to sell their shares in the secondary market may also be adversely affected.

Fluctuations in our operating results may negatively impact our stock price.

Our revenues and results of operations have fluctuated significantly in the past and these fluctuations are likely to continue in the future due to a variety of factors, many of which are outside of our control. These factors include:

- the timing of US federal funding for forensic DNA testing through the NIJ;
- our ability to secure new contractual relationships for forensic, family relationship and agricultural testing or retain existing relationships upon contract expirations;
- the volume and timing of testing samples received in our laboratories for testing services;
- the number of trained DNA analysts which are available to process the samples for testing services;
- the number, timing and significance of new services introduced by our competitors;
- our ability to develop, market and introduce new services on a timely basis;
- our ability to maintain and grow the volume of forensic testing services in the UK through directly providing our services to UK police forces and winning awards under the National Procurement Plan;
- changes in the cost, quality and availability of intellectual property and components required to perform our services; and
- availability of commercial and government funding to researchers who use our services.

Fixed operating costs associated with our technologies and services, as well as personnel costs, marketing and sales programs and overhead costs, account for a substantial portion of our operating expenses. We cannot adjust these expenses quickly in the short term. If our testing volumes and related pricing decline due to market pressure, our revenues will decline and we may not be able to reduce our operating expenses accordingly. Our loss of revenues and failure to reduce operating expenses would harm our operating results. In addition, market and other conditions may require certain non-cash charges such as impairment charges related to long-lived assets and restructuring charges to be recorded by us in future periods. If our operating results in any quarter or quarters fail to meet the expectations of public market analysts or investors, the market price of our common stock is likely to fall.

We cannot assure you that your investment in our common stock will not fluctuate significantly. One or more of these factors could significantly harm our business and cause a decline in the price of our common stock in the public market.

Item 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

Item 2. PROPERTIES

In Princeton, New Jersey, we lease an approximately 11,000 square foot facility, which serves as our corporate headquarters. We lease an approximately 22,000 square foot facility in Dallas, Texas, an approximately 18,000 square foot facility in Nashville, Tennessee, an approximately 17,000 square foot facility in Dayton, Ohio and an approximately 9,000 square foot facility in East Lansing, Michigan. As of January 31, 2009, we closed and ceased operations at our 20,000 square foot DNA testing facility acquired from ReliaGene and located in New Orleans, Louisiana. In addition, we lease a total of approximately 46,000 square feet in two UK locations, Abington, which houses our UK headquarters and laboratories, and Chorley, our satellite facility that we set up to help service the work we were awarded under North West/South West and Wales regional tender. We currently believe our facilities are sufficient to meet our space requirements through at least the next twelve months.

Item 3. LEGAL PROCEEDINGS

On or about November 21, 2001, a complaint was filed in the United States District Court for the Southern District of New York naming us as a defendant, along with certain of our former officers and underwriters. An amended complaint was filed on April 19, 2002. The complaint, as amended, purportedly was filed on behalf of persons purchasing our stock between May 4, 2000 and December 6, 2000, and alleges violations of Sections 11, 12(a)(2) and 15 of the Securities Act of 1933, as amended, and Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder. The amended complaint alleges that, in connection with our May 5, 2000 initial public offering, or IPO, the defendants failed to disclose additional and excessive commissions purportedly solicited by and paid to the underwriter defendants in exchange for allocating shares of our stock to preferred customers and alleged agreements among the underwriter defendants and preferred customers tying the allocation of IPO shares to agreements to make additional aftermarket purchases at pre-determined prices. Plaintiffs claim that the failure to disclose these alleged arrangements made our registration statement on Form S-1 filed with the SEC in May 2000 and the prospectus, a part of the registration statement, materially false and misleading. Plaintiffs seek unspecified damages. We believe that the allegations are without merit and have, and intend to continue to, vigorously defend ourselves against plaintiffs' claims. In this regard, on or about July 15, 2002, we filed a motion to dismiss all of the claims against us and our former officers. On October 9, 2002, the Court dismissed without prejudice only our former officers, Dale R. Pfost and Donald R. Marvin, from the litigation in exchange for us entering into a tolling agreement with plaintiffs' executive committee. On February 19, 2003, we received notice of the Court's decision to dismiss the Section 10(b) claims against us. Plaintiffs and the defendant issuers involved in related IPO securities litigation, including us, have agreed in principal on a settlement that, upon a one-time surety

payment by the defendant issuers' insurers, would release the defendant issuers and the individual officers and directors from claims and any future payments or out-of-pocket costs. On March 10, 2005, the Court issued a memorandum and order (i) preliminarily approving the settlement, contingent on the parties' agreement on modifications of the proposed bar order in the settlement documents, (ii) certifying the parties' proposed settlement classes, (iii) certifying the proposed class representatives for the purposes of the settlement only and (iv) setting a further hearing for the purposes of (a) making a final determination as to the form, substance and program of notice of proposed settlement and (b) scheduling a public fairness hearing in order to determine whether the settlement can be finally approved by the Court. On April 24, 2006, the Court held a fairness hearing and took the motion for final approval under advisement.

In related proceedings against the underwriters, the United States Court of Appeals for the Second Circuit ruled on December 5, 2006 that the District Court's certification of class actions against the underwriters in six "focus" cases was vacated and remanded for further proceedings. In so doing, the Second Circuit ruled that "the cases pending on this appeal may not be certified as class actions." On April 6, 2007, the Second Circuit denied the plaintiffs' petition for rehearing, and no further appeals have been taken.

As a result of the Second Circuit's ruling, the plaintiffs and the issuers stipulated on June 22, 2007 that the Stipulation and Agreement of Settlement with Defendant Issuers and Individuals, which was originally submitted to the Court on June 10, 2004, was terminated, which resolved the motion for final approval of the class action settlement with the issuers and individual defendants. The Court entered the parties' stipulation as an Order on June 25, 2007. As a result of these developments, the plaintiffs have filed amended complaints against the underwriters and "focus case" issuers and individuals and are attempting to certify a class action.

In response to the amended complaints, the underwriters and "focus case" issuers moved to dismiss the amended complaints. On March 26, 2008, the motion to dismiss was granted in part and denied in part. As a result, the Court will proceed with the plaintiffs' amended complaints against the underwriters and "focus case" issuers to determine whether class actions can be certified.

We are a defendant in litigation pending in the Southern District of New York entitled Enzo Biochem, Inc. et al. (Enzo) v. Amersham PLC, et al. (Amersham), filed in October 2002. By their complaint, plaintiffs allege that certain defendants (i) breached their distributorship agreements by selling certain products for commercial development (which they allege was not authorized), (ii) infringed plaintiffs' patents through the sale and use of certain products, and (iii) are liable for unfair competition and tortious interference with contractual relations. We did not have a contractual relationship with plaintiffs, but we are alleged to have purchased the product at issue from one of the other defendants. We have sold the business unit that was allegedly engaged in the unlawful conduct. As a result, there is no relevant injunctive relief to be sought from us. The complaint seeks damages in an undisclosed amount. Most of the fact discovery in the case has been taken, and a Markman hearing to construe the patent claims was conducted in early July 2005. On July 17, 2006, the Court ruled in our favor on its construction of the patents asserted against us, and the co-defendants, including us, moved for summary judgment on all claims against us in January 2007. A hearing on the defendants' motions for summary judgment occurred on July 17-18, 2007, and the Court reserved ruling on the motions, taking them under advisement. Such matter has been delayed due to the death of the judge and the assignment of a new judge.

In other litigation brought by Enzo against another defendant under the same patents asserted against us, a Connecticut Federal Court has invalidated the patents asserted there and asserted against us in the New York case. That decision is on appeal. As a result of these developments, the defendants in the Enzo v. Amersham case requested a conference before the Court in order to determine how to proceed. Such conference was held on March 4, 2008 and the Court has not yet ruled on such determination.

In December 2002, we executed an asset purchase agreement with an acquiring party, pursuant to which we sold such acquiring party certain assets related to our SNPs and SNPstream business. Included in the assets sold was a license agreement between us and a licensee, including the royalties due under such license. Since

December 2002, the licensee continued to send royalty payments of approximately $80 thousand per year under the license to us. Such royalty payments are in the aggregate amount of $415 thousand, including $29 thousand received during the three months ended September 30, 2008 but not recorded as revenue. In the third quarter of 2008, the acquiring party demanded that we pay the royalties received under the license with the licensee and that we direct the licensee to send all future royalty payments and royalty reports to the acquiring party. We gave such directions to the licensee on October 16, 2008. On November 10, 2008, we paid the acquiring party $415 thousand in settlement of such claim. For the year ended December 31, 2008, we recorded an expense of $386 thousand to reflect the royalties previously recorded by us as revenue, included in other income, net.

On June 5, 2008, we and Beckman filed suit against Sequenom in the United States District Court for the Southern District of California alleging infringement of U.S. patent numbers 5,888,819, 6,004,744 and 6,537,748. This lawsuit seeks damages and injunctive relief. Sequenom filed an answer and counterclaims on August 15, 2008. A reply to the counterclaims was filed on August 29, 2008. This suit is in the process of fact discovery.

Additionally, we have certain other claims against us arising from the normal course of our business. The ultimate resolution of such matters, including those cases disclosed above, in the opinion of management, will not have a material effect on our financial position and liquidity, but could have a material impact on our results of operations for any reporting period.

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

No matters were submitted to a vote of security holders during the fourth quarter of the year ended December 31, 2008.

PART II

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

Market Information

Our common stock is traded on the NASDAQ Global Market under the symbol "ORCH." The following table sets forth, for the periods indicated, the high and low closing prices for our common stock as reported by NASDAQ:

	Common Stock	
	High	Low
2008:		
First Quarter	$5.50	$2.80
Second Quarter	3.40	2.32
Third Quarter	3.50	2.46
Fourth Quarter	2.77	0.55
2007:		
First Quarter	$6.25	$3.15
Second Quarter	7.03	4.53
Third Quarter	6.14	4.75
Fourth Quarter	5.57	4.19

On March 11, 2009, the closing sale price of our common stock was $0.62

Stockholders

As of March 11, 2009, there were 349 stockholders of record.

Dividends

We have not paid dividends to our common stockholders since our inception and do not plan to pay cash dividends in the foreseeable future, as we currently intend to retain earnings, if any, to finance our growth.

Item 6. SELECTED FINANCIAL DATA

	Year ended December 31,				
	2008	2007	2006	2005	2004
	(In thousands, except per share data)				
Consolidated statements of operations data:					
Total revenues	$57,595	$60,303	$ 56,854	$ 61,609	$62,499
Operating expenses:					
Cost of service revenues	40,287	40,230	39,705	37,496	34,963
Research and development	846	1,045	1,228	1,616	1,632
Marketing and sales	5,860	6,021	6,766	8,744	7,041
General and administrative	16,076	15,385	18,980	20,383	22,360
Impairment of assets	—	—	—	255	393
Restructuring	—	(75)	437	2,514	1,130
Amortization of intangible assets	1,895	1,806	1,765	1,763	1,785
Total operating expenses	64,964	64,412	68,881	72,771	69,304
Operating loss	(7,369)	(4,109)	(12,027)	(11,162)	(6,805)
Total other income (expense), net	1,180	1,162	899	2,069	(103)
Loss from continuing operations before income taxes	(6,189)	(2,947)	(11,128)	(9,093)	(6,908)
Income tax benefit (expense)	1,708	(20)	(143)	(346)	(1,121)
Loss from continuing operations	(4,481)	(2,967)	(11,271)	(9,439)	(8,029)
Loss from discontinued operations	—	—	—	—	(783)
Net loss	(4,481)	(2,967)	(11,271)	(9,439)	(8,812)
Dividends to Series A preferred stockholders	—	—	—	—	(14)
Accretion of Series A redeemable convertible preferred stock discount resulting from conversions	—	—	—	—	(1,129)
Net loss allocable to common stockholders	$(4,481)	$(2,967)	$(11,271)	$ (9,439)	$(9,955)
Basic and diluted net loss per share allocable to common stockholders	$ (0.15)	$ (0.10)	$ (0.45)	$ (0.39)	$ (0.46)
Shares used in computing basic and diluted net loss per share allocable to common stockholders	29,935	29,583	24,892	24,284	21,828

	December 31,				
	2008	2007	2006	2005	2004
Consolidated balance sheet data:					
Cash, cash equivalents and short-term investments	$14,998	$20,918	$ 24,144	$ 23,198	$30,486
Working capital	21,466	25,455	29,973	22,835	33,047
Total assets	50,649	62,129	60,616	61,669	75,622
Long-term debt, less current portion	—	337	—	—	—
Total stockholders' equity	44,368	52,433	50,906	45,477	58,250

The acquisition of ReliaGene on October 31, 2007 had a material effect on the comparability of the data presented in the consolidated financial data above.

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

This Management's Discussion and Analysis of Financial Condition and Results of Operations as of December 31, 2008 and for the years ended December 31, 2008, 2007 and 2006 should be read in conjunction with our consolidated financial statements and related notes thereto and the selected financial data included elsewhere in this Annual Report on Form 10-K.

OVERVIEW

We are engaged in the provision of DNA testing services that generate genetic profile information by analyzing an organism's unique genetic identity. We focus our business on DNA testing primarily for human identity and, to a lesser extent, agricultural applications. In the human identity area, we principally provide DNA testing services for forensic, family relationship and, to a lesser extent, security applications. Forensic DNA testing is primarily used to confirm that a suspect committed a particular crime, to exonerate an innocent person or to establish or maintain databases of individuals convicted of crimes or, in some instances, arrested in connection with crimes. We are also engaged in the provision of non-DNA forensic laboratory services. Family relationship DNA testing is used to establish whether two or more people are genetically related. DNA testing is used by individuals and employers in security applications to establish or store a person's genetic profile for identification purposes in the event of an emergency or accident. In agricultural applications, we provide DNA testing services for selective trait breeding.

We have operations in the US and in the UK and the majority of our current customers are based in these two countries. Our forensic, family relationship and security DNA testing services are conducted in both the US and the UK, while all of our agricultural DNA testing services are conducted in the UK. Based on our review of publicly available information regarding contract sizes and competitor activity, supplemented by industry publications and third-party market assessment data, we believe that the US and UK are two of the largest existing markets for DNA testing services today. In the US and UK, a significant amount of our current testing activity is under established non-exclusive contracts with government agencies. These contracts are usually awarded through a sealed bid process and, when awarded, typically have a term from one to three years. We believe that our experience and reputation as a reliable provider of services to government agencies is a valued credential that can be used in securing both new contracts and renewing existing contracts.

Our operations in the US accounted for 54%, 50% and 52% of our total revenues for the years ended December 31, 2008, 2007 and 2006, respectively. We continue to experience significant price competition in our forensics and paternity testing businesses. As a result, we are focused on improving our operational execution to increase throughput in our laboratories and lower aggregate operating costs. In particular, in our forensics business we have reduced our sample processing time and decreased the number of samples that need to be retested. In addition, we believe that our forensic and paternity laboratory testing volumes, combined with the business that we acquired as part of the acquisition of ReliaGene have increased our operational efficiencies.

Our operations in the UK accounted for 46%, 50% and 48% of our total revenues for the years ended December 31, 2008, 2007 and 2006, respectively. For the years ended December 31, 2008, 2007 and 2006, 12%, 42% and 48%, respectively, of our UK revenues and 6%, 21% and 23%, respectively, of our total revenues were derived through our agreement with LGC. LGC is a provider of analytical and diagnostic services and one of our competitors in providing DNA testing services in the UK. Our prior agreement with LGC was terminated effective July 15, 2007 and we then entered into a series of temporary extension agreements with LGC. LGC is now providing DNA testing services directly to several police forces in the UK that were previously serviced by us on a subcontract basis. We continue to provide some DNA testing services to police forces through LGC on a limited basis. We also continue to focus on providing our services directly to UK police forces. In 2007, we were successful in winning forensic work with different UK police forces and, in February 2008, we were awarded, overall, a significant portion of the service packages we bid on in the North West/South West and Wales regional tender. We were awarded work from nine of the fourteen police forces that participated in this tender. Under the

terms of the award, we are providing forensic services, including DNA testing of database crime scene samples, forensic casework and database testing services under PACE for multiple police forces that collectively tendered their work. This award followed a rigorous and competitive bidding process. We believe that the actions we have taken to date have placed us in a position to successfully transition from our prior reliance on revenues derived from LGC to directly providing these services to police forces in the UK. In addition, we expect approximately 29 police forces in the UK to tender their work through the UK's National Procurement Plan, a formalized bidding process implemented in 2008. We submitted our first tender under the National Procurement Plan in the first quarter of 2009, with tendering expected to continue through a 24-month period.

Operating Highlights

Our revenues are predominately generated from DNA testing services provided to our customers. Our costs and expenses include costs of service revenues, research and development expenses, marketing and sales expenses, general and administrative expenses, amortization expense and other income and expense. Costs of service revenues consist primarily of salaries and related personnel costs, laboratory supplies, fees paid for the collection of samples, depreciation and facility expenses. Research and development expenses consist primarily of salaries and related costs, laboratory supplies and other expenses related to the design, development, testing and enhancement of our services. Marketing and sales expenses consist of salaries and benefits for marketing and sales personnel within our organization and all related costs of selling and marketing our services. General and administrative expenses consist primarily of salaries and related expenses for executive, finance and administrative personnel, professional fees, insurance and other corporate expenses.

Our operating results declined for the year ended December 31, 2008 as compared to 2007. Overall, for the year ended December 31, 2008 as compared to the year ended December 31, 2007, total revenues decreased approximately 4% and gross margin, as percentage of service revenues, decreased to approximately 30% from approximately 33%. For the year ended December 31, 2008, as compared to 2007, our UK revenues were unfavorably impacted approximately 8% as a result of the exchange rate movement of the British pound as compared to the US dollar. Excluding the adverse effect of exchange rate movements, in local currency terms we experienced revenue decreases in our agricultural and immigration testing services in the UK, partially offset by increased forensics revenues. In the US we experienced decreases in forensic casework, testing services involving DNA profile uploads into CODIS and individual state databases and private paternity testing services. The decreased revenues in some of our testing services were partially offset by increased revenues in our US government paternity testing services, which increased primarily due to the acquisition of ReliaGene. The decrease in gross margin, as a percentage of service revenue, was the result of the adverse impact of lower margin forensics revenues replacing the DNA testing volumes related to the loss of former LGC business and the buildup of casework management capabilities in the UK to service the business we won under the North West/ South West and Wales regional forensics services tender and reduced sample volumes for our UK based forensic, agricultural and immigration testing services. A decrease in average selling price per sample in our US forensic casework and CODIS testing services also negatively impacted the gross margin. For the year ended December 31, 2008, our operating expenses, other than cost of service revenues, increased by approximately 2% as compared to the same period in 2007, primarily as a result of increased general and administrative expenses, in particular increased professional fees, including non-recurring legal expenses related to a sizable state paternity contract that was awarded to us and protested by a competitor.

RESULTS OF OPERATIONS

Years ended December 31, 2008 and 2007

The following table sets forth a year-over-year comparison of the components of our net loss for the years ended December 31, 2008 and 2007:

	2008	2007	$ Change	% Change
		(In thousands)		
Total revenues	$57,595	$60,303	$(2,708)	(4)%
Cost of service revenues	40,287	40,230	57	0
Research and development	846	1,045	(199)	(19)
Marketing and sales	5,860	6,021	(161)	(3)
General and administrative	16,076	15,385	691	4
Restructuring expense (benefit)	—	(75)	75	(100)
Amortization of intangible assets	1,895	1,806	89	5
Total other income, net	1,180	1,162	18	2
Income tax benefit (expense)	1,708	(20)	1,728	>(100)
Net loss	(4,481)	(2,967)	(1,514)	51

Revenues

Total revenues for the year ended December 31, 2008 of $57.6 million represented a decrease of approximately $2.7 million, or approximately 4%, as compared to revenues of $60.3 million for 2007.

Our US service revenues for the year ended December 31, 2008 of $31.0 million increased by $929 thousand, or approximately 3%, as compared to $30.1 million for 2007, primarily due to the impact of the acquisition of ReliaGene and increased volume in our government paternity testing services. The increases in government paternity revenues were partly offset by declines in revenues from our forensic casework testing and CODIS services due to lower average selling price per sample as a result of significant price competition and from our private paternity testing services due to lower volume.

Revenues from our UK-based testing services decreased by $3.6 million, or approximately 12%, to $26.4 million for the year ended December 31, 2008, as compared to $30.0 million for 2007. For the year ended December 31, 2008, as compared to 2007, our UK revenues were unfavorably impacted approximately 8% as a result of the exchange rate movement of the British pound as compared to the US dollar. Excluding the adverse effect of exchange rate movements, our UK-based revenues declined due to decreased volume in agricultural and immigration testing services. These decreases were partially offset by increased forensics revenues in local currency terms, as work awarded under the North West/South West and Wales regional tender and pilot work has replaced revenues previously generated under our expired LGC agreement.

We previously performed forensic testing services for several police forces throughout the UK through our subcontractor agreement with LGC. Revenues derived through the LGC agreement accounted for approximately 6% and 21% of our total revenues and approximately 12% and 42% of our UK revenues for the years ended December 31, 2008 and 2007, respectively. Our agreement with LGC was terminated effective July 15, 2007 and we then entered into a series of temporary extension agreements with LGC. LGC is now providing DNA testing services directly to several police forces in the UK that were previously serviced by us on a subcontract basis. We continue to provide some DNA testing services to police forces through LGC on a limited basis. We also continue to focus on providing our services directly to UK police forces. In 2007, we were successful in winning forensic work with different UK police forces and, in February 2008, we were awarded, overall, a significant portion of the service packages we bid on in the North West/South West and Wales regional tender. We were awarded work from nine of the fourteen police forces that participated in this tender. Under the terms of the award, we are providing forensic services, including DNA testing of database crime scene samples, forensic casework and PACE samples for multiple police forces that collectively tendered their work. This award

followed a rigorous and competitive bidding process. In addition, we expect approximately 29 police forces in the UK to tender their work through the UK's National Procurement Plan. We submitted our first tender under the National Procurement Plan in the first quarter of 2009, with tendering expected to continue through a 24-month period.

Under the terms of our agreement with the DEFRA, we conducted genotyping services offered to sheep farmers under the NSP, which was designed to help British farmers breed sheep with reduced genetic susceptibility to the disease. Our agreement with DEFRA expires in March 2009. DEFRA will continue to have a requirement for scrapie genotyping for monitoring purposes but at a much reduced volume and it is uncertain that we will be awarded the contract for such testing. Therefore we expect our future agricultural testing services revenues will not be significant to our operating results.

During the years ended December 31, 2008 and 2007, we recognized $230 thousand and $255 thousand, respectively, in other revenues, specifically license revenues.

Cost of Service Revenues

Cost of service revenues was $40.3 million, or approximately 70% of service revenues, for the year ended December 31, 2008, compared to $40.2 million, or approximately 67% of service revenues, for the year ended December 31, 2007. The increase in cost of service revenues primarily reflects increased laboratory personnel costs, partially offset by decreased depreciation expense. Our gross margin, as a percentage of service revenue, decreased from 33% for the year ended December 31, 2007 to 30% for year ended December 31, 2008. The decrease in gross margin percentage was the result of the adverse impact of lower margin forensics revenues replacing the DNA testing volumes related to the loss of former LGC business, the buildup of casework management capabilities in the UK to service the business we won under the North West/South West and Wales regional tender prior to performing services and generating revenues under the new contracts, and reduced sample volumes for our UK based forensic, agricultural and immigration testing services. A decrease in average selling price per sample in our US forensic casework and CODIS testing services also negatively impacted the gross margin. For the year ended December 31, 2008, as compared to 2007, our UK cost of service revenues decreased by approximately 8% as a result of the exchange rate movement of the British pound as compared to the US dollar.

Research and Development

Research and development expenses for the year ended December 31, 2008 were $846 thousand, a decrease of $199 thousand, as compared to $1.0 million during 2007. The decrease in research and development expenses was primarily due to reduced personnel and supplies costs.

Marketing and Sales

Marketing and sales expenses for the year ended December 31, 2008 were $5.9 million, a decrease of $161 thousand as compared to $6.0 million during the prior year. The decrease in marketing and sales expenses was primarily due to decreased personnel, travel and postage costs. The decrease was partially offset by increased web-related advertising costs.

General and Administrative

General and administrative expenses for the year ended December 31, 2008 were $16.1 million, an increase of $691 thousand, as compared to $15.4 million during 2007. The increase in general and administrative expenses is primarily due to increased professional fees, including non-recurring legal fees related to a sizable state paternity contract that was awarded to us and protested by a competitor. These increases in professional fees were partially offset by decreases in personnel costs, consulting, relocation and insurance expenses.

Restructuring

We recorded a restructuring benefit of $75 thousand for the year ended December 31, 2007 as a result of favorable settlement of an employee obligation that was accrued at December 31, 2006.

Amortization of Intangible Assets

During the years ended December 31, 2008 and 2007, we recorded $1.9 and $1.8 million of amortization expense, respectively. The increase in amortization expense is due to the acquisition of additional intangible assets as part of our acquisition of ReliaGene in the fourth quarter of 2007.

Total Other Income, Net

Interest income for the year ended December 31, 2008 was $369 thousand, compared to $1.0 million during the prior year. The decrease in interest income was due to lower interest rates and average cash balances in 2008.

Interest expense for the years ended December 31, 2008 and 2007 was $38 thousand and $11 thousand, respectively. This interest expense was related to debt assumed as result of the acquisition of ReliaGene in the fourth quarter of 2007.

Other income for the year ended December 31, 2008 was $849 thousand, primarily consisting of net non-cash gains from changes in the fair value of a lease guarantee and penalty payment accrual, partially offset by a royalty liability expense. Other income for the year ended December 31, 2007 was $138 thousand, primarily a result of a non-cash gain from a reduction in the fair value of a lease guarantee liability, partially offset by accruals of certain non-operating expenses.

Income Tax Expense

During the years ended December 31, 2008 and 2007, we recorded an income tax benefit of $1.7 million and an income tax expense of $20 thousand, respectively.

For the year ended December 31, 2008, we recognized a current foreign tax benefit of $193 thousand, including a tax benefit of $175 thousand due to a write down in our unrecognized income tax benefits, and a deferred foreign tax benefit of $47 thousand, primarily for our business in the UK; as well as a tax benefit of $1.5 million associated with the sale of some of our state NOL carryforwards. No tax benefit was recorded relating to our US business' losses as management deemed that it was not likely than such tax benefit would be realized.

For the year ended December 31, 2007, we recognized current foreign tax expense of $1.1 million and deferred foreign tax expense of $68 thousand, primarily for our profitable business in the UK. In addition, we recorded a tax benefit of $1.1 million associated with the sale of some of our state NOL carryforwards. No tax benefit was recorded relating to our US business' losses as management deemed that it was not likely than such tax benefit would be realized.

Net Loss

For the year ended December 31, 2008, we reported a net loss of $4.5 million, which represented an increase of 51% as compared to a net loss of $3.0 million for the year ended December 31, 2007.

Years ended December 31, 2007 and 2006

The following table sets forth a year-over-year comparison of the components of our net loss for the years ended December 31, 2007 and 2006:

	2007	2006	$ Change	% Change
		(In thousands)		
Total revenues	$60,303	$ 56,854	$ 3,449	6%
Cost of service revenues	40,230	39,705	525	1
Research and development	1,045	1,228	(183)	(15)
Marketing and sales	6,021	6,766	(745)	(11)
General and administrative	15,385	18,980	(3,595)	(19)
Restructuring expense (benefit)	(75)	437	(512)	>(100)
Amortization of intangible assets	1,806	1,765	41	2
Total other income, net	1,162	899	263	29
Income tax expense	(20)	(143)	123	(86)
Net loss	(2,967)	(11,271)	8,304	(74)

Revenues

Total revenues for the year ended December 31, 2007 of $60.3 million represented an increase of approximately $3.4 million, or approximately 6%, as compared to revenues of $56.9 million for 2006.

Our US service revenues for the year ended December 31, 2007 of $30.1 million increased by $1.1 million, or approximately 4%, as compared to $29.0 million for 2006, primarily due to increased volume in our US forensic testing services and the impact of the acquisition of ReliaGene. This increase was slightly offset by declines in volume for our government and private paternity testing services.

Revenues from our UK-based testing services increased by $2.4 million, or approximately 9%, to $30.0 million during the year ended December 31, 2007, as compared to $27.6 million for 2006. Our UK-based revenues increased due to increased volume and pricing in forensics testing services; particularly major crime, non-violent crime and UK PACE database testing services. The non-violent crime testing services and PACE database testing services increased primarily due to new contracts we were awarded in 2006 to provide services directly to several different UK police forces. The increase in forensic testing services revenues was partially offset by decreased agriculture revenues as a result of lower volume. Agriculture revenues decreased primarily due to a decision made by DEFRA to limit scrapie testing to male sheep, and to a lesser extent, to an outbreak of foot and mouth disease which prevented the collection of tens of thousands of samples. For the year ended December 31, 2007, as compared to 2006, our UK revenues were also favorably impacted by approximately 9%, as a result of the exchange rate movement of the British pound as compared to the US dollar.

During the years ended December 31, 2007 and 2006, we recognized $255 thousand and $288 thousand, respectively, in other revenues, specifically license revenues.

Cost of Service Revenues

Cost of service revenues was $40.2 million, or approximately 67% of service revenues, for the year ended December 31, 2007, compared to $39.7 million, or approximately 70% of service revenues, for the year ended December 31, 2006. The increase in cost of service revenues primarily reflects increased laboratory personnel costs, partially offset by decreased depreciation expense. For the year ended December 31, 2007, as compared to 2006, our UK cost of service revenues increased by approximately 9% as a result of the exchange rate movement of the British pound as compared to the US dollar. The increase in gross margin percentage from 30% in 2006 to 33% in 2007 is a result of improved pricing in US forensic casework and CODIS testing services and improvements in operating efficiencies, partially offset by reduced gross margin contribution associated with the reduced UK agricultural testing services.

Research and Development

Research and development expenses for the year ended December 31, 2007 were $1.0 million, a decrease of $183 thousand as compared to $1.2 million during 2006. The decrease in research and development expenses was primarily due to reduced personnel costs.

Marketing and Sales

Marketing and sales expenses for the year ended December 31, 2007 were $6.0 million, a decrease of $745 thousand as compared to $6.8 million during the prior year. The decrease in marketing and sales expenses was primarily due to decreased spending in radio advertising related to our marketing and sales programs in our private paternity testing business and decreased personnel costs. The radio advertising campaign was discontinued in the second quarter of 2006.

General and Administrative

General and administrative expenses for the year ended December 31, 2007 were $15.4 million, a decrease of $3.6 million, as compared to $19.0 million during 2006. The decrease in general and administrative expenses primarily included decreases in consulting and professional fees, including audit expenses, as well as decreases in insurance, legal and bad debt expenses. In particular, the first quarter of 2006 included certain consulting and professional fees which we did not incur in 2007.

Restructuring

We recorded a restructuring benefit of $75 thousand for the year ended December 31, 2007 as a result of favorable settlement of an employee obligation that was accrued at December 31, 2006. Restructuring expenses for the year ended December 31, 2006 were $437 thousand, primarily consisting of employee severance costs resulting from workforce reductions in our Princeton, New Jersey corporate office and for facility obligation costs for our former Germantown, Maryland and Dallas, Texas facilities.

Amortization of Intangible Assets

During both of the years ended December 31, 2007 and 2006, we recorded $1.8 million of amortization expense.

Total Other Income, Net

Interest income for the year ended December 31, 2007 was $1.0 million, compared to $617 thousand during the prior year, due to higher average cash balances in 2007.

Other income for the year ended December 31, 2007 was $138 thousand, primarily a result of a non-cash gain from a reduction in the fair value of a lease guarantee liability, partially offset by accruals of certain non-operating expenses. Other income for the year ended December 31, 2006 was $282 thousand, which primarily consisted of non-cash gains resulting from the reversal of certain non-operating accounts payable and accrued expenses and a reduction in the fair value of a lease guarantee liability, partially offset by accruals of certain non-operating expenses, losses on disposal of fixed assets and an impairment charge on available-for-sale securities that were determined to be other-than-temporarily impaired.

Income Tax Expense

During the years ended December 31, 2007 and 2006, we recorded income tax expense of $20 thousand and $143 thousand, respectively. For the year ended December 31, 2007, we recognized current foreign tax expense of $1.1 million and deferred foreign tax expense of $68 thousand, primarily for our profitable business in the UK.

In addition, we recorded a tax benefit of $1.1 million associated with the sale of some of our NOL carryforwards. No tax benefit was recorded relating to our US business' losses as management deemed that it was not likely than such tax benefit would be realized.

For the year ended December 31, 2006, we recognized current foreign tax expense of $1.1 million, primarily for our profitable business in the UK, and $214 thousand of deferred foreign tax benefit, primarily for our profitable businesses in the UK and Canada. In 2006, we reversed $215 thousand of a tax reserve, with the impact included in the above current foreign tax expense amount, for tax return positions taken on our UK subsidiary tax return filings with respect to intercompany transactions due to the closing of the statute of limitations for our 2004 UK tax return. In addition, we recorded a tax benefit of $749 thousand associated with the sale of some of our state NOL carryforwards. No tax benefit was recorded relating to our US business' losses as management deemed that it was not likely than such tax benefit would be realized.

Net Loss

For the year ended December 31, 2007, we reported a net loss of $3.0 million, which represented a decrease of 74% as compared to a net loss of $11.3 million for the year ended December 31, 2006.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2008, we had $15.0 million in cash and cash equivalents as compared to $20.9 million as of December 31, 2007. Working capital decreased to $21.5 million at December 31, 2008 from $25.5 million at December 31, 2007. This decrease in working capital was primarily a result of the net loss for the year ended December 31, 2008. As of December 31, 2008, we had $338 thousand in short-term debt obligations.

Sources of Liquidity

Our primary sources of liquidity have been issuances of our securities and other capital raising activities.

The following table sets forth a year-over-year comparison of the components of our liquidity and capital resources for the years ended December 31, 2008 and 2007:

	(In thousands)		$	%
	2008	2007	Change	Change
Cash provided by (used in):				
Operating activities	$(2,331)	$ 3,020	$(5,351)	>(100)%
Investing activities	(1,163)	(6,152)	4,989	(81)
Financing activities	(425)	(385)	(40)	10

Net cash used in operations for the year ended December 31, 2008 was $2.3 million, compared with net cash provided by operations of approximately $3.0 million for the prior year. The change in operating cash flows was mainly a result of an increased net loss and an increase in our accounts receivable for the year ended December 31, 2008 as compared to 2007. Investing activities during the year ended December 31, 2008 primarily consisted of $2.1 million in capital expenditures, partially offset by the release of $958 thousand of restricted cash, as compared to $5.0 million spent to acquire ReliaGene and $1.2 million of capital expenditures for the prior year. Financing activities during the year ended December 31, 2008 primarily consisted of repayments of debt obligations, while financing activities for 2007 consisted of issuance costs related to a private placement of common stock in a prior period of $77 thousand and $332 thousand in debt and patent obligation payments, partially offset by proceeds of $24 thousand from the issuance of common stock due to the exercise of stock options.

ReliaGene Debt

As part of the acquisition of ReliaGene on October 31, 2007, we assumed $948 thousand in debt comprised of a line of credit and various notes payable with outstanding balances of $260 thousand and $688 thousand, respectively. The line of credit, which was fully paid off during 2008 with a then outstanding balance of $170 thousand, had a maximum credit limit of $750 thousand secured by ReliaGene accounts receivable and equipment, a maturity date of December 31, 2009 and an interest rate of 6%. The notes payable, which are secured by ReliaGene's equipment, have interest rates ranging from 4.50% to 8.50% and maturity dates ranging from June 30, 2009 through September 5, 2011. As of December 31, 2008, the outstanding balance for the notes payable was $338 thousand, which was classified as current portion of long-term debt on the consolidated balance sheet, as it is our intention to repay this debt in full within the next twelve months.

Expected Uses of Liquidity in 2009

Throughout 2009, we plan to continue making investments in our business. We expect the following to be significant uses of liquidity: cost of service revenues, salaries and related personnel costs, laboratory supplies, fees for the collection of samples, facility expenses, marketing expenses and general and administrative costs. Actual expenditures may vary substantially from our estimates. In addition, we may make additional investments in future acquisitions of businesses or technologies which would increase our capital expenditures.

We believe that our existing cash on hand will be sufficient to fund our operations at least through the next twelve months. We may need to raise additional capital to fund future growth opportunities or to operate our ongoing business activities if our future results of operations fall below our expectations. However, we may not be able to raise additional funds or raise funds on terms that are acceptable to us. If future financing is not available to us, or is not available on terms acceptable to us, we may not be able to fund our future needs. If we raise funds through equity or convertible securities, our stockholders may experience dilution and our stock price may decline.

We cannot assure you that our business or operations will not change in a manner that would consume available resources more rapidly than anticipated. We also cannot assure you that we will not require substantial additional funding before we can achieve profitable operations. We also may need additional capital if we seek to acquire other businesses or technologies.

Contractual Obligations and Commercial Commitments

We maintained multiple contractual commitments as of December 31, 2008 which will support our future business operations. Such commitments relate to noncancelable operating lease arrangements, debt obligations and a lease guarantee. We have identified and quantified the most significant of these commitments in the following table.

	Payments due by period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
			(In thousands)		
Contractual obligations:					
Operating lease obligations (1)	$5,589	$1,727	$2,085	$763	$1,014
Debt obligations (2)	338	338	—	—	—
Total contractual obligations	$5,927	$2,065	$2,085	$763	$1,014

(1) Such amounts represent future minimum rental commitments for office space and equipment leased under noncancelable operating lease arrangements.

(2) Such amounts represent amounts payable under our various notes payable.

In connection with the sale of assets and liabilities of our Diagnostics business to Tepnel Life Sciences, PLC, or Tepnel, in 2004, we were required to sign an unconditional guarantee related to the lease for the Stamford, Connecticut based laboratory, which was assigned to Tepnel. The fair value of the guarantee amounted to zero and $739 thousand, respectively, as of December 31, 2008 and 2007. We valued the guarantee based on the existing terms and conditions of the lease, an estimated vacancy period of the space prior to subleasing the space, and the likelihood of Tepnel breaching its obligation under the assigned lease. The lease terminates in April of 2010. Minimum remaining rents under the assigned lease totaled $755 thousand as of December 31, 2008. Based on Tepnel's continuing performance under the sublease and a review of risks associated with the guarantee, in 2008, we revised our estimate for the Tepnel lease guarantee. As a result, we recorded a benefit of $739 thousand for the year ended December 31, 2008, included in other income, net.

In December 2002, we executed an asset purchase agreement with an acquiring party, pursuant to which we sold such acquiring party certain assets related to our SNPs and SNPstream business. Included in the assets sold was a license agreement between us and a licensee, including the royalties due under such license. Since December 2002, the licensee continued to send royalty payments of approximately $80 thousand per year under the license to us. Such royalty payments are in the aggregate amount of $415 thousand, including $29 thousand received during the three months ended September 30, 2008 but not recorded as revenue. In the third quarter of 2008, the acquiring party demanded that we pay the royalties received under the license with the licensee and that we direct the licensee to send all future royalty payments and royalty reports to the acquiring party. We gave such directions to the licensee on October 16, 2008. On November 10, 2008 we paid the acquiring party $415 thousand in settlement of such claim.

Several of our operating leases contain clauses that could require us to restore the leased premises to their original condition. Based upon the nature of our leasehold improvements and historical experience in exiting leases with similar clauses, we believe there is a minimal probability of us incurring a material restoration expense and as such, we have not recorded an accrual for these obligations.

Off-Balance Sheet Arrangements

None.

Limitation on the Use of Our NOL Carryforwards

As of December 31, 2008, our NOL carryforwards were $249.3 million and $122.7 for federal and state income tax purposes, respectively. Some of the federal and state NOL carryforwards we have generated or acquired have begun to expire. Utilization of our NOL carryforwards to offset future taxable income, if any, may be substantially limited due to "change of ownership" provisions in the Tax Reform Act of 1986, or the Act. The Act provides for a limitation on the annual use of NOL carryforwards and research and development credits following certain ownership changes, as defined by the Act, which could significantly limit our ability to utilize these carryforwards and research and development credits. We have determined that an ownership change, as defined by the Act, occurred in 1999 and as a result $41.4 million of our NOL carryforwards is limited. We may have experienced other ownership changes, as defined by the Act, as a result of past financings and may experience others in connection with future financings. Accordingly, our ability to utilize the aforementioned federal NOL carryforwards may be further limited in the future. If our NOL carryforwards are limited or expire, we would not be able to offset future earnings with these NOL carryforwards which could negatively impact our liquidity in the future.

Critical Accounting Policies

Our critical accounting policies are as follows:

- revenue recognition
- stock-based compensation

- valuation of goodwill and other long-lived assets
- income taxes

Revenue Recognition

We recognize DNA laboratory services revenues at the time test results are completed and reported, persuasive evidence of an arrangement exists, the price to the buyer is fixed or determinable and collectibility is reasonably assured. Deferred revenues represent the unearned portion of payments received in advance of tests being completed and reported. Unbilled receivables represent revenue which has been earned on completed and reported tests, but has not been billed to the customer. Revenues from license arrangements, including license fees creditable against future royalty obligations of the licensee, are recognized when an arrangement is entered into if we have no significant continuing involvement under the terms of the arrangement. If we have significant continuing involvement under such an arrangement, license fees are deferred and recognized over the estimated performance period. Management has made estimates and assumptions relating to the performance period, which are subject to change. Changes in these estimates and assumptions could affect the amount of revenues from licenses reported in any given period.

Stock-Based Compensation

Effective January 1, 2006, we adopted the provisions of, and account for stock-based compensation in accordance with, Statement of Financial Accounting Standards, or FAS, No. 123(R), *Share-Based Payment*, or FAS 123(R). Under the fair value recognition provisions of this statement, stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which is the vesting period. We have applied the modified prospective method of adoption, under which prior periods are not restated for comparative purposes. Under the modified prospective method, FAS 123(R) applies to new awards and to awards that were outstanding as of December 31, 2005 that are subsequently modified, repurchased or cancelled. Compensation expense recognized during the years ended December 31, 2008, 2007 and 2006 includes expense for all share-based payments granted prior to, but not yet vested as of, December 31, 2005, based on the grant date fair value estimated in accordance with the provisions of FAS No. 123, *Accounting for Stock-Based Compensation*, and expense for all share-based payments granted subsequent to December 31, 2005, based on the grant-date fair value estimated in accordance with the provisions of FAS 123(R). Stock-based compensation is classified within cost of service revenues, research and development, marketing and sales and general and administrative on the consolidated statement of operations.

Stock options granted to employees, which are granted with an exercise price equal to or greater than the fair market value of our common stock at the date of grant, in general vest in four years in equal monthly installments and have a maximum term of ten years. Stock options granted to our Board of Directors in general vest in three years in equal monthly installments and have a maximum term of ten years.

We use the Black-Scholes option pricing model to estimate the fair value of options granted, which requires the input of highly subjective assumptions. These assumptions include estimating the length of time employees will retain their vested stock options before exercising them, the estimated volatility of our common stock price over the expected term, the number of options that will ultimately not vest and the expected dividend yield. Changes in the subjective assumptions can materially affect the estimate of the fair value of stock-based compensation and, consequently, the related amount recognized in the consolidated statements of operations. The expected volatility assumption is based on the daily historical volatility of our stock price, over the expected term of the option. Our stock options are considered "plain vanilla" options based on the guidance in SEC Staff Accounting Bulletin, or SAB, No. 107, *Share-Based Payment*, or SAB 107, as amended by SAB No. 110, *Share-Based Payment*, or SAB 110, and as such we have elected to use the "simplified" method, whereby we have assumed that all options will be exercised midway between the vesting date and the contractual term of the option to determine the expected term of the option. We will continue to use the simplified method until we have

the historical data necessary to provide a reasonable estimate of expected life in accordance with SAB 107, as amended by SAB 110. We have not paid dividends since our inception, nor do we expect to pay any dividends for the foreseeable future, thus the expected dividend yield assumption is zero. As stock-based compensation expense recognized in the consolidated statement of operations is based on awards ultimately expected to vest, the amount of expense has been reduced for estimated forfeitures. FAS 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. Forfeitures are estimated based on historical experience.

Valuation of Goodwill and Other Long-lived Assets

Goodwill represents the excess of costs over fair value of net assets of businesses acquired. Fair value determination of acquired net assets, especially intangible assets, requires us to make significant estimates, assumptions and judgment. These estimates are based upon a number of factors, including historical experience, market conditions and information obtained from the management of the acquired company. Critical estimates in valuing certain of the intangible assets include, but are not limited to, historical and projected customer retention rates, anticipated growth in revenue from the acquired customer and product base and the expected use of the acquired assets. These factors are also considered in determining the useful life of the acquired intangible assets.

Goodwill and other intangible assets acquired in a business combination that are determined to have an indefinite useful life are not amortized, but instead tested for impairment at least annually in the fourth quarter or between annual tests in the presence of impairment indicators such as:

- significant underperformance relative to expected historical or projected future operating results;
- significant changes in the manner of our use of the acquired assets or the strategy for our overall business;
- significant negative industry or economic trends;
- a significant adverse change in legal factors or in the business climate
- a more-likely-than-not expectation of sale or disposal of a reporting unit or a significant portion thereof
- significant decrease in the market value of our common stock; and
- a significant decrease in the market value of the assets.

Judgment is required in determining the existence of these factors and its effect on any impairment determination.

The fair value of our reporting units is determined considering the income, the market or the transaction valuation approaches or a combination thereof. Under the income approach, the fair value of the reporting unit is based on the present value of estimated future cash flows that the reporting unit is expected to generate over its remaining life. Under the market approach, the value of the reporting unit is based on an analysis that compares the value of the reporting unit to values of publicly traded companies in similar lines of business. The transaction approach is a valuation technique that estimates the fair value of the reporting unit based on market prices on actual transactions and asking prices for businesses currently available for sale.

The process of evaluating the potential impairment of goodwill is highly subjective and requires significant judgment at many points during the analysis. In estimating the fair value of our reporting units for the purposes of our annual or interim analyses, we make estimates and judgments about the future cash flows, operating trends, discount rates, control premiums, and other variables of these businesses. Although our cash flow forecasts are based on assumptions that are consistent with the plans and estimates we use to manage the underlying businesses, there is significant judgment in determining the cash flows attributable to these businesses over their estimated remaining useful lives. We also consider our market capitalization on the date we perform the analysis.

Our other long-lived assets consist primarily of fixed assets and amortizable intangible assets. We review other long-lived assets for impairment whenever events or changes in circumstances indicate that we will not be able to recover the asset's carrying amount. Such events or circumstances include, but are not limited to, a significant decrease in the fair value of the underlying business or asset, a significant decrease in the benefits realized from the acquired business, or a significant change in the operations of the acquired business or use of an asset.

Recoverability of other long-lived assets is measured by comparison of the carrying amount of an asset to estimated undiscounted cash flows of the group containing the asset. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds its fair value.

We performed an annual assessment of goodwill as of December 31, 2008 and concluded that goodwill was not impaired. As a result of market and economic conditions, the value of our common stock had experienced a significant decrease as of December 31, 2008, which represented an impairment indicator for our long-lived assets. We performed an impairment assessment as of December 31, 2008 and concluded that our long-lived assets were not impaired.

Income Taxes

We have generated NOL carryforwards for tax purposes since inception. As of December 31, 2008, these NOL carryforwards have resulted in NOL carryforwards of $249.3 million and $122.7 for federal and state income tax purposes, respectively. In addition, certain charges recorded in the current and prior years were not currently deductible for income tax purposes. These differences result in gross deferred tax assets. We must assess the likelihood that the gross deferred tax assets, net of any deferred tax liabilities, will be recovered from future taxable income. To the extent we believe the recovery is not likely, we have established a valuation allowance.

Significant management judgment is required in determining this valuation allowance. We have recorded a valuation allowance of $100.0 million as of December 31, 2008, due to uncertainties related to our ability to utilize some of our net deferred tax assets, primarily consisting of NOL carryforwards, before they expire. The valuation allowance is based on our estimates of taxable income and the period over which the net deferred tax assets will be recoverable.

Conversely, if we are profitable in the future at levels which cause management to conclude that it is more likely than not that we will realize all or a portion of the net deferred tax assets for which a valuation has been recorded, we would record the estimated net realizable value of the net deferred tax asset at that time and would then record income taxes on our US operations at a rate equal to our combined federal and state effective rate of approximately 40%.

We adopted the provisions of Financial Accounting Standards Board, or FASB, Interpretation No. 48, *Accounting for Uncertainty in Income Taxes,* or FIN 48, on January 1, 2007. As a result of the implementation of FIN 48, we recognized no material adjustment in the liability for unrecognized income tax benefits. As of January 1, 2007 and December 31, 2007, the unrecognized tax benefits amounted to approximately $175 thousand, including an immaterial amount for accrued interest and penalties related to uncertain tax positions, all of which would affect our effective tax rate if recognized. During the year ended December 31, 2008, as a result of expired statutes of limitations, we wrote down our unrecognized income tax benefits to zero, and recognized an income tax benefit of $175 thousand. We recognize interest and penalties related to uncertain tax positions in income tax expense. The tax years 2006 and 2007 remain open to examination by the UK taxing authorities and the tax years 2005 to 2007 remain open to examination by the US taxing authorities. In addition, the US taxing authorities may examine the tax years from our inception in 1995 through 2004, but are barred from adjusting the tax liabilities in excess of the net operating losses generated in any of those tax years.

Recently Issued Accounting Pronouncements

In September 2006, the FASB issued FAS No. 157, *Fair Value Measurements*, or FAS 157. FAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. This statement is applicable whenever another accounting pronouncement requires or permits assets and liabilities to be measured at fair value. FAS 157 does not expand or require any new fair value measures, however, the application of this statement may change current practice. Our adoption of this standard on January 1, 2008 was limited to financial assets and liabilities and we will be required to apply this standard to non-financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a nonrecurring basis for our fiscal year beginning January 1, 2009. The initial adoption of FAS 157 did not have a material effect on our consolidated financial statements. However, we are still in the process of evaluating this standard with respect to its effect on non-financial assets and liabilities and therefore have not yet determined the impact that it will have on our consolidated financial statements upon full adoption.

In February 2007, the FASB issued FAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities,* or FAS 159. FAS 159 provides companies with an option to measure, at specified election dates, many financial instruments and certain other items at fair value that are not currently measured at fair value. An entity that adopts FAS 159 will report unrealized gains and losses on items for which the fair value option has been elected in earnings at each subsequent reporting date. FAS 159 also establishes presentation and disclosure requirements designed to facilitate comparisons between entities that choose different measurement attributes for similar types of assets and liabilities. We adopted FAS 159 effective January 1, 2008 and the adoption of FAS 159 did not have a material impact on our consolidated financial statements.

In December 2007, the FASB issued FAS No. 141 (revised 2007), *Business Combinations,* or FAS 141(R), which replaces FAS No. 141, *Business Combinations*. FAS 141(R) establishes principles and requirements for how an acquirer recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, any non-controlling interest in the acquiree and the goodwill acquired. This statement also establishes disclosure requirements which will enable users to evaluate the nature and financial effects of the business combination. FAS 141(R) applies prospectively to our business combinations for which the acquisition date is on or after January 1, 2009.

In March 2008, the FASB issued FAS No. 161, *Disclosures about Derivative Instruments and Hedging Activities — an Amendment of FASB Statement 133,* or FAS 161. FAS 161 enhances required disclosures regarding derivatives and hedging activities, including enhanced disclosures regarding how: (a) an entity uses derivative instruments; (b) derivative instruments and related hedged items are accounted for under FAS No. 133, *Accounting for Derivative Instruments and Hedging Activities*; and (c) derivative instruments and related hedged items affect an entity's financial position, financial performance, and cash flows. We will be required to adopt FAS 161 for our fiscal year beginning January 1, 2009. The implementation of this standard is not expected to have a material impact on our consolidated financial position and results of operations.

In April 2008, the FASB issued FASB Staff Position, or FSP, No. 142-3, *Determination of the Useful Life of Intangible Assets,* or FSP 142-3. FSP 142-3 amends the factors that should be considered in developing assumptions about renewal or extension used in estimating the useful life of a recognized intangible asset under FAS No. 142, *Goodwill and Other Intangible Assets,* or FAS 142. FSP 142-3 is intended to improve the consistency between the useful life of a recognized intangible asset under FAS 142 and the period of expected cash flows used to measure the fair value of the asset under FAS 141(R) and other generally accepted accounting principles. FSP 142-3 is effective for financial statements issued for fiscal years beginning after December 15, 2008. The measurement provisions of this standard will apply only to intangible assets of we acquired after the effective date.

In May 2008, the FASB issued FAS No. 162, *The Hierarchy of Generally Accepted Accounting Principles,* or FAS 162. FAS 162 supersedes the existing hierarchy contained in the US auditing standards. The existing

hierarchy was carried over to FAS 162 essentially unchanged. FAS 162 becomes effective 60 days following the SEC's approval of the Public Company Accounting Oversight Board amendments to the auditing literature. The new hierarchy is not expected to change current accounting practices in any area.

In June 2008, the FASB issued FSP Emerging Issues Task Force, or EITF, Issue No. 03-6-1, *Determining Whether Instruments Granted in Share-Based Payment Transactions Are Participating Securities*, or FSP EITF 03-6-1. FSP EITF 03-6-1 clarified that all outstanding unvested share-based payment awards that contain rights to nonforfeitable dividends participate in undistributed earnings with common shareholders. Awards of this nature are considered participating securities and the two-class method of computing basic and diluted earnings per share must be applied. FSP EITF 03-6-1 is effective for fiscal years beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on our consolidated financial position and results of operations.

In June 2008, the FASB ratified EITF Issue No. 07-5, *Determining Whether an Instrument (or Embedded Feature) Is Indexed to an Entity's Own Stock,* or EITF 07-5. EITF 07-5 provides that an entity should use a two step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument's contingent exercise and settlement provisions. It also clarifies the impact of foreign currency denominated strike prices and market-based employee stock option valuation instruments on the evaluation. EITF 07-5 is effective for fiscal years beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on our consolidated financial position and results of operations.

In September 2008, the FASB issued FSP No. 133-1 and FIN No. 45-4, *Disclosures about Credit Derivatives and Certain Guarantees: An Amendment of FASB Statement No. 133 and FASB Interpretation No. 45; and Clarification of the Effective Date of FASB Statement No. 161,* or FSP 133-1 and FIN 45-4. FSP 133-1 and FIN 45-4 amends and enhances disclosure requirements for sellers of credit derivatives and financial guarantees. It also clarifies that the disclosure requirements of FAS 161 are effective for quarterly periods beginning after November 15, 2008, and fiscal years that include those periods. FSP 133-1 and FIN 45-4 is effective for reporting periods (annual or interim) ending after November 15, 2008. The implementation of this standard is not expected to have a material impact on our consolidated financial position and results of operations.

In September 2008, the FASB ratified EITF Issue No. 08-5, *Issuer's Accounting for Liabilities Measured at Fair Value With a Third-Party Credit Enhancement,* or EITF 08-5. EITF 08-5 provides guidance for measuring liabilities issued with an attached third-party credit enhancement (such as a guarantee). It clarifies that the issuer of a liability with a third-party credit enhancement (such as a guarantee) should not include the effect of the credit enhancement in the fair value measurement of the liability. EITF 08-5 is effective for the first reporting period beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on our consolidated financial position and results of operations.

In October 2008, the FASB issued FSP No. 157-3 *Determining the Fair Value of a Financial Asset When the Market for That Asset Is Not Active,* or FSP 157-3. FSP 157-3 clarified the application of FAS 157 in an inactive market. It demonstrates how the fair value of a financial asset is determined when the market for that financial asset is inactive. FSP 157-3 was effective upon issuance, including prior periods for which financial statements had not been issued. The implementation of this standard did not have a material impact on our consolidated financial position and results of operations.

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results or outcomes to differ materially from those described in such forward-looking statements. These statements address or may address the following subjects:

- our expectation of the amount and timing of future revenues, expenses and other items affecting the results of our operations;
- our expectation that, with the increasing availability of non-human genomic data, improved characteristics in livestock or crops will be produced to protect humans against animal-borne diseases;
- our belief that scientists hope to understand and use DNA molecular level knowledge to transform traditional approaches to medicine, agriculture and other fields;
- our belief that our forensic and paternity laboratory testing volumes, combined with those of ReliaGene, have increased our operational efficiencies;
- our belief that our experience and reputation as a reliable provider of services to government agencies is a valued credential that can be used in securing both new contracts and renewing existing contracts;
- our belief that the actions we have taken to date have placed us in a position to successfully transition from our prior reliance on revenues derived from LGC to directly providing DNA testing services to police forces in the UK;
- our expectation that approximately 29 police forces in the UK will tender their work through the UK's National Procurement Plan over the next 24 months;
- our expectation that our future agricultural testing services revenues will not be significant to our operating results;
- our belief that we are one of the largest providers of forensic and family relationship testing in the US and that we are also a recognized leading provider of such services in the UK;
- our belief that the US and UK are some of the largest existing markets for DNA testing services today;
- our intention to develop and evaluate new technologies to enhance our laboratory processes, including instrumentation, automation and new testing methodologies;
- our expectation that our instrumentation, automation and new testing methodologies will enable us to reduce our costs for and improve the quality of our service offerings;
- our anticipation that forensic DNA testing will grow based on legislation both in the US and the UK and improved utility of the growing CODIS and NDNAD databases;
- our anticipation that our current facilities should serve our near term capacity needs;
- our anticipation that federal and state governments in the US will allocate greater resources to support wider use of DNA testing;
- our expectation that our award under the North West/South West and Wales regional tender in the UK will result in significant revenues;
- our intention to seek and continue to seek patent protection for novel uses of SNPs in the genetic testing field;
- our intention to continue to concentrate on protection of our intellectual property as it relates to our DNA testing services;
- our expectation that we will continue to receive substantial discounts based upon reaching a specific threshold of purchases per year of reagents and other components from our current supplier;

- our expectation that our existing cash on hand will be sufficient to fund our operations at least through the next twelve months;
- our anticipation that a portion of our future growth may be accomplished either by acquiring or merging with existing businesses;
- our plan to continue to market our services to governments, commercial companies and private individuals;
- our intention to continue to vigorously defend ourselves against plaintiff's claims in litigation relating to our May 5, 2000 IPO;
- our belief that litigation claims arising against us from the normal course of business will not have a material effect on our financial position and liquidity, but could have a material impact on our results of operations for any reporting period;
- our expectation to not pay any dividends in the foreseeable future;
- our intention to retain earnings, if any, to finance our growth;
- our expectation that severe pricing pressure in our government funded paternity testing services will continue;
- our plan to continue to make substantial investments in our business;
- our expectation about our significant uses of liquidity;
- our anticipation that we do not need to raise additional capital in 2009;
- our expectation that the adoption of various recently issued accounting pronouncements will not have a material impact on our consolidated financial statements;
- our belief that the probability of us incurring a material restoration expense upon exiting our operating leases is minimal; and
- our expectation that our disclosure controls and procedures or our internal control over financial reporting will not prevent all error and all fraud.

While management makes its best efforts to be accurate in making forward-looking statements, such statements are subject to risks and uncertainties that could cause actual results to vary materially, including the risks and uncertainties discussed throughout this Annual Report on Form 10-K and the cautionary information set forth under the heading "Risk Factors" appearing in Item 1A of this Annual Report on Form 10-K. We disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Sensitivity

Our exposure to market risk is principally confined to our cash equivalents, which are conservative in nature, with a focus on preservation of capital. Due to the short-term nature of our investments and our investment policies and procedures, we have determined that the risks associated with interest rate fluctuations related to these financial instruments are not material to our business. As of December 31, 2008, we had $338 thousand in fixed rate short-term notes payable.

Foreign Currency Risk

Our business derives a substantial portion of its revenues from international operations. We record the majority of our foreign operational transactions, including all cash inflows and outflows, in the local currency, British Pound. We record all of our US operational transactions, including cash inflows and outflows, in US dollars. We expect that international sales may continue to represent a significant portion of our revenue. The significant percentage of our revenue derived from our UK operations makes us vulnerable to future fluctuations in the exchange rate. For the year ended December 31, 2008, as compared to 2007, our UK revenues were unfavorably impacted approximately 8%, as a result of the exchange rate movement of the British pound as compared to the US dollar and future material adverse exchange rate movements would have an additional unfavorable translation impact on our consolidated financial results. We are prepared to hedge against any fluctuations in foreign currencies should such fluctuations have a material economic impact on us, although we have not engaged in hedging activities to date. We performed a sensitivity analysis assuming a hypothetical 10% change in the value of the British Pound to US dollar currency exchange rate and currently estimate that such a change would not have a material impact on our loss before income taxes for the year ended December 31, 2008.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

ORCHID CELLMARK INC. AND SUBSIDIARIES

Index to Consolidated Financial Statements and Schedule

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders
Orchid Cellmark Inc.

We have audited the accompanying consolidated balance sheets of Orchid Cellmark Inc. and Subsidiaries (the "Company") (a Delaware Corporation) as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows for each of the two years then ended. Our audits of the basic financial statements included the financial statement schedule listed in the index appearing under Item 15 (2). These financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and financial statement 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 financial statements referred to above present fairly, in all material respects, the financial position of Orchid Cellmark Inc. and Subsidiaries as of December 31, 2008 and 2007, and the results of their operations and their cash flows for each of the two years then ended in conformity with accounting principles generally accepted in the United States of America. 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 also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Orchid Cellmark Inc. and Subsidiaries' 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 (COSO) and our report dated March 16, 2009 expressed an unqualified opinion.

/s/ GRANT THORNTON LLP

New York, New York
March 16, 2009

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders
Orchid Cellmark Inc.

We have audited Orchid Cellmark Inc. and Subsidiaries' (the "Company") (a Delaware Corporation) 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 (COSO). Orchid Cellmark Inc. and Subsidiaries' 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 Orchid Cellmark Inc. and Subsidiaries' 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, Orchid Cellmark Inc. and Subsidiaries maintained, in all material respects, effective internal control over financial reporting as of December 31, 2008, based on criteria established in *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Orchid Cellmark Inc. and Subsidiaries as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows for each of the two years then ended and our report dated March 16, 2009 expressed an unqualified opinion.

/s/ GRANT THORNTON LLP

New York, New York
March 16, 2009

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Orchid Cellmark Inc.:

We have audited the accompanying consolidated statements of operations, stockholders' equity and comprehensive loss, and cash flows of Orchid Cellmark Inc. and subsidiaries for the year ended December 31, 2006. In connection with our audit of the consolidated financial statements, we also have audited the financial statement schedule, Schedule II—Valuation and Qualifying Accounts for the year ended December 31, 2006. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedule 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 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 audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the results of operations and cash flows of Orchid Cellmark Inc. and subsidiaries for the year ended December 31, 2006, 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 consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set therein.

/s/ KPMG LLP

Princeton, New Jersey
March 15, 2007

ORCHID CELLMARK INC. AND SUBSIDIARIES

Consolidated Balance Sheets
December 31, 2008 and 2007
(In thousands, except share and per share data)

	2008	2007
Assets		
Current assets:		
Cash and cash equivalents	$ 14,998	$ 20,918
Accounts receivable, net of allowance of $533 and $799 as of December 31, 2008 and 2007, respectively	9,826	9,516
Inventory	1,262	1,443
Prepaids and other current assets	1,392	2,151
Total current assets	27,478	34,028
Fixed assets, net	5,859	7,440
Goodwill	9,336	9,519
Other intangibles, net	7,570	9,694
Restricted cash	—	958
Other assets	406	490
Total assets	$ 50,649	$ 62,129
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 2,544	$ 2,027
Accrued expenses and other current liabilities	2,288	4,611
Income taxes payable	—	543
Short-term debt and current portion of long-term debt	338	428
Deferred revenue	842	964
Total current liabilities	6,012	8,573
Long-term debt	—	337
Other liabilities	269	786
Total liabilities	6,281	9,696
Commitments and contingencies		
Stockholders' equity:		
Preferred stock; authorized 5,000,000 shares		
Series A redeemable convertible preferred stock; $0.001 per share par value; designated 5 shares; no shares issued or outstanding	—	—
Series A junior participating preferred stock; designated 1,000,000 shares; no shares issued or outstanding	—	—
Common stock; $0.001 par value; authorized 150,000,000 shares; issued 30,098,269 and 30,097,394 shares at December 31, 2008 and 2007, respectively	30	30
Additional paid-in capital	371,377	370,129
Accumulated other comprehensive income (loss)	(980)	3,852
Treasury stock at cost, 163,259 common shares at December 31, 2008 and 2007	(1,587)	(1,587)
Accumulated deficit	(324,472)	(319,991)
Total stockholders' equity	44,368	52,433
Total liabilities and stockholders' equity	$ 50,649	$ 62,129

See accompanying notes to consolidated financial statements.

ORCHID CELLMARK INC. AND SUBSIDIARIES

Consolidated Statements of Operations
Years ended December 31, 2008, 2007 and 2006
(In thousands, except per share data)

	2008	2007	2006
Revenues:			
Service revenues	$57,365	$60,048	$ 56,566
Other revenues	230	255	288
Total revenues	57,595	60,303	56,854
Operating expenses:			
Cost of service revenues	40,287	40,230	39,705
Research and development	846	1,045	1,228
Marketing and sales	5,860	6,021	6,766
General and administrative	16,076	15,385	18,980
Restructuring	—	(75)	437
Amortization of intangible assets	1,895	1,806	1,765
Total operating expenses	64,964	64,412	68,881
Operating loss	(7,369)	(4,109)	(12,027)
Other income (expense):			
Interest income	369	1,035	617
Interest expense	(38)	(11)	—
Other income	849	138	282
Total other income, net	1,180	1,162	899
Loss before income taxes	(6,189)	(2,947)	(11,128)
Income tax benefit (expense)	1,708	(20)	(143)
Net loss	$(4,481)	$(2,967)	$(11,271)
Basic and diluted net loss per share	$ (0.15)	$ (0.10)	$ (0.45)
Shares used in computing basic and diluted net loss per share	29,935	29,583	24,892

See accompanying notes to consolidated financial statements.

ORCHID CELLMARK INC. AND SUBSIDIARIES

Consolidated Statements of Stockholders' Equity and Comprehensive Loss
Years ended December 31, 2008, 2007 and 2006
(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Accumulated Deficit	Total Stockholders' Equity
	Number of Shares	Amount					
Balance at January 1, 2006	24,495	$ 24	$351,553	$ 1,240	$(1,587)	$(305,753)	$ 45,477
Net loss	—	—	—	—	—	(11,271)	(11,271)
Foreign currency translation adjustment	—	—	—	1,908	—	—	1,908
Unrealized gain on available-for-sale securities	—	—	—	8	—	—	8
Reclassification adjustment for realized gain on available-for-sale securities	—	—	—	(7)	—	—	(7)
Reclassification adjustment for impairment charge on available-for-sale securities	—	—	—	259	—	—	259
Comprehensive loss							(9,103)
Issuance of common stock in private placement	4,875	5	13,165	—	—		13,170
Issuance of common stock from exercise of stock options	12	—	42	—	—	—	42
Stock-based compensation expense	100	—	1,320	—	—	—	1,320
Balance at December 31, 2006	29,482	29	366,080	3,408	(1,587)	(317,024)	50,906
Net loss	—	—	—	—	—	(2,967)	(2,967)
Foreign currency translation adjustment	—	—	—	444	—	—	444
Comprehensive loss							(2,523)
Issuance of common stock for acquisition	560	1	2,912	—	—	—	2,913
Issuance costs of common stock in private placement	—	—	(77)	—	—	—	(77)
Issuance of common stock from exercise of stock options	14	—	24	—	—	—	24
Stock-based compensation expense	41	—	1,190	—	—	—	1,190
Balance at December 31, 2007	30,097	30	370,129	3,852	(1,587)	(319,991)	52,433
Net loss	—	—	—	—	—	(4,481)	(4,481)
Foreign currency translation adjustment	—	—	—	(4,832)	—	—	(4,832)
Comprehensive loss							(9,313)
Issuance of common stock from exercise of stock options	1	—	2	—	—	—	2
Stock-based compensation expense	—	—	1,246	—	—	—	1,246
Balance at December 31, 2008	30,098	$ 30	$371,377	$ (980)	$(1,587)	$(324,472)	$ 44,368

See accompanying notes to consolidated financial statements.

ORCHID CELLMARK INC. AND SUBSIDIARIES

Consolidated Statements of Cash Flows
Years ended December 31, 2008, 2007 and 2006
(In thousands)

	2008	2007	2006
Cash flows from operating activities:			
Net loss	$(4,481)	$(2,967)	$(11,271)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Non-cash compensation expense	1,246	1,190	1,320
Depreciation and amortization	4,477	4,669	5,105
Bad debt expense	(36)	60	329
Loss on sale of assets	8	123	254
Impairment of assets	—	—	259
Gain on sale of short-term investments	—	—	(7)
Changes in assets and liabilities, net of effect of acquisition:			
Accounts receivable	(1,905)	3,062	(1,239)
Inventory	(88)	(301)	(18)
Prepaids and other current assets	698	(292)	153
Other assets	11	61	(174)
Accounts payable	945	(744)	(1,049)
Accrued expenses and other current liabilities, including restructuring	(2,080)	(1,063)	(5,064)
Deferred revenue	(184)	19	—
Income taxes payable	(425)	(470)	(199)
Other liabilities	(517)	(327)	(20)
Net cash provided by (used in) operating activities	(2,331)	3,020	(11,621)
Cash flows from investing activities:			
Capital expenditures	(2,121)	(1,154)	(2,505)
Decrease in restricted cash	958	—	778
Proceeds from sale of assets	—	23	56
Sales of short-term investments	—	—	91
Acquisition of ReliaGene Technologies, Inc., net of cash acquired	—	(5,021)	—
Net cash used in investing activities	(1,163)	(6,152)	(1,580)
Cash flows from financing activities:			
Proceeds from issuance of common stock	2	24	14,081
Issuance costs of common stock in private placement	—	(77)	(869)
Repayment of debt	(427)	(183)	—
Payments of patent obligation liability	—	(149)	(150)
Net cash provided by (used in) financing activities	(425)	(385)	13,062
Effect of foreign currency translation on cash and cash equivalents	(2,001)	291	1,085
Net increase (decrease) in cash and cash equivalents	(5,920)	(3,226)	946
Cash and cash equivalents at beginning of period	20,918	24,144	23,198
Cash and cash equivalents at end of period	$14,998	$20,918	$ 24,144
Supplemental disclosure of non-cash financing and investing activities:			
Stock issued for acquisition of ReliaGene Technologies, Inc.	$ —	$ 2,913	$ —
Supplemental disclosure of cash flow information:			
Cash paid during the year for interest	$ 38	$ 11	$ —
Cash paid during the year for taxes	836	1,477	1,686

See accompanying notes to consolidated financial statements.

(1) Summary of Significant Accounting Policies

Organization and Business Activities

Orchid Cellmark Inc. and its subsidiaries (the Company) are engaged in the provision of DNA testing services that generate genetic profile information by analyzing an organism's unique genetic identity. The Company focuses its business on DNA testing primarily for human identity and, to a lesser extent, agricultural applications. In the human identity area, the Company provides DNA testing services for forensic, family relationship and, to a lesser extent, security applications. Forensic DNA testing is primarily used to confirm that a suspect committed a particular crime, to exonerate an innocent person or to establish or maintain databases of individuals convicted of crimes or, in some instances, arrested in connection with crimes. The Company is also engaged in the provision of non-DNA forensic laboratory services. Family relationship DNA testing is used to establish whether two or more people are genetically related. DNA testing is used by individuals and employers in security applications to establish or store a person's genetic profile for identification purposes in the event of an emergency or accident. In agricultural applications, the Company provides DNA testing services for selective trait breeding. The Company has operations in the United States (US), and in the United Kingdom (UK), and the majority of its current customers are based in these two countries. The Company's forensic, family relationship and security DNA testing services are conducted in both the US and the UK, while all of its agricultural DNA testing services are conducted in the UK. The Company was organized under the laws of the state of Delaware on March 8, 1995.

Consolidated Financial Statements

The accompanying consolidated financial statements include the results of operations of the Company and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

Concentration of Credit Risk

Financial instruments which potentially subject the Company to concentrations of credit risk consist principally of cash, cash equivalents, and accounts receivable. The Company maintains cash investments primarily in money market securities, U.S. Treasury and government agency securities, and commercial paper. The Company maintains its holdings in cash in excess of federally insured amounts and in cash equivalents with high credit-quality financial institutions in order to minimize credit risk exposure.

Concentrations of credit risk with respect to accounts receivable are limited due to the large number of customers and the fact that the Company's accounts receivable is largely comprised of amounts owed by government agencies. The Company performs periodic credit evaluation of its customers' financial condition and generally does not require a deposit from government agencies or private institutions. The Company believes that individual private customers for paternity testing represent the most significant credit risk and generally requires a deposit for all or a portion of the services to be rendered to such customer. The Company records an allowance for doubtful accounts, reducing the receivables balance to an amount it estimates is collectible from its customers. Estimates used in determining the allowance for doubtful accounts are based on historical collection experience, current trends, aging of accounts receivable, and periodic credit evaluations of the Company's

customers' financial condition. When aware of a specific customer's inability to meet its financial obligations, such as in the case of bankruptcy filings or deterioration in the customer's operating results or financial position, the Company records a specific reserve for bad debt to reduce the related receivable to the amount the Company reasonably believes is collectible. Accounts are also reviewed for potential write-off on a case by case basis. Accounts deemed uncollectible are written off, net of expected recoveries. If circumstances related to specific customers change, the Company's estimates of the recoverability of receivables could be further adjusted.

Fixed Assets

Fixed assets, which consist of lab equipment, furniture and fixtures, computers and software, are carried at cost, less accumulated depreciation, which is computed on the straight-line basis over the estimated useful lives of the related assets. Leasehold improvements, which are also included in fixed assets, are recorded at cost, less accumulated depreciation, which is computed on the straight-line basis over the shorter of their estimated useful lives or the lease term. Expenditures for maintenance and repairs are charged to expense as incurred. Upon retirement or other disposition of fixed assets, the cost and related accumulated depreciation are removed from the accounts and the resulting gains or losses, if any, are reflected in earnings.

The following is a summary of the estimated useful lives of the Company's fixed assets:

	Useful Life
Laboratory equipment	5 years
Computers and software	3 years
Furniture and fixtures	7 years
Leasehold improvements	Life of lease or useful life if shorter

Inventory

Inventory is stated at the lower of cost or market. Cost is determined by the first-in, first-out method.

Business Combinations, Goodwill and Intangible Assets

The Company accounts for business combinations under the provisions of Statement of Financial Accounting Standards (FAS) No. 141, *Business Combinations* (FAS 141), which requires that the purchase method of accounting be used for all business combinations. FAS 141 also specifies criteria intangible assets acquired in a purchase method business combination must meet to be recognized and reported apart from goodwill. Goodwill represents the excess purchase price over the fair value of the tangible net assets and intangible assets acquired in a business combination. In accordance with FAS No. 142, *Goodwill and Other Intangible Assets* (FAS 142), goodwill and intangible assets with indefinite useful lives are not amortized, but instead tested for impairment annually, or more frequently as needed when events or changes have occurred that would suggest an impairment of the asset. Impairment of goodwill is assessed by determining whether the fair values of the applicable reporting units exceed their carrying values. The evaluation of fair value requires the use of projections, estimates and assumptions as to the future performance of the operations in performing a discounted cash flow analysis, as well as assumptions regarding sales and earnings multiples that would be applied in comparable acquisitions. Intangible assets acquired as a result of a business combination are recorded at their fair value at the acquisition date. Intangible assets acquired individually are recorded at their acquisition cost. Definite lived intangible assets are amortized on a straight-line basis over their estimated useful lives.

Impairment of Long-Lived Assets and Long-Lived Assets to Be Disposed Of

In accordance with FAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets* (FAS 144), the Company reviews long-lived assets and intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the undiscounted future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to dispose.

Income Taxes

The Company accounts for income taxes in accordance with the asset and liability method prescribed by FAS No. 109, *Accounting for Income Taxes*. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities, and net operating loss (NOL) and credit carryforwards. Deferred tax assets and liabilities are measured using tax rates in effect for the years in which the items are expected to reverse. The measurement of deferred tax assets is reduced, if necessary, by a valuation allowance for any tax benefits which are not expected to be realized. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the period that such tax rate changes are enacted. In certain situations, a taxing authority may challenge positions that the Company has adopted in the income tax filings. Accordingly, the Company may apply different tax treatment for these selected transactions in filing its tax return than for financial reporting purposes. The Company regularly assesses its position for such transactions and includes reserves for those differences in position, if appropriate. The reserves are utilized or reversed once the statute of limitations has expired or the matter is otherwise resolved.

Revenue Recognition

The Company recognizes DNA laboratory services revenues at the time test results are completed and reported if persuasive evidence of an arrangement exists, the price to the buyer is fixed or determinable and collectibility is reasonably assured. Deferred revenues represent the unearned portion of payments received in advance of tests being completed and reported. Unbilled receivables represent revenue which has been earned on completed and reported tests, but has not been billed to the customer. Revenues from license arrangements, including license fees creditable against future royalty obligations of the licensee, are recognized when an arrangement is entered into if the Company has no significant continuing involvement under the terms of the arrangement. If the Company has significant continuing involvement under such an arrangement, license fees are deferred and recognized over the estimated performance period. Management has made estimates and assumptions relating to the performance period, which are subject to change. Changes in these estimates and assumptions could affect the amount of revenues from licenses reported in any given period.

Research and Development

Costs incurred for research and product development, including salaries and related personnel costs, fees paid to consultants and outside service providers, and material costs for prototypes and test units, are expensed as incurred. The Company recognizes research and development expenses in the period incurred and in accordance with the specific contractual performance terms of such research agreements. Costs incurred in obtaining technology licenses and development of software is charged to research and development expense if the technology licensed or the software being developed has not reached technological feasibility.

Use of Estimates

The preparation of consolidated financial statements in conformity with US generally accepted accounting principles (GAAP) requires the Company to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. The Company bases its estimates on historical experience and on other assumptions that it believes to be relevant under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. In particular, judgment is used in areas such as the allowance for doubtful accounts, impairment of long-lived assets and goodwill, accrual of bonuses, lease guarantee liability, stock-based compensation and income taxes. Actual results could differ from these estimates.

Financial Instruments

The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable approximate their fair values because of the short maturity of these instruments. The fair values of all debt instruments were determined based on quoted market prices.

Foreign Currency Translation

The balance sheets of foreign subsidiaries are translated into US dollars at current year-end rates, and the statements of operations are translated at average monthly rates during each monthly period. Net exchange gains or losses resulting from the translation of foreign financial statements and the effect of exchange rate changes on intercompany transactions of a long-term investment nature are accumulated and credited or charged directly to a separate component of stockholders' equity. Any foreign currency gains or losses related to transactions are charged to other income (expense), net.

Net Loss Per Share

Net loss per share is computed in accordance with FAS No. 128, *Earnings Per Share*, by dividing the net loss allocable to common stockholders by the weighted average number of shares of common stock outstanding. The Company has certain options which have not been used in the calculation of diluted net loss per share allocable to common stockholders because to do so would be anti-dilutive. As such, the numerator and the denominator used in computing both basic and diluted net loss per share allocable to common stockholders for each year presented are equal.

Advertising

The Company expenses all advertising costs as incurred.

Sales and Value Added Taxes

Sales and value added (VAT) taxes collected from customers are excluded from revenues. The obligation is included in accrued liabilities until the taxes are remitted to the appropriate taxing authorities.

Recent Accounting Pronouncements

In September 2006, the Financial Accounting Standards Board (FASB) issued FAS No. 157, *Fair Value Measurements* (FAS 157). FAS 157 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measurements. FAS 157 is applicable whenever another accounting pronouncement requires or permits assets and liabilities to be measured at fair value. FAS 157 does not expand or require any new fair value measures, however, the application of this statement may change current practice. The Company's adoption of this standard on January 1, 2008 was limited to financial assets and liabilities and the Company will be required to apply this standard to non-financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a nonrecurring basis for its fiscal year beginning January 1, 2009. The initial adoption of FAS 157 did not have a material effect on the Company's consolidated financial statements. However, the Company is still in the process of evaluating this standard with respect to its effect on non-financial assets and liabilities and therefore has not yet determined the impact that it will have on its consolidated financial statements upon full adoption.

In February 2007, the FASB issued FAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities* (FAS 159). FAS 159 provides companies with an option to measure, at specified election dates, many financial instruments and certain other items at fair value that are not currently measured at fair value. An entity that adopts FAS 159 will report unrealized gains and losses on items for which the fair value option has been elected in earnings at each subsequent reporting date. FAS 159 also establishes presentation and disclosure requirements designed to facilitate comparisons between entities that choose different measurement attributes for similar types of assets and liabilities. The Company adopted FAS 159 effective January 1, 2008 and the adoption of FAS 159 did not have a material impact on its consolidated financial statements.

In December 2007, the FASB issued FAS No. 141 (revised 2007), *Business Combinations* (FAS 141(R)), which replaces FAS 141. FAS 141(R) establishes principles and requirements for how an acquirer recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, any non-controlling interest in the acquiree and the goodwill acquired. This statement also establishes disclosure requirements which will enable users to evaluate the nature and financial effects of the business combination. FAS 141(R) applies prospectively to the Company's business combinations for which the acquisition date is on or after January 1, 2009.

In March 2008, the FASB issued FAS No. 161, *Disclosures about Derivative Instruments and Hedging Activities — an Amendment of FASB Statement 133* (FAS 161). FAS 161 enhances required disclosures regarding derivatives and hedging activities, including enhanced disclosures regarding how: (a) an entity uses derivative instruments; (b) derivative instruments and related hedged items are accounted for under FAS No. 133, *Accounting for Derivative Instruments and Hedging Activities*; and (c) derivative instruments and related hedged items affect an entity's financial position, financial performance, and cash flows. The Company will be required to adopt FAS 161 for its fiscal year beginning January 1, 2009. The implementation of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In April 2008, the FASB issued FASB Staff Position (FSP) No. 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 assumptions about renewal or extension used in estimating the useful life of a recognized intangible asset under FAS 142. FSP 142-3 is intended to improve the consistency between the useful life of a recognized intangible asset under FAS 142 and the period of expected cash flows used to measure the fair value of the asset under FAS 141(R) and other GAAP. FSP 142-3 is effective for financial statements issued for fiscal years beginning after December 15, 2008. The measurement provisions of this standard will apply only to intangible assets of the Company acquired after the effective date.

In May 2008, the FASB issued FAS No. 162, *The Hierarchy of Generally Accepted Accounting Principles* (FAS 162). FAS 162 supersedes the existing hierarchy contained in the US auditing standards. The existing hierarchy was carried over to FAS 162 essentially unchanged. FAS 162 becomes effective 60 days following the Securities and Exchange Commission's (SEC) approval of the Public Company Accounting Oversight Board amendments to the auditing literature. The new hierarchy is not expected to change current accounting practices in any area.

In June 2008, the FASB issued FSP Emerging Issues Task Force (EITF) Issue No. 03-6-1, *Determining Whether Instruments Granted in Share-Based Payment Transactions Are Participating Securities* (FSP EITF 03-6-1). FSP EITF 03-6-1 clarified that all outstanding unvested share-based payment awards that contain rights to nonforfeitable dividends participate in undistributed earnings with common shareholders. Awards of this nature are considered participating securities and the two-class method of computing basic and diluted earnings per share must be applied. FSP EITF 03-6-1 is effective for fiscal years beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In June 2008, the FASB ratified EITF Issue No. 07-5, *Determining Whether an Instrument (or Embedded Feature) Is Indexed to an Entity's Own Stock* (EITF 07-5). EITF 07-5 provides that an entity should use a two step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument's contingent exercise and settlement provisions. It also clarifies the impact of foreign currency denominated strike prices and market-based employee stock option valuation instruments on the evaluation. EITF 07-5 is effective for fiscal years beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In September 2008, the FASB issued FSP No. 133-1 and FIN No. 45-4, *Disclosures about Credit Derivatives and Certain Guarantees: An Amendment of FASB Statement No. 133 and FASB Interpretation No. 45; and Clarification of the Effective Date of FASB Statement No. 161* (FSP 133-1 and FIN 45-4). FSP 133-1 and FIN 45-4 amends and enhances disclosure requirements for sellers of credit derivatives and financial guarantees. It also clarifies that the disclosure requirements of FAS 161 are effective for quarterly periods beginning after November 15, 2008, and fiscal years that include those periods. FSP 133-1 and FIN 45-4 are effective for reporting periods (annual or interim) ending after November 15, 2008. The implementation of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In September 2008, the FASB ratified EITF Issue No. 08-5, *Issuer's Accounting for Liabilities Measured at Fair Value With a Third-Party Credit Enhancement* (EITF 08-5). EITF 08-5 provides guidance for measuring liabilities issued with an attached third-party credit enhancement (such as a guarantee). It clarifies that the issuer of a liability with a third-party credit enhancement (such as a guarantee) should not include the effect of the credit enhancement in the fair value measurement of the liability. EITF 08-5 is effective for the first reporting period beginning after December 15, 2008. The implementation of this standard is not expected to have a material impact on the Company's consolidated financial position and results of operations.

In October 2008, the FASB issued FSP No. 157-3, *Determining the Fair Value of a Financial Asset When the Market for That Asset Is Not Active,* (FSP 157-3). FSP 157-3 clarified the application of FAS 157 in an inactive market. It demonstrated how the fair value of a financial asset is determined when the market for that financial asset is inactive. FSP 157-3 was effective upon issuance, including prior periods for which financial statements had not been issued. The implementation of this standard did not have a material impact on the Company's consolidated financial position and results of operations.

(2) Stock-based Compensation

During 1995, the Company established the 1995 Stock Incentive Plan (the 1995 Plan), which provided for the granting of restricted common stock or incentive and nonqualified stock options to the Company's directors, employees and consultants. An aggregate of 700,000 shares of the Company's common stock was authorized for issuance under the 1995 Plan, which expired by its terms on November 28, 2005.

During 2000, the Board of Directors and stockholders of the Company approved the 2000 Employee, Director and Consultant Stock Incentive Plan (the 2000 Plan) for the issuance of common stock, incentive stock options and nonqualified stock options to the Company's employees, directors and consultants. The Company was originally authorized to issue options for up to 900,000 shares of the Company's common stock under the 2000 Plan. On June 8, 2005, at the Company's Annual Meeting of Stockholders, the stockholders approved the Company's Amended and Restated 2005 Stock Plan (the 2005 Plan). The 2005 Plan amended and restated in its entirety the 2000 Plan. The 2005 Plan authorizes the grant of up to approximately 1,700,000 shares plus the number of additional shares as described in the 2005 Plan, for the issuance of incentive stock options, nonqualified stock options, stock grants and other stock-based awards to the Company's employees, directors and consultants. On June 21, 2007, at the Company's Annual Meeting of Stockholders, the stockholders approved an amendment to the 2005 Plan to increase the aggregate number of shares available for issuance under the 2005 Plan by 2,000,000 shares. The 2005 Plan also specifies other terms such as eligibility, annual limits and the grant of awards thereunder. The 1995 Plan and the 2005 Plan provide that in the event of a change in control in the beneficial ownership of the Company, as defined therein, all options may, at the discretion of the compensation committee of the Company's Board of Directors, become fully vested and exercisable immediately prior to the change in control.

Stock options granted under the 2005 Plan are granted at a price equal to or greater than the fair market value of the Company's common stock at the date of grant. Stock options granted to employees in general vest over four years in equal monthly installments and have a maximum term of ten years. Stock options granted to the Company's Board of Directors in general vest over three years in equal monthly installments and have a maximum term of ten years. The Company issues new shares of its common stock upon exercise of stock options.

Effective January 1, 2006, the Company adopted the provisions of, and accounts for stock-based compensation in accordance with, FAS No. 123(R), *Share-Based Payment* (FAS 123(R)). Under the fair value recognition provisions of this statement, stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which is the vesting period. The Company has applied the modified prospective method of adoption, under which prior periods are not restated for comparative purposes. Under the modified prospective method, FAS 123(R) applies to new awards and to awards that were outstanding as of December 31, 2005 that are subsequently modified, repurchased or cancelled. Compensation expense recognized during the years ended December 31, 2008, 2007 and 2006 includes expense for all share-based payments granted prior to, but not yet vested as of, December 31, 2005, based on the grant date fair value estimated in accordance with the original provisions of FAS No. 123, *Accounting for Stock-Based Compensation,* and expense for all share-based payments granted subsequent to December 31, 2005, based on the grant date fair value estimated in accordance with the provisions of FAS 123(R). Stock-based compensation is classified within cost of service revenues, research and development, marketing and sales and general and administrative expense in the consolidated statement of operations. As stock-based compensation expense recognized in the consolidated statement of operations is based on awards ultimately expected to vest, the amount of expense has been reduced for estimated forfeitures. FAS 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. Forfeitures are estimated based on historical experience.

In November 2005, the FASB issued FSP No. 123(R)-3, *Transition Election Related to Accounting for the Tax Effects of Share-Based Payment Awards*. The Company has elected not to adopt the short-cut method to calculate the beginning balance of the hypothetical additional paid-in-capital (APIC) pool of the excess tax benefits upon the Company's adoption of FAS 123(R). Utilizing the long-haul method, the Company has determined that it has no hypothetical APIC pool that can be utilized to offset future shortfalls that may be incurred.

The Company's option grants include options which qualify as incentive stock options (ISO) for income tax purposes. The treatment of the potential tax deduction, if any, related to ISOs may cause variability in the Company's effective tax rate in future periods. In the period the compensation cost related to ISOs is recorded, a corresponding tax benefit is not recorded as it is assumed that the Company will not receive a tax deduction upon the exercise of such ISOs. The Company may be eligible for tax deductions in subsequent periods to the extent that there is a disqualifying disposition of the common stock underlying the ISO. The Company also receives a tax deduction upon the exercise of nonqualified stock options. In cases where the Company receives a tax deduction, the Company would record a tax benefit through the consolidated statement of operations in an amount not to exceed the corresponding cumulative compensation cost recorded in the consolidated financial statements for the particular option multiplied by the statutory tax rate. Any incremental tax benefit received by the Company in excess of the tax benefit recorded in the consolidated statement of operations would be recorded directly to APIC when realized.

The Company uses the Black-Scholes option pricing model to estimate the fair value of options granted, which requires the input of highly subjective assumptions. The Company's assumptions used in recognizing compensation expense in the consolidated statement of operations include estimating the length of time employees will retain their vested stock options before exercising them, the estimated volatility of the Company's common stock price over the expected term and the number of options that will ultimately not vest. Changes in the subjective assumptions can materially affect the estimate of the fair value of stock-based compensation and, consequently, the related amount of compensation expense recognized in the consolidated statement of operations.

The following weighted average assumptions were used in valuing the options granted during the years ended December 31, 2008, 2007 and 2006:

	2008	2007	2006
Risk-free interest rate	3.46%	4.41%	4.98%
Volatility	80%	80%	85%
Expected option term	6 years	6 years	6 years
Expected dividend yield	0%	0%	0%

The risk-free interest rate assumption is based upon the US Treasury yields in effect at the time of grant for a term that approximates the expected term of the option. The expected volatility assumption is based on the daily historical volatility of the Company's stock price over the expected term of the option. The Company's stock options are considered "plain vanilla" options based on the guidance in SEC Staff Accounting Bulletin (SAB) No. 107, *Share-Based Payment* (SAB 107), as amended by SAB No. 110, *Share-Based Payment* (SAB 110), and as such the Company has elected the use of the "simplified" method, whereby the Company has assumed that all options will be exercised midway between the vesting date and the contractual term of the option to determine the expected term of the option The Company will continue to use the simplified method until it has the historical data necessary to provide a reasonable estimate of expected life, in accordance with SAB 107, as amended by SAB 110. As the Company has not paid dividends since inception, nor does it expect to pay any dividends for the foreseeable future, the expected dividend yield assumption is zero.

Net loss for the years ended December 31, 2008, 2007 and 2006 includes $1.2 million, $1.2 million and $1.3 million, respectively, of compensation costs related to stock-based compensation arrangements, including $207 thousand and $331 thousand related to the grant of 41,050 and 100,000 fully vested shares of common stock to the Company's President and Chief Executive Officer in December 2007 and 2006, respectively, pursuant to his amended employment agreement. The Company did not capitalize any of the compensation costs for the years ended December 31, 2008, 2007 and 2006 in fixed assets, inventory or other assets. The Company has not benefited from a tax deduction for stock option exercises due to net losses for the periods during which the options were exercised.

Information with respect to outstanding options under the plans is as follows:

	Shares	Weighted average exercise price	Weighted average remaining contractual term	Aggregate intrinsic value
Options outstanding at January 1, 2008	1,653,925	$8.13		
Granted	614,468	3.05		
Exercised	(875)	2.18		
Forfeited	(56,026)	4.52		
Expired	(48,688)	7.78		
Options outstanding at December 31, 2008	2,162,804	$6.79	7.35	$0
Options exercisable at December 31, 2008	1,215,060	$9.13	6.24	$0

Additional information about the Company's share-based payments is as follows (in thousands, except per share data):

	Year ended December 31,		
	2008	2007	2006
Total intrinsic value of options exercised	$ 2	$ 51	$ 13
Net cash proceeds from the exercise of stock options	2	24	42
Weighted average grant date fair value per share of options granted	2.15	3.52	3.26

As of December 31, 2008, there was $2.5 million of unrecognized compensation cost related to stock options, which is expected to be recognized over a weighted average period of 2.53 years.

(3) Inventory

Inventory is comprised of the following at December 31, 2008 and 2007 (in thousands):

	2008	2007
Raw materials	$ 832	$1,303
Work in progress	426	138
Finished goods	4	2
	$1,262	$1,443

Raw materials consist mainly of reagents, enzymes, chemicals and plates used in DNA testing. Work in progress consists mainly of case work not yet completed and DNA testing kits that are being processed. Finished goods consist mainly of DNA testing kits that have not yet been shipped.

(4) Fixed Assets

Fixed assets are comprised of the following at December 31, 2008 and 2007 (in thousands):

	2008	2007
Laboratory equipment	$ 13,405	$ 16,096
Computers and software	6,122	5,512
Leasehold improvements	5,454	6,861
Furniture and fixtures	1,529	1,697
	26,510	30,166
Less accumulated depreciation	(20,651)	(22,726)
	$ 5,859	$ 7,440

Depreciation expense for the Company's fixed assets for the years ended December 31, 2008, 2007 and 2006 amounted to $2.6 million, $2.9 million and $3.3 million, respectively.

(5) Goodwill and Other Intangible Assets

The following table sets forth the activity for goodwill during the years ended December 31, 2008 and 2007 (in thousands):

Balance as of December 31, 2006	$2,321
Goodwill recorded from the acquisition of ReliaGene Technologies, Inc. (ReliaGene)	7,176
Effect of foreign currency translation	22
Balance as of December 31, 2007	9,519
Additional goodwill recorded from the acquisition of ReliaGene (1)	146
Effect of foreign currency translation	(329)
Balance as of December 31, 2008	$9,336

(1) Represents the change in the allocation of ReliaGene's purchase price, which was a result of the recognition of additional facility-related restructuring liabilities.

The Company has performed an annual assessment of goodwill as required under the provisions of FAS 142, and concluded that goodwill was not impaired. As a result of market and economic conditions, the value of the Company's common stock had experienced a significant decrease as of December 31, 2008, which represented an impairment indicator for the Company's long-lived assets. The Company performed an impairment assessment as of December 31, 2008 and concluded that its long-lived assets were not impaired.

The following table sets forth the Company's other intangible assets at December 31, 2008 and 2007 (in thousands):

	2008			2007		
	Cost (1)	Accumulated Amortization	Net	Cost (1)	Accumulated Amortization	Net
Customer list	$ 6,741	$ (4,178)	$2,563	$ 7,057	$ (3,798)	$3,259
Patents and know-how	4,894	(2,820)	2,074	4,915	(2,417)	2,498
Trademark/tradename	4,194	(2,731)	1,463	4,453	(2,531)	1,922
Base technology	5,978	(4,516)	1,462	6,130	(4,133)	1,997
Non-compete agreements	20	(12)	8	20	(2)	18
Totals	$21,827	$(14,257)	$7,570	$22,575	$(12,881)	$9,694

(1) Cost includes the cumulative historical effect of foreign currency translation on intangible assets acquired in a prior business combination. This cumulative historical effect of foreign currency translation amounted to $4 thousand and $751 thousand as of December 31, 2008 and 2007, respectively.

The Company's expected future amortization expense related to intangible assets over the next five years is as follows (in thousands):

2009	$1,852
2010	1,844
2011	1,433
2012	721
2013	655

(6) Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities are comprised of the following at December 31, 2008 and 2007 (in thousands):

	2008	2007
VAT and other taxes	$ 966	$1,164
Professional fees	441	356
Employee compensation	376	1,133
Facility related accruals	273	309
Restructuring and ReliaGene acquisition related accruals	40	674
Current portion of guarantee obligation	—	283
Other	192	692
	$2,288	$4,611

(7) Restructuring

During the year ended December 31, 2006, the Company incurred $437 thousand of restructuring charges. Of these charges, $424 thousand was primarily related to employee severance costs resulting from workforce reductions in the corporate office and $143 thousand of the restructuring charges was primarily related to facility costs for the Company's former Germantown, Maryland and Dallas, Texas facilities, offset by $130 thousand in reductions related to the early termination of the Company's lease at its former Germantown, Maryland facility.

During the year ended December 31, 2007, the Company recorded a restructuring benefit of $75 thousand as a result of favorable settlement of an employee obligation. In addition, in connection with the acquisition of ReliaGene, the Company assumed $674 thousand in restructuring reserves, of which $513 thousand was related to workforce reductions and involuntary relocation and $161 thousand was related to facility costs.

During the year ended December 31, 2008, the Company finalized the allocation of the purchase price of ReliaGene, and as a result recognized an additional $146 thousand in restructuring reserves, which was related to facility costs.

A summary of the restructuring activity is as follows (in thousands):

	Workforce Reduction	Facility Costs	Total
Restructuring liability as of December 31, 2005	$ 27	$ 844	$ 871
Restructuring charges recorded in 2006	424	143	567
Cash payments in 2006	(187)	(857)	(1,044)
Other reductions	—	(130)	(130)
Restructuring liability as of December 31, 2006	264	—	264
Restructuring reserve assumed in ReliaGene acquisition	513	161	674
Cash payments in 2007	(189)	—	(189)
Other reductions	(75)	—	(75)
Restructuring liability as of December 31, 2007	513	161	674
Restructuring reserve assumed in ReliaGene acquisition	—	146	146
Cash payments in 2008	(493)	(287)	(780)
Restructuring liability as of December 31, 2008	$ 20	$ 20	$ 40

(8) Debt

As part of the acquisition of ReliaGene, the Company assumed $948 thousand in debt, comprised of a line of credit and various notes payable with outstanding balances of $260 thousand and $688 thousand, respectively. The line of credit, which was fully paid off during 2008 with a then outstanding balance of $170 thousand, had a maximum credit limit of $750 thousand secured by ReliaGene accounts receivable and equipment, a maturity date of December 31, 2009 and an interest rate of 6%. The notes payable, which are secured by ReliaGene's equipment, have interest rates ranging from 4.50% to 8.50% and maturity dates ranging from June 30, 2009 through September 5, 2011. As of December 31, 2008, the outstanding balance for the notes payable was $338 thousand, which was classified as current portion of long-term debt on the consolidated balance sheet, as it is the Company's intention to repay this debt in full within the next twelve months.

(9) Income Taxes

The provision for income taxes is based on loss from continuing operations before income taxes reported for financial statement purposes. The components are as follows (in thousands):

	Year ended December 31,		
	2008	2007	2006
United States	$(6,107)	$(5,912)	$(14,750)
Foreign	(82)	2,965	3,622
Loss before income taxes	$(6,189)	$(2,947)	$(11,128)

The components of income tax expense (benefit) are summarized as follows (in thousands):

	Year ended December 31,		
	2008	2007	2006
Current income tax expense (benefit):			
State	$(1,468)	$(1,149)	$ (749)
Foreign	(193)	1,101	1,106
Total current expense (benefit)	(1,661)	(48)	357
Deferred foreign tax expense (benefit)	(47)	68	(214)
Income tax expense (benefit)	$(1,708)	$ 20	$ 143

During 2008, the Company recognized a current foreign tax benefit of $193 thousand, primarily from the reversal of a reserve for tax return positions taken on its UK subsidiary tax return filings as a result of expired statutes of limitations and a deferred foreign tax benefit of $47 thousand. In addition, the Company recorded a tax benefit of $1.5 million associated with the sale of some of its state NOL carryforwards. No tax benefit was recorded relating to our US business' losses or other US deferred tax assets as management deemed that it was not more likely than not that such tax benefit would be realized.

During 2007, the Company recognized current foreign tax expense of $1.1 million and deferred foreign tax expense of $68 thousand, primarily for its profitable business in the UK. In addition, the Company recorded a tax benefit of $1.1 million associated with the sale of some of its state NOL carryforwards during the fourth quarter of 2007. No tax benefit was recorded relating to the Company's US business' losses or other deferred tax assets as management deemed that it was not likely than such tax benefit would be realized.

During 2006, the Company recognized a tax benefit of $749 thousand from the sale of a portion of its New Jersey state NOL carryforwards. During 2006, the Company also reversed $215 thousand of a tax reserve for tax return positions taken on its UK subsidiary tax return filings due to the closing of the statute of limitations for the Company's 2004 UK tax return. In addition, the Company recognized a current foreign tax expense of $1.3 million, primarily related to its profitable business in the UK and $214 thousand of deferred foreign tax benefit, primarily related to its profitable businesses in the UK and Canada.

The Company adopted the provisions of FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (FIN 48), on January 1, 2007. As a result of the implementation of FIN 48, the Company recognized no material adjustment in the liability for unrecognized income tax benefits. As of January 1, 2007 and December 31, 2007, the unrecognized tax benefits amounted to approximately $175 thousand, including an immaterial amount for accrued interest and penalties related to uncertain tax positions, all of which would affect the Company's effective tax rate if recognized. During the year ended December 31, 2008, as a result of expired statutes of limitations, the Company recognized a previously unrecognized income tax benefit of $175 thousand. The Company recognizes interest and penalties related to uncertain tax positions in income tax expense. The tax years 2006 and 2007 remain open to examination by the UK taxing authorities and the tax years 2005 to 2007 remain open to examination by the US taxing authorities. In addition, the US taxing authorities may examine the tax years from the Company's inception in 1995 through 2004, but are barred from adjusting the tax liabilities in excess of the net operating losses generated in any of those tax years.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

Balance at January 1, 2007	$ 175
Additions based on tax positions related to the current year	—
Additions for tax positions of prior years	—
Reductions for tax positions of prior years	—
Lapse of statute	—
Settlements	—
Balance at December 31, 2007	175
Additions based on tax positions related to the current year	—
Additions for tax positions of prior years	—
Reductions for tax positions of prior years	—
Lapse of statute	(175)
Settlements	—
Balance at December 31, 2008	$ —

The tax effects of temporary differences and loss and credit carryforwards that give rise to significant portions of the deferred tax assets and liabilities of the Company at December 31, 2008 and 2007 are presented below (in thousands):

	2008	2007
Deferred tax assets:		
Bad debt allowance and inventory reserve	$ 186	$ 291
Stock-based compensation	729	460
Deferred revenue	219	222
NOL carryforwards	94,619	95,027
Research and development and foreign tax credits	4,194	4,584
Accrued restructuring expenses	104	104
Accrued expenses	19	758
Amortization and depreciation	2,201	1,924
Investments	308	308
Total gross deferred tax assets	102,579	103,678
Less valuation allowance	(99,990)	(100,878)
Net deferred tax assets	2,589	2,800
Deferred tax liabilities:		
Intangible assets	(2,242)	(2,392)
Net deferred taxes	$ 347	$ 408

At December 31, 2008 and 2007, valuation allowances of $100.0 million and $100.9 million, respectively, have been recognized to offset the net deferred tax assets related to the US operations of the Company, as realization of these assets is uncertain. The net change in the valuation allowance for 2008 and 2007 was a decrease of $888 thousand and an increase of $2.4 million, respectively, related primarily to amortization, depreciation, foreign tax credits and additional NOL carryforwards incurred by the Company.

As of December 31, 2008, the Company has $249.3 million and $122.7 million of federal and state NOL carryforwards, respectively, available to offset future taxable income. Some of the federal and state NOL carryforwards the Company has generated or acquired have begun to expire. At December 31, 2008, the Company had research and development and foreign tax credit carryforwards for federal and state tax purposes of $4.6 million, which will begin expiring in 2022 and 2009, respectively. As a result of the Company's acquisitions of GeneScreen, Inc. and Lifecodes Corporation, the Company acquired federal NOL carryforwards of $4.5 million and $2.0 million, respectively, of which $1.5 million has expired. In the event that the Company becomes profitable in the future and is able to utilize these NOL carryforwards, the tax benefit from these acquired NOL carryforwards will not be reflected as income tax benefits in the results of operations, but as a reduction of intangible assets and goodwill related to these acquisitions. The Company also may receive tax benefits in the future relating to stock option deductions that will not be reflected in the results of operations.

The Tax Reform Act of 1986 (the Act) provides for a limitation on the annual use of NOL carryforwards and research and development credit carryforwards following certain ownership changes, as defined by the Act, which could significantly limit the Company's ability to utilize these carryforwards. The Company has determined that an ownership change, as defined by the Act, occurred in 1999 and as a result $41.4 million of the Company's NOL carryforwards is limited. The Company may have experienced other ownership changes, as defined by the Act, as a result of past financings and may experience others in connection with future financings. Accordingly, the Company's ability to utilize the aforementioned NOL carryforwards may be further limited in the future.

The Company recorded an income tax benefit of $1.7 million in 2008 and income tax expense of $20 thousand and $143 thousand in 2007 and 2006, respectively. The following table represents a reconciliation of the Company's income tax expense to amounts computed by applying the statutory US federal income tax rate of 35% to loss before income taxes (in thousands):

	Year ended December 31,		
	2008	2007	2006
Computed expected tax benefit	$(2,166)	$(1,031)	$(3,895)
State income taxes, net of federal income tax benefit	(1,468)	(1,114)	(764)
Foreign tax differential	(37)	(185)	(225)
Write down of unrecognized income tax benefits	(175)	—	—
Permanent differences	545	397	2,814
Change in valuation allowance	1,593	1,953	2,213
	$(1,708)	$ 20	$ 143

The Company sold certain state NOL carryforwards in accordance with the state of New Jersey's Corporation Business Tax Benefit Certificate Transfer program (the Program) and generated benefits of $1.5 million, $1.1 million and $749 thousand for 2008, 2007 and 2006, respectively. The Program allows certain high technology and biotechnology companies to sell unused NOL carryforwards to other New Jersey corporation business taxpayers. Since New Jersey law provides that NOL carryforwards can be carried over for up to seven years, the Company may be able to transfer its New Jersey NOL carryforwards from the last seven years. The Program requires that the purchaser pay at least 75% of the amount of the surrendered tax benefit. During 2008, 2007 and 2006, the Company completed the sale of $21.3 million, $15.4 million and $10.0 million, respectively, of its New Jersey NOL carryforwards.

The Company has made no provision for US taxes on cumulative earnings of foreign subsidiaries as those earnings are intended to be reinvested for an indefinite period of time. The Company's cumulative undistributed earnings of foreign subsidiaries amounted to $8.8 million at December 31, 2008. Determination of the potential amount of unrecognized deferred US income tax liability related to such reinvested income is not practicable because of numerous assumptions associated with this hypothetical calculation. However, foreign tax credits would be available to reduce some portion of this amount. As of December 31, 2008 and based on tax laws in effect as of this date, it is the Company's intention to indefinitely reinvest the undistributed earnings of foreign subsidiaries.

(10) Significant Customers and Geographic Information

During the year ended December 31, 2008, the Company did not have a customer significant enough to generate 10% or more of its total revenues. During the years ended December 31, 2007 and 2006, the Company generated $12.5 million or 21% and $13.1 million or 23% of its total revenues, respectively, through an agreement with one customer.

The Company has significant international operations, primarily in the UK. During the years ended December 31, 2008, 2007 and 2006, the Company recorded revenues from international customers of $26.4 million, or 46%, $30.0 million, or 50%, and $27.6 million, or 48%, respectively, of total revenues. The customer noted above represented approximately 42% and 48% of total international revenues in 2007 and 2006, respectively.

At December 31, 2008 and 2007, the Company has long-lived assets of $3.3 million and $4.0 million located in the US, and $2.5 million and $3.5 million located in the UK, respectively.

(11) Common Stock Offerings

On November 21, 2006, the Company entered into definitive agreements with certain new and existing institutional investors to raise $14.0 million in gross proceeds ($13.1 million in net proceeds after direct transaction costs) in a common stock private placement. Pursuant to the agreements, the Company sold approximately 4,875,000 shares of common stock at $2.88 per share. The transaction closed on November 21, 2006.

On February 26, 2004, the Company entered into definitive agreements with new and existing institutional investors to raise $30.3 million in gross proceeds ($26.1 million in net proceeds after direct transaction costs) in a common stock private placement. The transaction closed on February 27, 2004. Pursuant to the agreements, the Company sold approximately 3,158,000 shares of common stock at $9.60 per share and granted the investors four-year warrants to purchase an additional approximately 632,000 shares of the Company's common stock at an exercise price of $11.48 per share, all of which expired by their terms and without exercise on February 27, 2008. The Company determined that the securities purchase agreement did not expressly provide that the shares issuable upon the exercise of the warrants had to be registered and there were no express or implied remedies to the warrant holders that would indicate that the Company was required to net-cash settle the warrants in the event of delivery of unregistered shares in settlement of the contract. In accordance with the guidance in the FASB's EITF Issue No. 00-19, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*, the Company accounted for the warrants issued in this transaction as part of permanent equity.

(12) Stockholder Rights Plan

On May 16, 2001, the Company's Board of Directors adopted a Stockholder Rights Plan (Rights Plan), which is designed to protect the Company's stockholders in the event of any takeover offer. On May 16, 2001, the Company's Board of Directors declared a dividend of one preferred stock purchase right (a Right) for each outstanding share of the Company's common stock to stockholders of record at the close of business on May 31, 2001 (the Record Date). Each Right entitles the registered holder to purchase from the Company one one-hundredth of a share of Series A junior participating preferred stock, $0.001 par value per share, at an initial purchase price of $40.00 in cash, subject to adjustment.

Initially, the Rights will be attached to all common stock certificates representing shares then outstanding, and no separate Rights certificates will be distributed. The Rights will separate from the common stock and a Distribution Date, as defined in the Rights Plan, will occur if certain events as described below transpire. Rights will also be attached to all shares of common stock issued following the Record Date but prior to the Distribution Date. The Rights are not exercisable until the Distribution Date and will expire at the close of business on May 16, 2011, unless earlier redeemed by the Company. The Distribution Date has not occurred as of December 31, 2008.

In the event that a person or a group of affiliated or associated persons becomes the beneficial owner of more than 15% of the then outstanding shares of common stock (except pursuant to an offer for all outstanding shares of common stock which the Board of Directors determines to be fair to, and otherwise in the best interests of, the Company and its stockholders), each holder of a Right will thereafter have the right to receive, upon exercise, that number of shares of common stock (or, in certain circumstances, cash, property or other securities of the Company) which equals the exercise price of the Right divided by one-half of the current market price (as defined in the Rights Plan) of the common stock at the date of the occurrence of the event. However, Rights are not exercisable following the occurrence of any of the events set forth above until such time as the Rights are no longer redeemable by the Company. In the event that the Company is acquired in a merger or other business combination transaction in which the Company is not the surviving corporation, or, more than 50% of the Company's assets or earning power is sold or transferred, each holder of a Right shall thereafter have the right to receive, upon exercise, that number of shares of common stock of the acquiring company which equals the exercise price of the Right divided by one-half of the current market price (as defined in the Rights Plan) of such common stock at the date of the occurrence of the event.

(13) Employee Stock Purchase Plan

During the year ended December 31, 2003, the Company's stockholders approved the 2003 Employee Stock Purchase Plan (the ESPP). The ESPP has not yet been implemented and there are no plans to implement the ESPP at this time. Employees who own more than 5% of the Company's stock may not participate in the ESPP. At the beginning of an offering period, as defined in the ESPP document, each participant receives an option to purchase shares of common stock at the end of each accumulation period, at an exercise price equal to the lesser of 85% of (i) the fair market value of the common stock on the last trading day before the start of the applicable offering period, or (ii) the fair market value of the common stock on the last trading day of the accumulation period. The maximum number of shares that may be purchased by any participant in the ESPP in an accumulation period is 25,000 shares. No participant may purchase shares having an aggregate fair market value greater than $25 thousand in any calendar year. A total of 700,000 shares of the Company's common stock are reserved for issuance under the ESPP as of December 31, 2008. The ESPP may be amended, suspended or terminated at any time by the Board of Directors. Amendments affecting any increase in the number of shares available under the ESPP and any other amendment to the extent required by applicable law or regulation shall be subject to the approval of the Company's stockholders.

(14) Employee Benefit Plan

The Company sponsors a defined contribution 401(k) savings plan (the 401(k) Plan) covering all employees of the Company. Participants can contribute up to 15% of their pretax annual compensation to the 401(k) Plan, subject to certain limitations. The Company matches 50% of the participant's contribution, up to 4% of compensation. For the years ended December 31, 2008, 2007 and 2006, the Company's contributions amounted to $161 thousand, $168 thousand and $169 thousand, respectively, in accordance with the terms of the 401(k) Plan.

(15) Commitments and Contingencies

The Company leases office and laboratory facilities and certain equipment under noncancelable operating lease arrangements. Several of the Company's facility leases contain renewal options and rent escalation clauses. Rent expense amounted to $2.0 million in 2008, $1.9 million in 2007 and $1.7 million in 2006. Future minimum rental commitments required by such leases as of December 31, 2008 are as follows (in thousands):

2009	$1,727
2010	1,387
2011	698
2012	433
2013	330
Thereafter	1,014
	$5,589

In connection with the sale of assets and liabilities of the Company's Diagnostics business to Tepnel Life Sciences, PLC (Tepnel) in 2004, the Company was required to sign an unconditional guarantee related to the lease for the Stamford, Connecticut based laboratory, which was assigned to Tepnel. The fair value of the guarantee amounted to zero and $739 thousand, respectively, as of December 31, 2008 and 2007. The Company valued the guarantee based on the existing terms and conditions of the lease, an estimated vacancy period of the space prior to subleasing the space, and the likelihood of Tepnel breaching its obligation under the assigned lease. The lease terminates in April of 2010. Minimum remaining rents under the assigned lease totaled $755 thousand as of December 31, 2008. Based on Tepnel's continuing performance under the sublease and a review of risks associated with the guarantee, in 2008, the Company revised its estimate for the Tepnel lease guarantee. As a result, the Company recorded a benefit of $739 thousand for the year ended December 31, 2008, included in other income, net.

Several of the Company's operating leases contain clauses that could require it to restore the leased premises to their original condition. Based upon the nature of the Company's leasehold improvements and historical experience in exiting leases with similar clauses, the Company believes there is a minimal probability of it incurring a material restoration expense and as such, has not recorded an accrual for these obligations.

(16) Accumulated Other Comprehensive Income (Loss)

The accumulated balances for each classification of items within accumulated other comprehensive income (loss) are as follows (in thousands):

	Foreign currency translation	Unrealized gains (losses) on securities	Accumulated other comprehensive income (loss)
Balance at January 1, 2006	$ 1,500	$(260)	$ 1,240
Foreign currency translation adjustment	1,908	—	1,908
Unrealized holding gain on available-for-sale securities	—	8	8
Reclassification adjustment for realized gain on available-for-sale securities	—	(7)	(7)
Reclassification adjustment for impairment charge on available-for-sale securities (1)	—	259	259
Balance at December 31, 2006	3,408	—	3,408
Foreign currency translation adjustment	444	—	444
Balance at December 31, 2007	3,852	—	3,852
Foreign currency translation adjustment	(4,832)	—	(4,832)
Balance at December 31, 2008	$ (980)	$ —	$ (980)

(1) The Company performed an evaluation to determine whether its investment in certain available-for-sale securities was other than temporarily impaired, based upon the Company's ability and intent to hold for a reasonable period of time sufficient for a forecasted recovery of fair value, as of March 31, 2006. As a result of this evaluation and the absence of sufficient evidence to support a recovery of fair value within a reasonable period of time, the Company considered the investment in the available-for-sale securities to be other than temporarily impaired and recorded an impairment loss of $259 thousand related to these securities during the year ended December 31, 2006. This impairment loss is included in other income, net in the consolidated statement of operations.

(17) Related Party Transactions

During the three months ended June 30, 2008, the Company entered into a consulting agreement with L.E.K. Consulting LLP (L.E.K), of which Kenneth Noonan, Ph.D., a director of the Company, is a partner. The Company paid L.E.K. fees of $150 thousand in connection with their services, which were completed during the three months ended September 30, 2008.

(18) Legal Proceedings

On or about November 21, 2001, a complaint was filed in the United States District Court for the Southern District of New York naming the Company as a defendant, along with certain of its former officers and underwriters. An amended complaint was filed on April 19, 2002. The complaint, as amended, purportedly was filed on behalf of persons purchasing the Company's stock between May 4, 2000 and December 6, 2000, and alleges violations of Sections 11, 12(a)(2) and 15 of the Securities Act of 1933, as amended, and Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder. The amended complaint alleges that, in connection with the Company's May 5, 2000 initial public offering (IPO), the defendants failed to disclose additional and excessive commissions purportedly solicited by and paid to the underwriter defendants in exchange for allocating shares of the Company's stock to preferred customers and

alleged agreements among the underwriter defendants and preferred customers tying the allocation of IPO shares to agreements to make additional aftermarket purchases at pre-determined prices. Plaintiffs claim that the failure to disclose these alleged arrangements made the Company's registration statement on Form S-1 filed with the SEC in May 2000 and the prospectus, a part of the registration statement, materially false and misleading. Plaintiffs seek unspecified damages. The Company believes that the allegations are without merit and has, and intends to continue to, vigorously defend itself against plaintiffs' claims. In this regard, on or about July 15, 2002, the Company filed a motion to dismiss all of the claims against it and its former officers. On October 9, 2002, the Court dismissed without prejudice only the Company's former officers, Dale R. Pfost and Donald R. Marvin, from the litigation in exchange for the Company entering into a tolling agreement with plaintiffs' executive committee. On February 19, 2003, the Company received notice of the Court's decision to dismiss the Section 10(b) claims against the Company. Plaintiffs and the defendant issuers involved in related IPO securities litigation, including the Company, have agreed in principal on a settlement that, upon a one-time surety payment by the defendant issuers' insurers, would release the defendant issuers and their individual officers and directors from claims and any future payments or out-of-pocket costs. On March 10, 2005, the Court issued a memorandum and order (i) preliminarily approving the settlement, contingent on the parties' agreement on modifications of the proposed bar order in the settlement documents, (ii) certifying the parties' proposed settlement classes, (iii) certifying the proposed class representatives for the purposes of the settlement only, and (iv) setting a further hearing for the purposes of (a) making a final determination as to the form, substance, and program of notice of proposed settlement and (b) scheduling a public fairness hearing in order to determine whether the settlement can be finally approved by the Court. On April 24, 2006, the Court held a fairness hearing and took motion for final approval under advisement.

In related proceedings against the underwriters, the United States Court of Appeals for the Second Circuit ruled on December 5, 2006 that the District Court's certification of class actions against the underwriters in six "focus" cases was vacated and remanded for further proceedings. In so doing, the Second Circuit ruled that "the cases pending on this appeal may not be certified as class actions." On April 6, 2007, the Second Circuit denied the plaintiffs' petition for rehearing, and no further appeals have been taken.

As a result of the Second Circuit's ruling, the plaintiffs and the issuers stipulated on June 22, 2007 that the Stipulation and Agreement of Settlement with Defendant Issuers and Individuals, which was originally submitted to the Court on June 10, 2004, was terminated, which resolved the motion for final approval of the class action settlement with the issuers and individual defendants. The Court entered the parties' stipulation as an Order on June 25, 2007. As a result of these developments, the plaintiffs have filed amended complaints against the underwriters and "focus case" issuers and individuals and are attempting to certify a class action.

In response to the amended complaints, the underwriters and "focus case" issuers moved to dismiss the amended complaints. On March 26, 2008, the motion to dismiss was granted in part and denied in part. As a result, the Court will proceed with the plaintiffs' amended complaints against the underwriters and "focus case" issuers to determine whether class actions can be certified.

The Company is a defendant in litigation pending in the Southern District of New York entitled Enzo Biochem, Inc. et al. (Enzo) v. Amersham PLC, et al. (Amersham), filed in October 2002. By their complaint, plaintiffs allege that certain defendants (i) breached their distributorship agreements by selling certain products for commercial development (which they allege was not authorized), (ii) infringed plaintiffs' patents through the sale and use of certain products, and (iii) are liable for unfair competition and tortious interference with contractual relations. The Company did not have a contractual relationship with plaintiffs, but is alleged to have purchased the product at issue from one of the other defendants. The Company has sold the business unit that was allegedly engaged in the unlawful conduct. As a result, there is no relevant injunctive relief to be sought

from the Company. The complaint seeks damages in an undisclosed amount. Most of the fact discovery in the case has been taken, and a Markman hearing to construe the patent claims was conducted in early July 2005. On July 17, 2006, the Court ruled in the Company's favor on its construction of the patents asserted against the Company, and the co-defendants, including the Company, moved for summary judgment on all claims against it in January 2007. A hearing on the defendants' motions for summary judgment occurred on July 17-18, 2007, and the Court reserved ruling on the motions, taking them under advisement. Such matter has been delayed due to the death of the judge and the assignment of a new judge.

In other litigation brought by Enzo against another defendant under the same patents asserted against the Company, a Connecticut Federal Court has invalidated the patents asserted there and asserted against the Company in the New York case. That decision is on appeal. As a result of these developments, the defendants in the Enzo v. Amersham case requested a conference before the Court in order to determine how to proceed. Such conference was held on March 4, 2008 and the Court has not yet ruled on such determination.

In December 2002, the Company executed an asset purchase agreement with an acquiring party, pursuant to which the Company sold such acquiring party certain assets related to the Company's SNPs and SNPstream business. Included in the assets sold was a license agreement between the Company and a licensee, including the royalties due under such license. Since December 2002, the licensee continued to send royalty payments of approximately $80 thousand per year under the license to the Company. Such royalty payments are in the aggregate amount of $415 thousand, including $29 thousand received during the three months ended September 30, 2008 but not recorded as revenue. In the third quarter of 2008, the acquiring party demanded that the Company pay the royalties received under the license with the licensee and that the Company direct the licensee to send all future royalty payments and royalty reports to the acquiring party. The Company gave such directions to the licensee on October 16, 2008. On November 10, 2008, the Company paid the acquiring party $415 thousand in settlement of such claim. For the year ended December 31, 2008, the Company has recorded an expense of $386 thousand to reflect the royalties previously recorded by the Company as revenue, included in other income, net.

On June 5, 2008, the Company and Beckman Coulter, Inc., or Beckman, filed suit against Sequenom, Inc., or Sequenom, in the United States District Court for the Southern District of California alleging infringement of U.S. patent numbers 5,888,819, 6,004,744 and 6,537,748. This lawsuit seeks damages and injunctive relief. Sequenom filed an answer and counterclaims on August 15, 2008. A reply to the counterclaims was filed on August 29, 2008. This suit is in the process of fact discovery.

Additionally, the Company has certain other claims against it arising from the normal course of its business. The ultimate resolution of such matters, including those cases disclosed above, in the opinion of management, will not have a material effect on the Company's financial position and liquidity, but could have a material impact on the Company's results of operations for any reporting period.

(19) Quarterly Financial Data (Unaudited)

The following tables represent certain unaudited consolidated quarterly financial information for each of the quarters in 2008 and 2007. In the opinion of the Company's management, this quarterly information has been prepared on the same basis as the annual consolidated financial statements and includes all adjustments (consisting only of normal recurring adjustments, except as disclosed below) necessary to present fairly the information for the periods presented (in thousands, except per share data):

	Quarters ended			
	March 31, 2008	June 30, 2008	September 30, 2008	December 31, 2008
Total revenues	$14,527	$15,224	$14,872	$12,972
Gross margin	4,091	5,001	4,372	3,844
Loss before income taxes	(2,520)	(1,224)	(1,327)	(1,118)
Net income (loss)	(2,274)	(1,221)	(1,459)	473
Basic and diluted net income (loss) per share	$ (0.08)	$ (0.04)	$ (0.05)	$ 0.02

	Quarters ended			
	March 31, 2007	June 30, 2007	September 30, 2007	December 31, 2007
Total revenues	$14,032	$15,732	$15,558	$14,981
Gross margin	4,513	5,526	5,504	4,530
Loss before income taxes	(1,424)	(392)	(165)	(966)
Net income (loss)	(1,683)	(745)	(707)	168
Basic and diluted net income (loss) per share	$ (0.06)	$ (0.03)	$ (0.02)	$ 0.01

During the fourth quarter of 2008, the Company revised its estimates for liabilities associated with accrued bonuses and the Tepnel lease guarantee and recorded a benefit of $233 thousand, included in cost of service revenues, general and administrative, marketing and sales and research and development expenses, and a benefit of $185 thousand, included in other income, net, respectively.

During the fourth quarter of 2007, the Company revised its estimates for liabilities associated with accrued bonuses and the Tepnel lease guarantee and recorded a benefit of $522 thousand, included in cost of service revenues, general and administrative, marketing and sales and research and development expenses, and a benefit of $185 thousand, included in other income, net, respectively.

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

Not applicable.

Item 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures.

As of December 31, 2008, we conducted an evaluation under the supervision and with the participation of our management, including our President and Chief Executive Officer and Vice President and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by the company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our President and Chief Executive Officer and Vice President and Chief Financial Officer concluded as of December 31, 2008 that our disclosure controls and procedures were adequate and effective.

Management's Report on Internal Control over Financial Reporting.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control system is a process designed by, or under the supervision of, our President and Chief Executive Officer and Vice President and Chief Financial Officer and effected by our Board of Directors, management and other personnel to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external reporting purposes in accordance with generally accepted accounting principles.

Our internal control over financial reporting includes policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and disposition of assets;
- 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 are being made only in accordance with the authorization of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of 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.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2008. In making this assessment, they used the control criteria framework of the Committee of Sponsoring Organizations, or COSO, of the Treadway Commission published in its report entitled Internal Control-Integrated Framework. Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2008.

Grant Thornton LLP, our independent registered public accounting firm, also audited our internal control over financial reporting, and their audit report is included on page 44.

Changes in Internal Control over Financial Reporting.

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2008 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on the Effectiveness of Controls.

The Company's disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives and our President and Chief Executive Officer and Vice President and Chief Financial Officer have concluded that the Company's disclosure controls and procedures are effective at that reasonable assurance level. However, our management, including our President and Chief Executive Officer and Vice President and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within an organization have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake.

Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving our stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. OTHER INFORMATION

Not applicable.

PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The response to this item is incorporated by reference from the discussion responsive thereto under the captions "Management," "Section 16(a) Beneficial Ownership Reporting Compliance," "Code of Business Conduct and Ethics" and "Stockholder Proposals and Nominations for Director" in our Proxy Statement for the 2009 Annual Meeting of Stockholders.

Item 11. EXECUTIVE COMPENSATION

The response to this item is incorporated by reference from the discussion responsive thereto under the captions "Executive and Director Compensation" and "Management—Compensation Committee Interlocks and Insider Participation" in our Proxy Statement for the 2009 Annual Meeting of Stockholders.

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

The response to this item is incorporated by reference from the discussion responsive thereto under the captions "Security Ownership" and "Executive and Director Compensation—Equity Compensation Plan Information" in our Proxy Statement for the 2009 Annual Meeting of Stockholders.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The response to this item is incorporated by reference from the discussion responsive thereto under the captions "Certain Relationships and Related Transactions" and "Management—The Board of Directors" in our Proxy Statement for the 2009 Annual Meeting of Stockholders.

Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The response to this item is incorporated by reference from the discussion responsive thereto under the caption "Ratification of Appointment of Grant Thornton LLP (Notice Item 2)" in our Proxy Statement for the 2009 Annual Meeting of Stockholders.

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(1) Financial Statements. See Index to Consolidated Financial Statements at Item 8, page 35 of this report.

(2) Financial Statement Schedules.

Schedule II. Valuation and Qualifying Accounts for the years ended December 31, 2008, 2007 and 2006.

(3) ***Exhibits***

The following is a list of exhibits filed as part of this Annual Report on Form 10-K.

Exhibit Number	Description
3.1(1)	Restated Certificate of Incorporation of the Registrant, dated May 10, 2000 (filed as Exhibit 3.1)
3.2(1)	Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant, dated June 12, 2001 (filed as Exhibit 3.2)
3.3(1)	Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant, dated June 14, 2002 (filed as Exhibit 3.3)
3.4(2)	Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant, dated March 30, 2004 (filed as Exhibit 4.10)
3.5(2)	Certificate of Amendment to the Restated Certificate of Incorporation of the Registrant, dated June 14, 2005 (filed as Exhibit 4.11)
3.6(1)	Certificate of Designation, Preferences, and Rights of Series A Junior Participating Preferred Stock of the Registrant, dated August 1, 2001 (filed as Exhibit 3.4)
3.7(3)	Certificate of Designations, Preferences and Rights of Series A Convertible Preferred Stock of the Registrant, dated March 31, 2003 (filed as Exhibit 3.1)
3.8(4)	Third Amended and Restated Bylaws of the Registrant (filed as Exhibit 3.1)
4.1(5)	Specimen certificate for share of common stock (filed as Exhibit 4.1)
4.2(6)	Rights Agreement, dated as of July 27, 2001, by and between the Registrant and American Stock Transfer & Trust Company, which includes the form of Certificate of Designation setting forth the terms of the Series A Junior Participating Preferred Stock, $0.001 par value, as Exhibit A, the form of rights certificate as Exhibit B and the summary of rights to purchase Series A Junior Participating Preferred Stock as Exhibit C. Pursuant to the Rights Agreement, printed rights certificates will not be mailed until after the Distribution Date (as defined in the Rights Agreement) (filed as Exhibit 4.1)
4.3(3)	First Amendment to Rights Agreement by and between the Registrant and American Stock Transfer & Trust Company, as rights agent, dated as of March 31, 2003 (filed as Exhibit 10.3)
10.1(8)††	1995 Stock Incentive Plan, as amended, including form of stock option certificate for incentive and non-statutory stock options (filed as Exhibit 10.1)
10.2(8)††	2000 Employee, Director, Consultant Stock Plan, including form of stock option agreement for non-statutory and incentive stock options (filed as Exhibit 10.2)
10.3(9)††	The Amended and Restated 2005 Stock Plan and the form of stock option agreement for non-statutory and incentive stock options (filed as Exhibits 99.1, 99.2 and 99.3, respectively)

Exhibit Number	Description
10.4(8)††	Executive Benefit Program, including Executive Deferred Compensation Plan and Executive Severance Plan (filed as Exhibit 10.3)
10.5(10)††	Lifecodes Corporation 1992 Employee Stock Option Plan (filed as Exhibit 99.2)
10.6(10)††	Lifecodes Corporation 1995 Employee Stock Option Plan (filed as Exhibit 99.3)
10.7(10)††	Lifecodes Corporation 1998 Stock Plan (filed as Exhibit 99.4)
10.8(3)	Securities Purchase Agreement by and among the Registrant and the purchasers set forth on the execution pages thereof, dated as of March 31, 2003 (filed as Exhibit 10.1)
10.9(3)	Registration Rights Agreement, dated as of March 31, 2003 (filed as Exhibit 10.2)
10.10(7)	Form of Securities Purchase Agreement dated February 26, 2004 between the Registrant and investors (filed as Exhibit 4.2)
10.11(11)	Securities Purchase Agreement dated November 21, 2006 among the Registrant and the investors listed on the Schedule of Investors attached thereto (filed as Exhibit 10.1)
10.12(12)†	Commercial Services Agreement effective September 17, 2001 between the Registrant and the Department of Environment, Food and Rural Affairs (filed as Exhibit 10.22)
10.13(12)†	Agreement dated July 15, 2002 between the Registrant and Forensic Alliance Limited (filed as Exhibit 10.23)
10.14(12)†	Amended Patent Assignment and License Agreement dated July 7, 2003 by and between the Registrant, GeneCo Pty Ltd, Diatech Pty Ltd and Queensland University of Technology (filed as Exhibit 10.25)
10.15(12)†	Exclusive Patent License Agreement dated October 1, 2003 between the Registrant and Saint Louis University (filed as Exhibit 10.26)
10.16(12)†	Settlement Agreement dated August 6, 2002 between the Registrant and Saint Louis University (filed as Exhibit 10.27)
10.17(12)	Amendment No. 1 to Settlement Agreement dated October 1, 2003 between the Registrant and Saint Louis University (filed as Exhibit 10.28)
10.18(18)††	Director Compensation Policy, effective January 1, 2004 (filed as Exhibit 10.18)
10.19(13)	NWI Lease Agreement between the Registrant and NWI Warehouse Group L.P. dated February 15, 1996 for the facility located at 1400 Donelson Pike, Suite A-15, Nashville, Tennessee, 37217 (filed as Exhibit 10.1)
10.20(13)	Lease Agreement Amendment No. 1 between the Registrant and Duke-Weeks Realty L.P. dated January 23, 2001 for the facility located at 1400 Donelson Pike, Suite A-15, Nashville, Tennessee, 37217 (filed as Exhibit 10.2)
10.21(13)	Lease Agreement Amendment No. 2 between the Registrant and Duke Realty Limited Partnership dated August 8, 2005 for the facility located at 1400 Donelson Pike, Suite A-15, Nashville, Tennessee, 37217 (filed as Exhibit 10.3)
10.22(13)	Lease Agreement between the Registrant and Valwood Service Center I, Ltd. effective October 15, 2005 for the facility located at 13988 Diplomat Drive, Suite 100, Farmers Branch, Texas, 75234 (filed as Exhibit 10.4)
10.23(13)	Lease Agreement between the Registrant and Valwood Service Center I, Ltd. effective December 15, 2005 for the facility located at 13988 Diplomat Drive, Suite 100, Farmers Branch, Texas, 75234 (filed as Exhibit 10.5)

Exhibit Number	Description
10.24(14)††	Employment Agreement dated March 8, 2006 between the Registrant and Thomas A. Bologna (filed as Exhibit 99.1)
10.25(15)	Letter Agreement by and between College Road Associates, Limited Partnership and the Registrant, dated January 18, 2005 (filed as Exhibit 10.27)
10.26(15)	Amendment No. 1 to Lease Agreement by and between Bellemead Development Corporation and the Registrant, dated November 1, 2005 (filed as Exhibit 10.28)
10.27(15)†	Letter Agreement and Product Loan Agreement between the Registrant and Applied Biosystems, dated January 5, 2006 (filed as Exhibit 10.30)
10.28(16)††	Severance Agreement dated April 24, 2006 between the Registrant and Paul J. Kelly (filed as Exhibit 99.1)
10.29(17)††	Addendum to Employment Agreement dated March 8, 2006 between the Registrant and Thomas A. Bologna
10.30(18)††	Employment Agreement dated as of October 5, 2007 between the Registrant and James F. Smith (filed as Exhibit 10.31)
10.31(18)††	Employment Agreement dated as of November 19, 2007 between the Registrant and William J. Thomas (filed as Exhibit 10.33)
10.32(18)	Stock Purchase and Sale Agreement dated as of October 19, 2007 among the Registrant and the shareholders of ReliaGene Technologies, Inc.
10.33(19)††	Employment Agreement dated as of May 13, 2008 between the Registrant and Jeffrey S. Boschwitz (filed as Exhibit 10.1)
21.1	Subsidiaries of the Registrant (filed as Exhibit 21.1)
23.1	Consent of Grant Thornton LLP
23.2	Consent of KPMG LLP
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial and Accounting Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.2	Certifications of Principal Executive Officer and Principal Financial and Accounting Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

† Portions of this Exhibit were omitted and have been filed separately with the Secretary of the SEC pursuant to the Registrant's application requesting confidential treatment thereof.

†† Management or compensatory plan.

(1) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2002 as filed with the SEC on August 14, 2002 (File No. 000-30267).

(2) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's registration statement on Form S-8 as filed with the SEC on June 29, 2005 (File No. 333-126227).

(3) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on April 2, 2003 (File No. 000-30267).

(4) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on September 7, 2007 (File No. 000-30267).

(5) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2001 as filed with the SEC on November 14, 2001 (File No. 000-30267).
(6) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's registration statement on Form 8-A as filed with the SEC on August 3, 2001 (File No. 000-30267).
(7) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on March 8, 2004 (File No. 000-30267).
(8) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's registration statement on Form S-1, as amended, as originally filed with the SEC on February 18, 2000 (File No. 333-30774).
(9) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on June 14, 2005 (File No. 000-30267).
(10) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's registration statement on Form S-8 as filed with the SEC on January 15, 2002 (File No. 333-76744).
(11) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on November 21, 2006 (File No. 000-30267).
(12) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Annual Report on Form 10-K, as amended, for the year ended December 31, 2003 as originally filed with the SEC on March 29, 2004 (File No. 000-30267).
(13) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Annual Report on Form 10-K for the year ended December 31, 2004 as filed with the SEC on March 31, 2004 (File No. 000-30267).
(14) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Quarterly Report on Form 10-Q for the period ended March 31, 2005 as filed with the SEC on May 6, 2005 (File No. 000-30267).
(15) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Quarterly Report on Form 10-Q for the period ended September 30, 2005 as filed with the SEC on November 9, 2005 (File No. 000-30267).
(16) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on March 9, 2006 (File No. 000-30267).
(17) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Annual Report on Form 10-K for the year ended December 31, 2005 as filed with the SEC on May 24, 2006 (File No. 000-30267).
(18) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Current Report on Form 8-K as filed with the SEC on April 27, 2006 (File No. 000-30267).
(19) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Annual Report on Form 10-K for the year ended December 31, 2006 as filed with the SEC on March 15, 2007 (File No. 000-30267).
(20) Previously filed with the SEC as Exhibits to, and incorporated herein by reference from, the Registrant's Annual Report on Form 10-K for the year ended December 31, 2007 as filed with the SEC on March 12, 2008 (File No. 000-30267).
(21) Previously filed with the SEC as an Exhibit to, and incorporated herein by reference from, the Registrant's Quarterly Report on Form 10-Q for the period ended June 30, 2008 as filed with the SEC on August 1, 2008 (File No. 000-30267).

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.

ORCHID CELLMARK INC.

Date: March 16, 2009

By: /s/ THOMAS A. BOLOGNA
Thomas A. Bologna
President and Chief Executive Officer
(Principal Executive Officer)

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 and in the capacities indicated below and on the dates indicated.

Signatures	Title	Date
By: /s/ THOMAS A. BOLOGNA **Thomas A. Bologna**	President and Chief Executive Officer (Principal Executive Officer)	March 16, 2009
By: /s/ JAMES F. SMITH **James F. Smith**	Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	March 16, 2009
By: /s/ GEORGE H. POSTE, DVM, PH.D. **George H. Poste**	Chairman of the Board	March 16, 2009
By: /s/ JAMES BEERY **James Beery**	Director	March 16, 2009
By: /s/ SIDNEY M. HECHT, PH.D. **Sidney M. Hecht, Ph.D.**	Director	March 16, 2009
By: /s/ KENNETH D. NOONAN, PH.D. **Kenneth D. Noonan, Ph.D.**	Director	March 16, 2009
By: /s/ NICOLE S. WILLIAMS **Nicole S. Williams**	Director	March 16, 2009

Schedule II

ORCHID CELLMARK INC. AND SUBSIDIARIES

Valuation and Qualifying Accounts

Years ended December 31, 2008, 2007 and 2006
(In thousands)

Column A Description	Column B Balance at beginning of period	Column C Charged to costs and expenses	Column C Charged to other accounts (net) (1)	Column D Deductions (2)	Column E Balance at end of period
2008					
Allowance for doubtful accounts	$ 799	$(36)	$—	$ 230	$533
2007					
Allowance for doubtful accounts	$ 822	$ 60	$ 26	$ 109	$799
2006					
Allowance for doubtful accounts	$1,506	$329	$—	$1,013	$822

(1) Consists of the value of the ReliaGene allowance for doubtful accounts at the acquisition date.
(2) Deductions primarily consist of accounts receivable write-offs.

Exhibit 31.1

CERTIFICATIONS UNDER SECTION 302

I, Thomas A. Bologna, certify that:

1. I have reviewed this annual report on Form 10-K of Orchid Cellmark Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2009

/S/ THOMAS A. BOLOGNA

Thomas A. Bologna
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS UNDER SECTION 302

I, James F. Smith, certify that:

1. I have reviewed this annual report on Form 10-K of Orchid Cellmark Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 16, 2009

/s/ JAMES F. SMITH

James F. Smith
Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATIONS UNDER SECTION 906

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code), each of the undersigned officers of Orchid Cellmark Inc., a Delaware corporation (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report for the year ended December 31, 2008 (the "Form 10-K") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 16, 2009

/s/ THOMAS A. BOLOGNA

Thomas A. Bologna
President and Chief Executive Officer
(Principal Executive Officer)

Dated: March 16, 2009

/s/ JAMES F. SMITH

James F. Smith
Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

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Board of Directors

George Poste, D.V.M., Ph.D.
Chairman, Orchid Cellmark Inc.
Director of the Complex Adaptive Systems Initiative, Arizona State University

James Beery
Senior of Counsel
Covington & Burling

Thomas A. Bologna
President and Chief Executive Officer
Orchid Cellmark Inc.

Sidney M. Hecht, Ph.D.
Director, Center for Bioenergetics in the Biodesign Institute and Professor of Chemistry, Arizona State University

Kenneth D. Noonan, Ph.D.
Partner
LEK Consulting LLP

Nicole S. Williams
Retired, Chief Financial Officer
Abraxis BioScience Inc.

Officers

Thomas A. Bologna*
President and Chief Executive Officer

Jeffrey S. Boschwitz*
Vice President, North America Marketing and Sales

James F. Smith*
Vice President and Chief Financial Officer

William J. Thomas*
Vice President and General Counsel

**Executive Officer*

Corporate Headquarters

4390 U.S. Route One
Princeton, NJ 08540
(609) 750-2200

European Headquarters

Orchid Cellmark Limited
Abingdon Business Park
16 Blacklands Way
Abingdon, Oxfordshire
OX14 1DY
(44) 1235 535090

Stock Listing

The Company's common stock trades on the NASDAQ Global Market under the symbol ORCH

Annual Meeting

The Company's Annual Meeting of Stockholders will be held on October 7, 2009 at 10:00 am at Wyndham Princeton Forrestal Hotel, 900 Scudders Mill Road, Plainsboro, NJ 08536.

Investor Relations

For additional information, please contact our Investor Relations Department at (609) 750-2324 or ir@orchid.com

Independent Auditors

Grant Thornton LLP
New York, NY

Transfer Agent

American Stock Transfer & Trust
59 Maiden Lane
Plaza Level
New York, NY 10038
(800) 937-5449

Corporate Web SIte

www.orchidcellmark.com

Note to Investors

Except for any historical information presented herein, matters presented in this document 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 risk and uncertainties that may cause results to differ materially. Please also see, "Forward-Looking Statements," for more details. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the "Risk Factors" section included in the Company's Annual Report on Form 10-K for the year ended December 31, 2008 and other documents filed with the Securities and Exchange Commission.

ORCHID CELLMARK

DNA testing trusted worldwide.

Corporate Headquarters
4390 U.S. Route One
Princeton, NJ 08540
(609) 750-2200