# 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, 2003**

**OR**

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 (NO FEE REQUIRED)**

**FOR THE TRANSITION PERIOD FROM _____ TO _____**

**COMMISSION FILE NUMBER 0-28218**

# AFFYMETRIX, INC.
(Exact name of registrant as specified in its charter)

| **DELAWARE** | **77-0319159** |
|---|---|
| (State or other jurisdiction of incorporation or organization) | (IRS Employer Identification Number) |
| **3380 CENTRAL EXPRESSWAY SANTA CLARA, CALIFORNIA** | **95051** |
| (Address of principal executive offices) | (Zip Code) |

**(408) 731-5000**

(Registrant's telephone number, including area code)

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

None

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

Common Stock, $0.01

Preferred Stock Purchase Rights

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 an accelerated filer (as defined in Rule 12b-2 of the Act). Yes ☒ No ☐

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant at June 30, 2003, based on the closing price of such stock on the Nasdaq National Market on such date, was approximately $959.7 million.

The number of shares of the registrant's Common Stock, $0.01 par value, outstanding on March 1, 2004, was 60,288,152.

**DOCUMENTS INCORPORATED BY REFERENCE**

Certain sections of the Proxy Statement to be filed in connection with the 2004 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K Report where indicated.

**AFFYMETRIX, INC.**

**FORM 10-K**
**DECEMBER 31, 2003**

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## PART I

### ITEM 1. BUSINESS

#### Forward-Looking Statements

All statements in this Annual Report on Form 10-K that are not historical are "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act as amended, including statements regarding our "expectations," "beliefs," "hopes," "intentions," "strategies" or the like. Such statements are based on our current expectations and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. We caution investors that there can be no assurance that actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors, including, but not limited to, the risk factors discussed in this Annual Report on Form 10-K on page 49. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations with regard thereto or any change in events, conditions, or circumstances on which any such statements are based.

#### Narrative Description of Business

***Overview***

We are engaged in the development, manufacture, sale and service of systems for genetic analysis in the life sciences and are recognized as a market leader in creating breakthrough tools that are advancing our understanding of the molecular basis of disease. The markets for our products currently include all aspects of molecular biology research in the life sciences, including basic human disease research, genetic analysis, pharmaceutical drug discovery and development, pharmacogenomics (research relating to how a person's genes affect the body's response to drug treatments), toxicogenomics (research relating to the measurement of gene expression as a predictor of toxicity) and clinical diagnostics. Additional markets are emerging in agricultural research, plant breeding, food testing, pathogen identification and consumer genetics to mention a few. Our integrated GeneChip® microarray platform includes: disposable DNA probe arrays (chips) consisting of gene sequences set out in an ordered, high density pattern, certain reagents for use with the probe arrays, a scanner and other instruments used to process the probe arrays, and software to analyze and manage genomic information obtained from the probe arrays. Related microarray technology also offered by Affymetrix includes instrumentation, software and licenses for fabricating, scanning, collecting and analyzing results from complementary technologies.

Our business strategy is to capitalize on our leadership position in the DNA microarray field by marketing our GeneChip® technologies to customers based on two central applications: gene expression monitoring and DNA variation detection. Due to the novel, massively parallel approach to studying biological systems that GeneChip® technology enables, numerous discoveries across many disciplines have already been made, as evidenced by the over 1500 peer-reviewed publications released in 2003 alone, which cited GeneChip® technology. The clinical applications of GeneChip® technologies for diagnosing and treating disease is an emerging market opportunity in health management that seeks to improve the effectiveness of health care by collecting information about DNA variation and RNA expression in patients at various times from prognosis, through diagnosis and throughout therapeutic monitoring. We currently sell our products directly to pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies as well as academic research centers, government research laboratories, private foundation laboratories and clinical reference laboratories in North America, Europe and Japan. We also sell our products through life science supply specialists acting as authorized distributors in the Middle East, India and Asia Pacific regions.

In March 1992, Affymetrix, Inc. was incorporated in California as a wholly-owned subsidiary of Affymax N.V. (Affymax) and we have continued our business and operations as Affymetrix. We completed our initial public offering in June 1996 and in September 1998 we reincorporated as a Delaware corporation. Our headquarters and principal research and development facilities are located in Santa Clara, California, and we maintain facilities in West Sacramento, California (probe array manufacturing), Sunnyvale, California (sales, marketing and administration, array research and development), Emeryville, California (bioinformatics and software development), Bedford, Massachusetts (instrument research and development and manufacturing), and additional sales offices in the United Kingdom, Singapore and Japan.

**Scientific Background and Technology**

*Introduction to the Genome and its Opportunity*

The genetic content of an organism is known as its "genome." All known genomes are composed of either deoxyribonucleic acid (DNA) or ribonucleic acid (RNA). The instructions required for every living cell to develop its characteristic form and function are believed to be represented within discrete regions of the DNA or RNA known as genes. The instructions contained within genes are embodied in the specific sequences of the four nucleotide bases—adenine-A, cytosine-C, guanine-G and thymine-T—(uracil-U replaces T in RNA) that are the chemical building blocks of DNA and RNA. In protein coding genes, the sequence of these building blocks forms a code which instructs the cell to build a protein, comprised of a string of amino acids, ordered in a way which matches the sequence code of the gene. These proteins are an example of a "hard copy" output of the genetic code and contribute to the structure, biochemical functions and communication mechanisms of the cell in which they are formed.

The DNA molecule possesses a chemical structure which consists of a combination of two DNA strands with hydrogen bonds between nucleotide bases on one strand to complementary nucleotide bases on the other strand. Only certain pairs of the bases can form these complementary bonds: C pairs with G, and A pairs with T. Therefore, a single DNA strand containing bases in the sequence CGTACGGAT can form a bond with a DNA strand containing bases in the sequence GCATGCCTA. Such paired DNA strands are said to be "complementary" and can form a double helix structure in a process called "hybridization." Our GeneChip® technology uses the principle of hybridization to recognize the presence of specific gene sequences and to analyze genetic information.

Genes are segments of DNA that serve as information packets of the genome. In general, a gene's functional information is made available to a cell through the process of transcription or "gene expression", whereby the sequence is copied into an RNA molecule. Protein coding genes may span thousands to hundreds of thousands, or even millions of nucleotide bases since the non-coding regions of a gene (called "introns") and the coding regions of a gene (called "exons") are usually distributed within neighboring genomic sequences that are not translated into proteins or used, or to the extent currently understood, as a functional part of the gene. The number of protein coding genes in the human genome is estimated to be between 35,000 and 40,000. The number of non-coding sequences is the focus of current research interest. Though currently unknown, the number of non-coding sequences is estimated to be significantly larger than the number of protein coding genes in the human genome.

A primary goal in life sciences research and modern molecular medicine is to unravel the complexities of the genome. This generated a worldwide effort to identify and sequence the genomes of many organisms. In the human genome, this effort includes more than three billion nucleotide pairs. In recent years, the effort led by the Human Genome Project and related academic, government and industry research projects resulted in a first near complete draft of the human genome sequence. It is anticipated that many years of research will be required to gain a better understanding of the complexities of the genome, and its characteristics in normal and diseased conditions. This should lead

to a new healthcare paradigm where disease is understood at the molecular level, allowing patients to be diagnosed according to genetic information and then treated with drugs designed to work on specific molecular targets. Ultimately, in addition to diagnosis and treatment, prevention and cure of disease might also be possible based on genetic information.

While scientists are learning more and more about the functions of genes and their variability, there is a great deal more to discover. We believe that the efforts of science to understand the complexities of gene expression, the interaction of genes with our environment and the role of genes in disease will continue to provide growth opportunities for our existing gene expression and DNA analysis products, and will continue to create new opportunities in clinical medicine. Toward this end we have partnered with the National Cancer Institute to assemble the first complete map of the human transcriptome (a catalog of all of the RNA transcripts made by the genome). This ongoing effort has already led to the discovery of many novel protein coding and non- protein coding sequences that we expect to include in future products. This effort is also prompting continued development of our sample preparation, array, instrumentation and data analysis technologies.

*Genetic Variability and Disease*

For the most part, each cell in a complex organism contains a complete copy of the genome. In a population of organisms, individuals vary from one another because of differences in gene sequences which are inherited from each parent and sometimes through the introduction of sequence changes due to environmental damage or biological errors in processes like gene replication. In some cases these variations, or polymorphisms, have little detectable effect on the biology of the organism, while in other cases they may result in an altered biological response to the environment which could thereby lead to disease. By screening for these polymorphisms, researchers seek to identify those that might be implicated in specific diseases. Sometimes it is not a single variation, but the combination of these sequence differences that leads to a diseased state. For this reason, researchers look at the patterns of these polymorphisms in a large number of healthy and affected organisms in order to correlate specific gene polymorphisms with specific diseases.

Another major mechanism by which the fate and function of cells is regulated is the timing and level of gene expression, which can reflect the interface between genes and the environment. Although most cells contain an organism's full set of genes, each cell expresses only a fraction of this set of genes in different quantities and at different times. The expression patterns of genes can be correlated with many human diseases such as cancer, as well as with the effectiveness of treatment in specific patient populations for which new therapies can be developed. By identifying genes that are differentially expressed in particular diseases or patient populations, novel molecular targets and treatments may be identified and validated. In addition, gene expression signatures may be identified that allow the selection of optimal treatment for a single individual.

In order to understand the impact of genomics on health, disease and other aspects of the human condition, scientists must compare both the sequence variation and the gene expression patterns of healthy and diseased individuals, tissues and cells. We believe that our GeneChip® platform not only enables scientists to attain ambitious goals, from identifying genetic variations associated with disease to discovering new drug targets, but also simplifies, accelerates and reduces the cost of understanding this genetic information.

*GeneChip® Probe Array Technology*

Our GeneChip® technology leverages semiconductor-based photolithographic fabrication techniques, which enables us to synthesize a large variety of predetermined DNA sequences simultaneously in predetermined locations on a small glass chip called a "probe array." Photolithography is a technique which uses light to create exposure patterns on the glass chip and

direct chemical reactions. The process begins by coating the chip with light-sensitive chemical compounds that prevent chemical coupling. These light-sensitive compounds are called "protecting groups." Lithographic masks, which consist of predetermined transparent patterns etched into a glass plate that either block or transmit light, are used to selectively illuminate the glass surface of the chip. Only those areas exposed to light are deprotected, and thus activated for chemical coupling through removal of the light-sensitive protecting groups. The entire surface is then flooded with a solution containing the first in a series of DNA building blocks (A, C, G or T). Coupling only occurs in those regions that have been deprotected through illumination. The new DNA building block also bears a light-sensitive protecting group so that the cycle can be repeated.

This process of exposure to light and subsequent chemical coupling can be repeated many times on the same chip in order to generate a complex array of DNA sequences of defined length. The intricate illumination patterns allow us to build high-density arrays of many diverse DNA sequences in a small area. Unlike conventional synthesis techniques, which generally use a linear process to create compounds, our synthesis technique is combinatorial, in that the number of different compounds synthesized grows exponentially with the number of cycles in the synthesis. Currently available commercial arrays contain over 1.3 million unique sequences. Each unique sequence is 25 nucleotides in length and is represented millions of times within a specified area of the probe array. Just as in the semiconductor industry, we manufacture probe arrays in a wafer format. Each wafer is approximately five inches square and can contain up to 60 million unique probe sequences based on current technology. These whole wafers have been used by an affiliate of Affymetrix, Perlegen, in its work to resequence multiple samples of the human genome. For our commercial array products, we can manufacture a large number of identical or different DNA probe arrays on a glass wafer, which is then diced into individual chips. Given the large amount of unique sequences represented in our probe arrays, our technology enables the efficient analysis of a multitude of DNA probes to analyze DNA or RNA sequences in a test sample.

In the semiconductor industry, the principle that the number of transistors in a semiconductor chip doubles every 12-18 months based on feature shrink, or increased resolution, is known as Moore's Law. Because we leverage photolithographic manufacturing processes adapted from the semiconductor industry, we have been able to continually "shrink" the size of features, or oligonucleotide probes of a given sequence, on our GeneChip® arrays. For instance, our first commercial GeneChip® products, shipped in 1994, had a feature size of 100 microns and by 2003, we introduced our HG-U133 product with an 11 micron feature size. We have thus been able to continually package nearly 100 times more genetic information onto our GeneChip® arrays over the last decade.

Since we manufacture our chips in wafer format, we can vary the number of chips manufactured per wafer. Therefore we can manufacture thousands of chips per wafer with low information content and lower cost of goods sold, or decrease the number of chips per wafer and increase the information content. We expect that we will continue to benefit from this manufacturing leverage as our technology development activities enable further feature shrink. We believe that our unique manufacturing process is a significant competitive advantage.

***Products***

*Overview*

Our products form an integral part of our GeneChip® system that is designed for use by pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies, as well as academic research centers, private government research foundations and clinical reference laboratories. The GeneChip® system consists of several integrated components: disposable probe arrays containing genetic information on a chip, reagents for extracting, amplifying and labeling target nucleic acids, a fluidics station for introducing the test sample to the probe arrays, a hybridization oven for optimizing

the binding of samples to the probe arrays, a scanner to read the fluorescent image from the probe arrays, and software to analyze and manage the resulting genetic information. The function of each single-stranded sequence on the GeneChip® probe array is to bind to its complementary single strand of DNA or RNA from a biological sample. Each unique sequence feature on the GeneChip® probe array contains multiple copies of the same single strand of DNA. The nucleic acid (DNA or RNA) to be tested is isolated from a sample, such as blood or biopsy tissue, amplified and fluorescently labeled by one of several standard biochemical methods. The test sample is then washed over the probe array, where the now labeled individual nucleic acid sequences that represent the genetic content or expressed genes of the sample hybridize to their complementary sequences bound on the array. When scanned by a laser, which is part of the scanner instrument, the test sample generates a fluorescent signal. The locations where a fluorescent signal is detected by an optical detection system on the scanner instrument correspond to sequences complementary to the test sample. Sequence variation, or the quantification of specific sequences of nucleic acids in the sample, can be determined by detecting the relative strength of these signals since the sequence and position of each complementary DNA probe on the probe array is known. The combination of a particular GeneChip® probe array, together with an optimized set of reagents and a user protocol describing how to carry out the procedure, is referred to as an "assay."

We currently market products for two principal applications: monitoring of gene expression levels and investigation of genetic variation (DNA analysis including single nucleotide polymorphism (SNP) genotype analysis and resequencing). Our GeneChip® expression monitoring arrays enable our customers to qualitatively and quantitatively measure gene expression levels in a number of biologically relevant organisms. Our catalog GeneChip® expression arrays are available for the study of human, rat, mouse and a broad range of other mammalian and model organisms. Additionally, we market CustomExpress™ and CustomSeq™ products which enable our customers to design their own custom GeneChip® expression arrays or sequence arrays for organisms of interest to them. Our GeneChip® DNA analysis arrays and variant detection systems are available to enable researchers to perform high throughput polymorphism analysis and to carry out large scale resequencing (comparing the DNA sequence of multiple samples against a known reference sequence, e.g. the published human genome sequence). With its unique, parallel analysis capability, GeneChip® technology enables our customers to perform accurate and cost-effective genetic analysis, using minute amounts of sample DNA, in their own laboratories on a scale that was previously only possible in specialist high throughput centers.

In addition, we believe that genetic analysis and testing products will be a core component in the area of clinical applications and we are developing our GeneChip® system for clinical applications of both gene expression and DNA analysis. Together with our collaborative partners, we are focusing on the development and commercialization of clinical applications products in cancer, osteoporosis, cardiovascular, inflammatory, metabolic, infectious and other diseases, and believe that our GeneChip® assays will facilitate more efficient and effective disease detection, prognosis and treatment selection, leading to overall improved patient management. To further our clinical applications strategy, we have established partnerships and customer relationships with leading academic researchers, pharmaceutical and biotechnology companies, including F. Hoffmann-La Roche Ltd. ("Roche"), bioMérieux, Inc. ("bioMérieux"), Beckman Coulter, Inc. ("Beckman Coulter"), Arcturus Bioscience, Inc. ("Arcturus"), Boston University Medical Center, Caliper Life Sciences ("Caliper") and the Whitehead Institute for Genome Research at the Massachusetts Institute of Technology (the "Whitehead Institute"). We believe that the rapid growth of the clinical applications market holds the potential for GeneChip® technology applications ranging from basic research to clinical trials and, ultimately, into the clinic. As a result we are working with leaders in molecular diagnostics providing custom made GeneChips®, to their specifications. Our partners' subsequently package the chips into kits and sell them into the diagnostic markets using their sales channels. We are leveraging our partners' strengths in research, development, regulatory practices and distribution while leveraging our strengths in array technology. These products are marketed as being "Powered by Affymetrix."

*Gene Expression Monitoring Arrays*

Gene expression monitoring is a valuable tool for identifying correlations between genes, determining their biological functions and identifying patterns that might be useful in classifying diseases. To facilitate gene expression monitoring, we design and manufacture probe arrays with single-stranded DNA that are molecules complementary to sequences within genes of interest. By synthesizing specific probes for multiple genes on a single probe array, we enable researchers to quickly, quantitatively and simultaneously monitor the expression of a large number of genes of interest. By monitoring the expression of such genes under different conditions and at different times, researchers can use the probe arrays to understand the dynamic relationship between gene expression and biological activity. We believe such information will be an important tool in understanding gene function and for the development of new drugs and clinical applications tools. Increasingly, clinical research is showing that gene expression patterns in tissue samples, particularly those from cancerous tissues, can be used to characterize disease sub-types and hopefully to predict therapeutic responses and likely outcomes.

The range of GeneChip® Expression products is described below:

- *Standard Expression Monitoring Arrays*. We are currently selling a portfolio of standard expression monitoring GeneChip® arrays. Our current offering of standard arrays includes products that monitor the expression of the majority of full-length and partial gene sequences contained in publicly available sequence databases, which correspond with human, mouse, rat, canine, Drosophila melanogaster (fruit fly), Caenorhabditis elegans (soil parasite), Xenopus laevis (frog), Danio rerio (zebrafish), Saccharomyces cerevisiae (yeast), Escherichia coli (bacteria), Pseudomonas aeruginosa (bacteria), Plasmodium falciparum (malarial parasite), Anopheles (mosquito vector of malaria) and Arabidopsis thaliana (plant) organisms.
- *Custom Express Arrays*. We have established a GeneChip® CustomExpress™ Array Program enabling customers to design affordable arrays tailored to their specific research needs. Our CustomExpress™ arrays allow customers to select probes from any of our probe sequences on our catalog arrays and/or to incorporate probes from their own proprietary gene sequences. These arrays are then produced utilizing the same manufacturing technologies as our other GeneChip® whole genome expression arrays.
- *Made-to-Order Arrays*. We offer the GeneChip® Made-to-Order Array Program to enable our customers to use arrays from selected custom designs and previous-generation GeneChip® arrays which are no longer available as catalog products.
- *GeneChip® Human Genome U133-X3P Array*. The Affymetrix GeneChip® U133-X3P Array, developed in collaboration with Arcturus Bioscience Inc., will offer researchers a new tool to study approximately 44,000 of the best-characterized human gene transcripts in paraffin-embedded biopsy samples. The U133-X3P Array is specifically designed to detect shorter RNAs, which are common in these types of samples. This array will be offered through the Affymetrix Made-to-Order Program to any researcher interested in examining paraffin-embedded samples for gene expression. Patient outcomes are frequently known for people whose biopsy samples have been archived and gene expression analysis of these samples could provide a wealth of additional information. Analyzing these samples could help scientists determine why patients did or did not respond to the treatments they were given and provide greater understanding of which genes are involved in disease mechanisms.

*DNA Analysis Arrays*

As genes and regulatory regions in the human genome are mapped, identified, and sequenced, the value of understanding the variability of sequences among individuals increases. Researchers seek to

determine the normal sequence of the gene, which mutations or polymorphisms exist in a population, and whether these variations correlate with a disease or other aspect of the human condition. Studies of genetics of complex disease have historically been challenging due to high costs of sequencing or genotyping of large numbers of affected and unaffected individuals. Genetic variation also impacts how individuals respond to therapeutics. The study of these effects is known as pharmacogenetics. This is part of the broader field of pharmacogenomics, which seeks to understand how the overall composition and expression of the genome affects therapeutic response, drug efficacy and the incidence of adverse side effects to therapy. We believe pharmacogenomics will become increasingly important both in clinical trials and patient care. By using our resequencing and genotyping technologies, we believe that our GeneChip® probe arrays could significantly reduce the cost and time required for high-volume polymorphism analysis, which is currently performed through more labor-intensive techniques.

We have initiated product research and development efforts on several DNA analysis probe arrays and variant detection analysis systems and formed collaborations to accelerate the development of our genotyping products. For additional information concerning these efforts and collaborations see the sections of this Form 10-K entitled "Research and Development" and "Our Collaborative Partners." We currently market the following DNA analysis products:

- *GeneChip® Human Mapping 10K Array Xba 131*. The Mapping 10K Array is our whole genome SNP analysis tool that enables scientists to simultaneously interrogate over 10,000 SNPs spaced relatively evenly across the human genome using a simple assay. This product is well-suited to the genetic analysis of samples collected from family members who share similar disease characteristics. This approach is known as linkage analysis. The marker density provides information at approximately ten times the coverage previously available with the microsatellite methods that have until now been the preferred approach for such studies. As a result, researchers using the GeneChip® Human Mapping 10K Array Xba 131 have greater sensitivity to detect disease genes in a mapping study and can localize them to narrower regions of DNA than was previously possible. The package includes GeneChip® arrays, analysis software and reagents.
- *GeneChip® Human Mapping 100K Array.* In December 2003, we commenced an early access program at a limited number of customer sites to test the GeneChip® Human Mapping 100K Array which will enable genome-wide analysis on over 100,000 SNPs on a two array set. This product uses assay methodology similar to that of the Mapping 10K Array but utilizes two independent enzyme digests with the enzymes Xba 131 and Hind III to cut the DNA sample more frequently and hence generate a larger number of SNP-containing fragments for analysis. This higher density of marker information offers a further improvement in sensitivity over the Mapping 10K Array, enabling the product to provide next generation performance in linkage analysis or in association studies where there are fewer family inter-relationships in the population being studied. Subject to successful performance in the early access program, we expect full commercial launch of this product in the second half of 2004.
- *GeneChip® CustomSeq™ Resequencing Array*. The GeneChip® CustomSeq™ resequencing product line enables customers to order custom resequencing arrays that can currently sequence 60,000 bases (or 30,000 double-stranded sequences) in just two days with a high degree of accuracy. As we shrink feature size, we expect to increase the sequence number dramatically. For example, the next generation CustomSeq™ products scheduled for release in 2004 should have 400K bases (200K double standard sequences), significantly decreasing the cost and labor per experiment, while increasing the amount of information generated per experiment. CustomSeq™ arrays offer researchers a powerful DNA analysis tool on the same proven Affymetrix platform that has become the industry standard for messenger RNA ("mRNA") gene expression research. The CustomSeq™ array typically would be used toward the end of a gene discovery program in order to identify the DNA sequence of a potential disease gene and, by

sequencing the gene from a large number of individuals, to detect the specific sequence variations that lead to altered disease susceptibility or drug response. The package includes GeneChip® arrays, analysis software and reagents.

- *GenFlex® Tag Array*. The GenFlex® Tag array contains 2,000 oligonucleotides designed to have optimized hybridization properties to act as capture probes for each of 2,000 unique nucleic acid or "tag" sequences. These tag sequences are short oligonucleotides, up to 25 bases in length. Scientists can design assays in which a sequence complementary to the tag (and therefore capable of binding to it by hybridization) is incorporated into the reaction products. Hybridization to the GenFlex® Tag array then allows up to 2,000 reaction products to be analyzed since each becomes bound to the corresponding tag at a defined position on the array. We expect that this flexible strategy will allow for assays to be customized around the same standard array without the need for new array designs. We believe that it will be particularly useful to scientists attempting to locate the exact position of a disease gene within the broader regions identified through whole genome mapping studies.
- *GeneChip® HuSNP*. The GeneChip® HuSNP Human Mapping Assay, (introduced during 1999) was the first such generation GeneChip® gene mapping solution. This assay enables the interrogation of approximately 1,500 single nucleotide polymorphisms distributed across the human genome and offers customers a product with which to perform whole genome mapping studies with a density of markers (i.e., identifiable physical locations on a gene) yielding information content approximately equivalent to existing methods with commonly available microsatellite markers (i.e., a highly polymorphic type of marker comprised of certain nucleotides that is repeated throughout the genome). These mapping studies allow scientists to identify the approximate locations of disease susceptibility genes within the genome.

*DNA Analysis Products Powered by Affymetrix*

- Roche AmpliChip™ CYP450. The "Powered by Affymetrix" program and collaboration with Roche announced in January 2003 resulted in the June 2003 release of the Roche AmpliChip™ CYP450 microarray. The AmpliChip CYP450 microarray allows for complex sequence information to be analyzed for the purpose of genotyping the CYP2D6 and CYP2C19 genes. Sequence variation in these genes can result in marked differences in the way individuals metabolize, and hence respond to, an estimated 25% of all drugs. Roche has released the product for research use and intends to seek in-vitro diagnostic status for the product in the US and Europe in 2004.
- *FoodExpert-ID assay.* bioMérieux has developed and is commercializing the GeneChip® based FoodExpert-ID assay under an industrial license and supply agreement with Affymetrix. The FoodExpert-ID assay detects and identifies, in parallel, DNA sequences from 40 different commercially relevant animal species (and the classes: mammal, fish, bird) in raw and processed food products and in animal feed samples. The FoodExpert-ID assay offers a reliable and sensitive method of authenticating food and animal feed that can be integrated into routine use. The final report of the FoodExpert-ID assay is a permanent record of the vertebrate animal species composition of a food or animal feed product verified by a DNA signature and can be considered as a "product identity card". We manufacture the GeneChip® array, the most critical component of the FoodExpert-ID assay, and is marketed by bioMérieux as part of our "Powered by Affymetrix" business model.

*Access Programs for Our GeneChip® Arrays*

We offer a variety of sales programs for our gene expression monitoring and DNA Analysis arrays, tailored to the needs of industrial, biotech and academic/government customers. Programs are tied to volume usage and customers can select a program that best meets their needs to receive favorable pricing per array. Selected expression profiling customers with whom we have existing supply agreements for GeneChip® expression monitoring arrays include Roche, GeneLogic, Inc., GlaxoSmithKline plc, Millennium Pharmaceuticals, Inc., Sankyo Co., Ltd., Howard Hughes Medical Institute, Harvard University, Medical Research Council (UK), Amgen Inc., Organon International, Inc., and Schering-Plough Research Institute.

For biotech, academic and government customers, array prices are related to quantity purchased during the year. For the industrial programs, customers self select a relevant program for their particular use level and pay an upfront fee together with a price per array—the higher the upfront payment, the lower the price per array.

*Reagents for Our GeneChip® Systems*

We offer various reagents for use with GeneChip® expression monitoring arrays and GeneChip® DNA analysis arrays. Reagents assist researchers at critical steps in the sample preparation process such as extracting, amplifying and labeling target nucleic acid. As an integral part of the GeneChip® system, standard reagents and associated protocols help minimize experimental variations. For our GeneChip® expression probe arrays, we offer the following reagents: One-Cycle cDNA Synthesis Kit, Two-Cycle cDNA Synthesis Kit, GeneChip® Expression 3'-Amplification Reagents for IVT Labeling, GeneChip® Sample Cleanup Module,, T7-Oligo(dT) Promoter Primer Kit, Eukaryotic Poly-A RNA Control Kit and Eukaryotic Hybridization Control Kit. We offer the following reagents for our GeneChip® DNA analysis arrays: GeneChip® Mapping 10K Xba Assay Kit, GeneChip® Resequencing Reagent Kit, and GenFlex™ Reagent Kit.

*Instruments for Our GeneChip® Systems*

Our GeneChip® instruments provide a fully integrated system for conducting research using GeneChip® probe arrays. It consists of four hardware devices, each providing for robust preparation and analysis of samples using GeneChip® arrays. The first device is a hybridization oven to control the timing and temperature required for hybridization of the test sample to the probe array. The second device is a fluidics station that is used to control exposure of the hybridized probe array to solutions containing labeled material that will bind to the test sample hybridized to the probe array. The fluidics station controls the delivery of labeled material and reagents across the probe array. The fluidics station can process four probe arrays simultaneously. The fluidics station protocols conclude with a reagent wash that leaves the labeled, hybridized test sample bound to the probe array.

The third device, an analytical scanner, is used after completion of protocols on the fluidics and hybridization stations, at which time the cartridge containing the probe array is placed in the scanner and read. The scanner consists of a laser, high-resolution optics, robotics to position and scan the probe array, a fluorescence detector and an interface to a personal computer. The labeled material that is bound to the hybridized test sample emits fluorescent signals when exposed to the light from the laser. The location and intensity of the fluorescent signal is recorded by the scanner and stored in the computer for analysis. The fourth device is an autoloader, which is a 48-array carousel that interfaces with the scanner to allow walk-away automation of the scanning steps, while maintaining the loaded arrays in an environment held at the optimum storage temperature.

The individual components of our GeneChip® instrument system are described in more detail below.

- *GeneChip® Hybridization Oven 640*. The GeneChip® Hybridization Oven 640 is used to control the timing and temperature required for hybridization of the test sample to the probe array. The GeneChip® Hybridization Oven 640 holds up to eight probe array cartridge carriers (each with eight cartridge slots) that rotate for controlled hybridization of up to 64 probe arrays. This unit delivers precise temperature control for consistent performance across all probe array applications.
- *Fluidics Station 450*. The Fluidics Station 450 is used to control exposure of the hybridized probe array to labeling materials that will bind to the test sample that has been hybridized to the probe array and can independently process four probe arrays simultaneously. The fluidics station protocols conclude with a reagent wash that leaves the labeled, hybridized test sample bound to the probe array. Multiple fluidics stations can be connected to the same computer workstation in order to expedite array processing in high throughput laboratories. This model of the Fluidics Station was launched in 2003 and replaced the earlier Fluidics Station 400 to provide users with a higher level of automation, and improved performance.
- *GeneChip® Scanner 3000*. The GeneChip® Scanner 3000, launched in January 2003, uses proprietary laser scanning technology and high resolution optics to read the hybridization signal from GeneChip® arrays. The GeneChip® Scanner 3000, developed and manufactured by Affymetrix, represents the next generation in scanner technology. The Flying Objective™ scanning technology incorporated into this scanner has been adapted to provide faster scanning of GeneChip® probe arrays with a high degree of image uniformity and accuracy. The current version of the GeneChip® Scanner 3000 has been validated to allow imaging of GeneChip® arrays with feature sizes as small as 8μm and we believe the scanning technology can be used with further reductions of GeneChip® feature size. The GeneChip® Scanner 3000 may also be purchased with a computer workstation loaded with Affymetrix GeneChip® Operating Software ("GCOS") (discussed below under "Software for Our GeneChip® Systems and Analysis Tools").
- *GeneChip® AutoLoader*. The GeneChip® Autoloader, developed and manufactured by Affymetrix, was introduced in September 2003. The Autoloader is a 48-array carousel that automatically loads and unloads arrays, helping researchers automate their array processing and providing walk-away freedom in the lab. The GeneChip® AutoLoader can load and scan 48 current catalog arrays in 4.5 hours or less, depending on the array format of the experiments run. Thermostatic control allows the stored arrays to be held in a cooled environment and then warmed to optimum temperature for scanning. The AutoLoader attaches to the top of the scanner, saving valuable bench space, and does not require any additional power source.
- *Workstations*. We offer workstations to accommodate varied research needs. The Type I GeneChip® Workstation (Windows NT) is configured with software enabling it to operate the GeneChip® Scanner 3000 and multiple Fluidics Stations. Our Type II GeneChip® Workstation (Windows NT and Windows 2000) can operate independently of the scanner and fluidics station instruments.

In September 2003, we announced the introduction of a new High Throughput Array (HTA) system designed to process and analyze GeneChip® arrays in a new 96-well format so as to industrialize genome research. This new format is designed to reduce experimental costs and help scientists produce results more rapidly and effectively. The GeneChip® HTA system will have the capacity to process hundreds of biological samples per day with minimal human supervision, reducing capital, labor, reagent and array expenses. The GeneChip® HTA system adapts the same industry-standard GeneChip® technology and content that we use in our cartridges to a standard 96-well microtiter plate, which runs on an automated system built with off-the-shelf robotic components. The

GeneChip® HTA system automates the most labor intensive steps in GeneChip® processing, dramatically reducing the cost per assay. The decrease in cost and increase in throughput makes the GeneChip® HTA system well suited for downstream development applications such as compound profiling, molecular toxicology and clinical trials.

Through a collaborative early access program, Johnson & Johnson Pharmaceutical Research & Development, L.L.C. (J&JPRD) became the first company to gain early access to the new GeneChip® HighThroughputArray (HTA) system. For additional information concerning this collaboration, see the section of this Form 10-K entitled "Our Collaborative Partners."

*Software for Our GeneChip® Systems and Analysis Tools*

Our GeneChip® operating system software is supplied as part of an integrated system and runs on an industry standard PC platform. The fluorescence intensity data captured from the scanner are used in conjunction with computer files containing the probe sequence and location of all the probes on the probe array to determine the expression level of a particular gene or to identify particular DNA sequence variations of the test sample. The Data Mining Tool and GCOS Server software products allow for sophisticated analyses of gene expression results and provide a means of linking and integrating this information with other databases. Additionally, customers may choose operating or other software products provided by third party vendors that have been developed through our OpenSystems™ program, which includes the provision of a Software Developers Kit to interested commercial and academic parties. Through this program we intend to stimulate a wide range of independent groups to develop tools for use with our platform, further enhancing our customers' capability to generate unique biological insights from the high quality data provided by the GeneChip® platform.

The software for our GeneChip® Systems and analysis tools offered consist of the:

- *Affymetrix GeneChip® Operating Software (GCOS)*. The Affymetrix GeneChip® Operating Software ("GCOS") controls the scanner used to scan our GeneChip® probe arrays, and the Fluidics Station 450. GCOS also acquires image data from the scanner, applies various algorithms to analyze the images and provides results from GeneChip® array experiments. The experimental results, as well as other data, may also be provided to our data management software programs.
- *Affymetrix®GeneChip Operating Software Server (GCOS Server)*. Affymetrix® GeneChip® Operating Software Server ("GCOS Server") is a data management system designed for users performing moderate to high throughput analyses. GCOS Server manages and tracks gene expression data generated by the GCOS software through a workflow-based tracking system. Experimental results from GCOS software may be provided to the Data Mining Tool for further data mining and analysis.
- *Affymetrix® Data Mining Tool.* The Affymetrix® Data Mining Tool ("DMT") software provides a variety of tools for filtering and sorting GeneChip® array data stored in an AADM-compatible database. Databases are generated using the GCOS Client or Server software, enabling users to find the most significant data results quickly and easily. DMT also provides tools for performing complex analyses of such results. Customers may also choose data analysis tools provided by third party vendors.
- *Affymetrix Software Developers Kits.* We sell a number of software developers kits for customers and third-party vendors who are looking to develop, customize, and integrate software applications and systems with our GeneChip® system. Currently, we offer a basic kit and advanced kits for our GCOS Server customers.

- *NetAffx™ Analysis Center*. In July 2001, we launched the NetAffx™ Analysis Center *(www.affymetrix.com/analysis/)* which is our exclusive online informatics resource for GeneChip® technology users. The NetAffx™ Analysis Center is designed to provide streamlined, open access to design information and biological annotations associated with our GeneChip® arrays. It was created to assist genomic researchers with the design and analysis of DNA array-based experiments. The NetAffx™ Analysis Center provides researchers with integrated access to a searchable catalog of Affymetrix GeneChip® probe array contents, a range of publicly available and Affymetrix-generated databases, and links to important third-party resources. We have also posted on the NetAffx™ Analysis Center our probe sequences for non-commercial use. Customers may also use NetAffx™ tools and information to choose genes or groups of genes to design and purchase GeneChip® CustomExpress™ probe arrays online.

*Clinical Applications Initiatives*

We believe that our GeneChip® technology can be effectively applied to complex molecular diagnostic testing. We have formed collaborations and intend to further partner with, or license technology to, established diagnostic and medical device companies to develop, obtain regulatory approval for, and commercialize probe arrays and instrumentation for broader use of probe arrays as components that can be incorporated into diagnostic products and other clinical applications. We believe that to support large central laboratories, additional instrumentation and automation will need to be developed to allow for handling the large volume testing anticipated in the clinical diagnostic setting. To further our clinical applications strategy, we have established a number of collaborations with leading academic researchers, pharmaceutical and biotechnology companies.

For example, we are non-exclusively collaborating with Roche to develop and commercialize GeneChip® laboratory tests for DNA analysis, genotyping and resequencing applications, as well as for RNA expression analysis, in a broad range of human disease areas. Using our GeneChip® technologies, Roche intends to develop and market tests for diseases such as cancer, osteoporosis, cardiovascular, metabolic, infectious and inflammatory diseases. We and Roche believe that developing diagnostic products for cancer and other human diseases will establish new standards for genetic clinical testing. Ultimately, these products will allow physicians to better diagnose and treat human disease.

In addition, we have collaborations with several academic research centers, including Boston University Medical Center and the Whitehead Institute for Biomedical Research, to discover and test molecular signatures for specific indications, as well as to develop and test new methods necessary to meet the requirements of diagnostic applications.

In bacteriology, we have a non-exclusive collaborative development agreement and an associated supply agreement for probe arrays with bioMérieux to identify the species and drug resistance profiles of those bacteria causing human infection. The agreements also allow for non-exclusive development of DNA probe arrays for certain viral clinical diagnostic tests and in the fields of food and industrial testing.

We have also entered into a series of agreements with Beckman Coulter that give Beckman Coulter the right to develop probe array-based diagnostic products that would use some elements of our GeneChip® technology. Under these agreements, we agreed to grant Beckman Coulter licenses to commercialize probe arrays manufactured using certain of our technologies other than light-directed synthesis. Under the arrangement, Beckman Coulter would pay us transfer prices and royalties on sales of these products.

For additional information concerning our collaborations, see the section of this Form 10-K entitled "Our Collaborative Partners."

**Our Collaborative Partners**

Our strategy is to establish the GeneChip® system as the platform of choice for analyzing complex genetic information, to expand the applications of our technology, and to acquire access to complementary technologies and resources. Accordingly, we have entered into and intend to enter into additional collaborative agreements to further this strategy. The table below sets forth a selected list of collaborators with whom we have current agreements, together with the related products and programs and the commencement dates of the most recent agreement. The table is organized by reference to the product area that represents the most significant portion of the collaboration; however, the collaboration may also involve other areas of our business and product line.

*SUMMARY OF SELECTED COLLABORATORS*

| Company | Type of Agreement | Date |
|---|---|---|
| *Gene Expression Monitoring* | | |
| Millennium Pharmaceuticals, Inc. | Collaborative research and development agreement to develop gene expression array processes and applications. | October 2001 |
| Qiagen, GmbH | Agreement for Qiagen to supply nucleic acid purification products for Affymetrix to resell for use with GeneChip® arrays in the target labeling process. | February 2002 |
| NuGEN Technologies, Inc. | Collaborative agreement to develop amplification reagents that replicate the entire length of mRNA transcripts and are optimized for use with GeneChip® technology. | September 2003 |
| PreAnalytiX GmbH | Collaborative development agreement to optimize the PreAnalytiX PAXgene(TM) Blood RNA System for use with Affymetrix GeneChip® technology to improve gene expression profile results on RNA extracted from whole blood. | October 2003 |
| Arcturus Bioscience, Inc. (formerly Arcturus Engineering, Inc.) | Collaborative agreement to develop new tools that will enable researchers to conduct gene expression analysis on paraffin-embedded clinical biopsy samples using Arcturus reagents and a new Affymetrix custom human array. | November 2003 |

| Company | Type of Agreement | Date |
|---|---|---|
| Invitrogen Corporation | Collaborative agreement to develop a new line of GeneChip® brand expression reagents including two new cDNA Synthesis Kits, optimized for use with Affymetrix GeneChip® technology, containing Invitrogen's industry-leading SuperScript™ reverse transcriptase (RT). | November 2003 |
| *DNA Analysis* | | |
| Nuvelo, Inc. (formerly Hyseq Pharmaceuticals, Inc.) (Callida Genomics, Inc., N-Mer, Inc.) | Collaborative agreement for the development and commercialization of a universally applicable DNA analysis array. | October 2001 |
| ParAllele BioScience, Inc. | Under a supply agreement, we provide certain instrumentation and arrays to be used by ParAllele in combination with its proprietary allele typing technology for research and third party genotyping services. | February 2003 |
| Perlegen Sciences, Inc. | Supply agreement for Perlegen's core SNP discovery and genotyping research. License to new single nucleotide polymorphism content and broader surveying methods; access to whole genome technologies to be made available through CustomSeq™ product line. | March 2001 and January 2003 |
| *Clinical Application* | | |
| Arcturus Bioscience, Inc. (formerly Arcturus Engineering, Inc.) | Under a supply agreement, Arcturus has broad access to our standard and custom GeneChip® brand arrays, instrumentation and software to monitor gene expression aimed at developing novel microgenomics array-based diagnostic content. | December 2002 |
| bioMérieux, Inc. | Collaborative agreements focused on bacteriology and virology clinical applications products; industrial and food testing products. | September 1996, December 1997, January 1998, and March 2003 |
| Boston University Medical Center | Collaborative agreement focused on developing screening and early detection of lung cancer. | December 2002 |

| Company | Type of Agreement | Date |
|---|---|---|
| F. Hoffmann-La Roche Ltd. | Collaborative agreements to develop and commercialize GeneChip® based diagnostic products in a range of human disease areas. | February 1998 and January 2003 |
| Whitehead Institute | Collaborative agreement focused on application of GeneChip® technology to cancer diagnosis and treatment. | September 2002 |
| *Other* | | |
| Beckman Coulter, Inc. | Agreement to purchase Beckman Coulter's array business. We granted Beckman Coulter licenses to commercialize probe arrays manufactured using certain of our technologies other than light-directed synthesis. | July 1998 |
| Array Automation, Ltd. (Joint venture with Beckman Coulter, Inc.) | Array Automation is a joint venture between Affymetrix and Beckman Coulter, Inc. The joint venture was incorporated in July 2003, with the primary purpose of product research and development in the field of non-photolithographic arrays of polynucleotide sequences and instruments. | July 2003 |
| National Cancer Institute | Collaborative research relating to RNA transcription regulation and activity. | January 2001 |
| Ingenuity Systems, Inc. | Agency agreement to make available Ingenuity's Pathways Analysis product to Affymetrix customers. Ingenuity Pathways Analysis is a web-based application that is designed to enable Affymetrix customers to more easily discover, visualize and explore therapeutically relevant networks in gene expression array data sets. | July 2003 |
| Johnson & Johnson Pharmaceutical Research & Development L.L.C. | Under the supply agreement, Johnson & Johnson Pharmaceutical Research & Development, L.L.C. was given early access to the new GeneChip®HighThroughputArray (HTA) system. | September 2003 |
| Caliper Life Sciences | Collaboration and supply agreement to develop and provide automated target preparation instruments for the GeneChip® Probe Array system. | January 2004 |

*Gene Expression Monitoring Collaborations*

*Millennium Pharmaceuticals, Inc.* In October 2001, we entered into a four-year supply and research and development agreement with Millennium Pharmaceuticals, Inc. ("Millennium") to co-develop GeneChip® technology applications for use in drug discovery and development. Under the agreement, we and Millennium are jointly developing gene expression array processes and applications to enhance the productivity of genome-based drug discovery and development. We have the right to commercialize certain technologies developed under this collaboration.

*Qiagen, GmbH.* In February 2002, we entered into a three-year supply agreement with Qiagen, GmbH ("Qiagen") for Qiagen to supply us with certain nucleic acid purification products for use with our GeneChip® arrays for target labeling in expression analysis.

*NuGEN Technologies Inc.* In September 2003, we entered into a joint collaboration to develop NuGEN's Whole Transcript Amplification (WT-SPIA(TM)) system for use with Affymetrix GeneChip® brand technology. In this collaboration, NuGEN plans to develop amplification reagents that replicate the entire length of mRNA transcripts and are optimized for use with GeneChip® technology.

*PreAnalytiX GmbH.* In October 2003, we entered into a collaborative agreement with PreAnalytiX, a joint venture between QIAGEN N.V. and Becton, Dickinson and Company. The goal of the collaboration will be to develop improved methods for the use of PreAnalytiX technology with GeneChip® expression analysis arrays. By combining PreAnalytiX and Affymetrix technologies, our goal is to develop a complete, standardized process for expression profiling starting from whole blood samples.

*Arcturus Bioscience Inc.* In November 2003, we entered into a collaboration to develop new tools that will enable researchers to conduct gene expression analysis on paraffin-embedded clinical biopsy samples using Arcturus reagents and a new Affymetrix custom human array. Paradise(TM) reagents, developed by Arcturus can extract and amplify RNA from paraffin-embedded tissues. These samples are suitable for use in gene expression analysis when used with a new custom microarray, the GeneChip® Human Genome X3P Array, which will be offered through the Affymetrix Made-to-Order Program to any researcher interested in examining paraffin-embedded samples for gene expression.

*Invitrogen Corporation.* In November 2003 we signed a collaboration and supply agreement to develop and market a new line of GeneChip® brand expression reagents including two new cDNA Synthesis Kits. Both of the new cDNA Synthesis Kits were developed in collaboration with Invitrogen and contain Invitrogen's industry-leading SuperScript™ reverse transcriptase (RT). These reagents have been optimized for use with Affymetrix GeneChip technology, offering a complete, standardized sample preparation system that is easier to use and will help customers produce more robust and consistent array results. The One-Cycle cDNA Synthesis Kit offers all necessary reagents for standard target labeling. This protocol has been used by the majority of Affymetrix customers already, but the new kit provides improved configuration and greater convenience. The new Two-Cycle cDNA Synthesis Kit offers customers a streamlined procedure for preparing samples using a small amount of material, such as biopsy or laser capture dissected samples.

*DNA Analysis Collaborations*

*Nuvelo, Inc.* In October 2001, Nuvelo, Inc. (formerly Hyseq Pharmaceuticals, Inc.) ("Nuvelo") created a new majority owned subsidiary, Callida Genomics, Inc. ("Callida"), which will focus on the development and commercialization of Nuvelo's sequencing-by-hybridization ("SBH") technology. Nuvelo contributed all of its SBH patents to Callida. We have a 10% equity interest in Callida. Callida has entered into a collaboration arrangement with us, through Callida's wholly owned subsidiary, N-Mer, Inc. ("N-Mer"), for the development and commercialization of a high speed DNA sequencing chip. In connection with this collaboration, we entered into various cross-licensing arrangements with

Nuvelo, Callida, and N-Mer pursuant to which we are the exclusive array and system supplier to N-Mer and the exclusive sales agent for the distribution of any products developed by N-Mer. We have an option, exercisable for five years, to purchase a majority interest in N-Mer.

We paid Nuvelo a one-time license fee for the non-exclusive license described above, and loaned Nuvelo $4 million, all of which will be used to fund Callida and N-Mer. The license fee has been capitalized in acquired technology rights and is being amortized over the remaining patent lives. The loan bears interest at the rate of 7.5% and matures in 2006. The loan is repayable by Nuvelo at any time and, subject to specified conditions, exchangeable for common stock of Nuvelo. The loan is secured by all of Nuvelo's equity interest in Callida and is recorded in other assets on the Consolidated Balance Sheet. Affymetrix and Nuvelo have agreed to each make additional investments, which will be conditioned on N-Mer's attainment of a specified technical milestone and the procurement of third-party financing. For additional information concerning our relationship with Nuvelo see Note 4 of the Notes to Consolidated Financial Statements.

*ParAllele BioScience, Inc.* In February 2003, Affymetrix and ParAllele BioScience, Inc. ("ParAllele") entered into a supply and collaboration agreement. Under the terms of the agreement, we will sell to ParAllele certain instrumentation and GeneChip® arrays to use in third party services in combination with ParAllele's proprietary allele typing technology. Affymetrix and ParAllele will collaborate to determine other joint opportunities.

*Perlegen Sciences, Inc.* In March 2001, we contributed to Perlegen the rights to use certain intellectual property with no cost basis and we have rights to use and commercialize certain data generated by Perlegen in the array field. Using access to whole-wafer technology developed by Affymetrix, Perlegen focuses on identifying the millions of genetic variations (known as single nucleotide polymorphisms or "SNPs") among individuals, and finding patterns in those variations that might be predictive of disease susceptibility or drug response. In January 2003, we obtained accelerated access to Perlegen's SNP database which will further our efforts to develop these next generation arrays. In addition, our collaborative arrangement with Perlegen provides us with access and commercialization rights to certain whole genome technologies, including 248,000 chip-optimized, long-range polymerase chain reactions (or "PCRs") across the human genome that we intend to make available to our customers through our GeneChip® CustomSeq™ Resequencing Array program which offers high-quality arrays for large-scale resequencing of the human genome. PCR is a process in which multiple copies of a strand of DNA are generated to enhance the ability of researchers to identify and analyze it. For additional information concerning our relationship with Perlegen, including our ownership interest in Perlegen, our collaborative relationship with Perlegen and existing relationships between certain of our directors and officers and Perlegen, see the section of this Form 10-K entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 10 of the Notes to the Consolidated Financial Statements.

*Clinical Applications Collaborations*

*Arcturus Bioscience, Inc.* In December 2002, we entered into a strategic relationship with Arcturus Bioscience, Inc. (formerly Arcturus Engineering, Inc.) ("Arcturus"), a leader in laser capture microdissection. Through our collaboration, Arcturus has broad access to our standard and custom GeneChip® brand arrays, instrumentation and software to monitor gene expression for use in research and discovery efforts to develop novel microgenomics array-based diagnostic signatures. We made a $3 million equity investment in Arcturus which represented an ownership interest of approximately 6%. We see microgenomics as an important enabling technology for a broad set of applications in research and diagnostics.

*bioMérieux, Inc.* In September 1996, we entered into a collaborative development agreement and associated supply agreement for probe arrays with bioMérieux, Inc. ("bioMérieux") to identify the

species and drug resistance profiles of bacteria causing human infection in a clinical setting. As part of the collaboration, bioMérieux is developing instrumentation for the use of these probe arrays in a clinical diagnostic setting. Under the terms of the agreements, bioMérieux provides research and development support and makes payments to us upon achievement of certain milestones. In addition, bioMérieux pays specified prices for the supply of probe arrays and royalties on any resulting product sales. In December 1997 and January 1998, we expanded the collaboration with bioMérieux to include the non-exclusive development of DNA probe arrays for clinical diagnostics tests in the fields of virology and food and industrial testing. In March 2003, the collaboration agreement was amended in order to reinstate bioMérieux's licenses. bioMérieux has launched the FoodExpertID array under this collaboration. (Please see the section of this 10K entitled "DNA Analysis Products Powered by Affymetrix".)

*Boston University Medical Center.* In December 2002, we entered into a collaboration with Boston University Medical Center for the use by Boston University Medical Center of our GeneChip® technology to identify predictive molecular signatures that may enable the screening and early detection of lung cancer in "at risk" individuals, and to develop a less invasive sample acquisition method. Using GeneChip® probe arrays, researchers at Boston University Medical Center will study the use of airway tissue derived gene expression signatures for early detection, prognosis, therapy selection and monitoring of lung cancer.

*F. Hoffmann-La Roche Ltd.* In February 1998, we entered into a non-exclusive collaborative development agreement with F. Hoffmann-La Roche Ltd. ("Roche") to initially develop human probe array-based diagnostic products. Under the terms of the agreement the parties are collaborating to develop mutually agreed upon arrays, as well as associated instrumentation and reagents. In January 2003, we expanded our collaboration with Roche by granting Roche access to our GeneChip® technologies to develop and commercialize GeneChip® laboratory tests for DNA analysis, genotyping and resequencing applications, as well as for RNA expression analysis, in a broad range of human disease areas. Using our GeneChip® technologies, Roche intends to develop and market tests for diseases such as cancer, osteoporosis, cardiovascular, metabolic, infectious and inflammatory diseases. Affymetrix and Roche believe that developing targeted microarray expression profiles for cancer, plus genotyping and resequencing profiles for other diseases will enable the creation and commercialization of novel standardized diagnostic solutions. These solutions ultimately will allow physicians to better diagnose and treat human disease. Under the terms of the collaborative agreement, Roche paid us an access fee of $70 million relating to the first five years of the arrangement. The agreement, which is subject to Roche's option to terminate on December 31, 2007 or any time on or after June 2, 2013, with one year's prior notice, includes a broad range of other compensation payable by Roche to Affymetrix throughout the life of the agreement based on royalties on sales of diagnostic kits, milestone payments for technical and commercial achievements, a manufacturing and supply agreement, and related license installments. As part of the agreement, Affymetrix will manufacture and supply Roche with microarrays and related instrumentation based on Affymetrix' GeneChip® platform. In 2003 Roche announced that it launched the AmpliChip® CYP450 array which will be a research only use product and that it intends to seek FDA approval.

*Whitehead Institute.* In September 2002, we extended our previous collaborative relationship with the Whitehead Institute and announced a research collaboration to use our GeneChip® brand technology to conduct cancer clinical studies. The collaboration is designed to standardize experimental procedures and further validate numerous studies demonstrating the power of expression data for cancer classification. The Whitehead Institute is initiating a research program to study sample collection from tissue biopsies, amplification, data collection and analysis in order to accelerate the use of DNA array technology in clinical settings. The Whitehead Institute will conduct this work in collaboration with clinical institutions. The results of these studies are expected to be published in the future.

*Other Collaborations*

*Beckman Coulter, Inc.* In July 1998, we entered into an arrangement with Beckman Coulter, Inc. (“Beckman Coulter”) that involved the execution of a series of agreements including an asset purchase agreement. Pursuant to these agreements, which were implemented and became effective in June 1999, we purchased Beckman Coulter’s array business. Under the agreements, we agreed to grant Beckman Coulter licenses to commercialize probe arrays manufactured using certain of our technologies other than light-directed synthesis, and the parties agreed to enter into an original equipment manufacturer supply agreement for products that use our GeneChip® array technology. Under the arrangement, Beckman Coulter agreed to pay us transfer prices and royalties on sales of these products.

*Array Automation Ltd.* The Company is currently a partner in Array Automation, LLC (“AAL”), a joint venture with Beckman Coulter, Inc. (“Beckman”). In July 1998, the Company entered into an asset purchase agreement with Beckman. As part of the asset purchase agreement, the Company agreed to establish a joint venture with Beckman. AAL was incorporated in July 2003, with the primary purpose of product research and development in the field of non-photolithographic arrays of polynucleotide sequences and instruments. (Please see Note 10 of the Notes to the Consolidated Financial Statements.)

*National Cancer Institute.* In January 2001, we entered into a collaboration agreement with the National Cancer Institute on a human transcriptome initiative which seeks to construct maps locating the sites of RNA transcription across the entire human genome using high-density whole-genome arrays interrogating at resolutions and throughput rates never before attempted. The transcriptome is defined as the complete collection of transcribed elements of the genome. In addition to mRNAs, it also represents non-coding RNAs that are used for structural and regulatory purposes. Alterations in the structure or levels of expression of any one of these RNAs or their proteins could contribute to disease. An understanding of the transcriptome may provide valuable insights in the research for novel drugs. We have made the data from this initiative freely available to the public via the Web through a version of the data integration and analysis software platform developed by Biotique Systems, Inc., a company that provides decision support tools and services for the emerging field of pharmacogenomics. We are using the Biotique Local Integration System to house this transcriptome data and to provide an interface for researchers to access, query and use this information. This collaboration was extended during fiscal 2003 to address the identification of transcriptional binding sites, methylation sites, origins of replication and other genomic features.

*Ingenuity Systems, Inc.* In July 2003, we entered into an agency agreement with Ingenuity to deliver the Ingenuity Pathways Analysis product to our customers. Ingenuity Pathways Analysis is a web-based application that is designed to enable our customers to more easily discover, visualize and explore therapeutically relevant networks in gene expression array data sets. Pharmaceutical, biotech, and academic customers will be able to get access to the application through an annual subscription fee. As part of the agreement, we made a $5 million equity investment in Ingenuity, which represents approximately a 4% ownership.

*Johnson & Johnson Pharmaceutical Research & Development L.L.C.* In September 2003, we signed a collaboration agreement with Johnson & Johnson Pharmaceutical Research & Development L.L.C. (Johnson & Johnson) to grant them early access to the new GeneChip® HighThroughputArray (HTA) system. Under the agreement, we will collaborate with Johnson & Johnson in the area of testing and evaluating Affymetrix’ high throughput GeneChip® array processing system for use in Johnson & Johnson’s pharmaceutical research and development activities. Johnson & Johnson grants Affymetrix the right to use the data obtained from their evaluation in the internal research and development of our HTA Systems.

*Caliper Life Sciences.* In January 2004, we signed a collaboration and supply agreement to develop and provide automated target preparation instruments for the GeneChip® Probe Array system. These new automation systems are expected to cut array processing, reduce variability and labor costs, and enable researchers to industrialize their genomic research. The two companies will develop products that leverage Caliper's expertise in high-throughput automation and microfluidics with Affymetrix' expertise in microarray technology and applications. The first products are expected to be launched later in 2004 and will automate GeneChip® microarray target preparation steps including hybridization, washing and staining for expression and DNA analysis. The automated system will enable a single operator to run up to 96 RNA samples at a time, compared to the current manual rate of 20 to 24 samples.

**Marketing and Distribution**

The markets for our products include all aspects of molecular biology research in the life sciences, including basic human disease research, genetic analysis, pharmaceutical drug discovery and development, pharmacogenomics, toxicogenomics and agricultural research, amongst others. Our customers include pharmaceutical, biotechnology, agrichemical, diagnostics, industrial and consumer products companies, as well as academic research centers, laboratories in government agencies, private government research foundations and clinical and industrial reference laboratories. The following factors, among others, influence the size and development of our markets:

- the availability of genomic sequence and sequence variation data for the human population and for other organisms;
- technological innovation that increases throughput and lowers the cost of genomic and genetic analysis;
- the development of new computational techniques to handle and analyze large amounts of genomic data;
- the availability of government funding for basic and disease-related research;
- the amount of capital and ongoing expenditures allocated to research and development spending by biotechnology, pharmaceutical and diagnostic companies;
- the application of genomics to new areas including clinical diagnostics, agriculture, human identity and consumer goods; and
- the availability of genetic markers and signatures of diagnostic value.

In North America, major European markets and Japan, our GeneChip® products are marketed principally through our own sales and distribution organizations. We own or lease sales and service offices in the United States, Europe, Japan and Singapore through foreign sales subsidiaries. In some foreign countries, sales are made through various representative and distributorship arrangements. In January 1, 2003, we began selling in Japan directly through Affymetrix Japan K.K., a wholly owned subsidiary of Affymetrix that was formed in June 2002, in addition to using our distributorship arrangement with Amersham Biosciences K.K. Subsequent to January 1, 2004, Amersham Biosciences K.K. ceased to handle order processing, stockholding, physical distribution and customer invoicing on our behalf. Currently, our office in Tokyo has local, dedicated sales, service and application support personnel who are primarily responsible for expanding our existing Japanese customer base and building closer relationships with the local scientific community.

In markets outside of North America, Europe and Japan, we sell our GeneChip® products principally through third party distributors, primarily in the Middle East, India and Asia Pacific. These distributors are life science supply specialists within their own countries and operate as our sole distributors within a defined country or other geographic area.

For clinical and industrial applications market opportunities, we supply our partners with arrays, which they incorporate into diagnostic products and take on the primary commercialization responsibilities. Current collaborative partners include Roche and bioMérieux. For additional information concerning our collaborative partners, see the section of this Form 10-K entitled "Our Collaborative Partners."

**Manufacturing and Raw Materials**

We manufacture our GeneChip® probe arrays, GCS 3000 scanner, fluidics stations, instrument control software and certain reagents in-house and contract with third-party suppliers to manufacture our hybridization oven and certain reagents for our GeneChip® system. Additionally, through our External Developers Network, a number of third party software suppliers develop, market and sell genomic data analysis software that interfaces with data files generated by our GeneChip® system.

Our probe array manufacturing process involves wafer preparation, probe synthesis, dicing of synthesized wafers into chips, assembly of chips, and quality control. We have developed software programs that extensively automate the design of photolithographic masks used in probe array manufacturing and that control the probe array manufacturing lines. Glass wafers are prepared for synthesis through the application of chemical coatings. GeneChip® probe arrays are synthesized on the wafers using our proprietary, combinatorial photolithographic process. The completed wafers can then be diced to yield individual probe arrays, which are assembled and packaged for shipment.

We are currently manufacturing GeneChip® probe arrays for sale to customers as well as for internal and collaborative purposes. Probe arrays are manufactured at our dedicated manufacturing facility located in West Sacramento, California. We also maintain a manufacturing process engineering and development facility in Santa Clara, California, and a manufacturing and research and development facility in Bedford, Massachusetts to support our instrumentation products. All of our instrument and array manufacturing facilities comply with Good Manufacturing Practices as a subset of the Quality System Regulation (21 CFR 820).

Currently, we have physical capacity under optimal conditions to produce more than 32,000 wafers annually. We will continue to invest in additional capital equipment for our West Sacramento facility to both increase production capacity and increase the flexibility of this capacity to produce a broader range of products. The actual number of probe arrays we are able to manufacture depends on the available equipment capacity, the yield of probe arrays that pass quality control testing as well as the number of probe arrays manufactured on each wafer.

We test selected probe arrays from each wafer and selected probes on such probe arrays. We therefore rely on in-process and internal quality control procedures, including controls on the manufacturing process and sample testing, to verify the correct completion of the manufacturing process. In addition, we and our customers rely on the accuracy of genetic sequence information contained in the public databases upon which our products are based. Our probe array manufacturing process is designed to allow us to meet our performance specifications before arrays are shipped. We have a customer inquiry and complaint process in place and we rely on this process to identify and resolve product performance issues that may arise from time to time.

Key parts of the GeneChip® product line, such as hybridization ovens are available from single sources. We take such steps as we believe are appropriate to ensure that supplies from these vendors are not materially delayed or interrupted, as any such delays or interruptions could in turn delay our ability to deliver these products to our customers. Likewise, certain raw materials or components used in the synthesis of probe arrays or the assembly of instrumentation are currently available only from a single source or limited sources. We take such steps as we believe are appropriate to ensure that materials and components from these vendors are not materially delayed or interrupted, as any such delays or interruptions could in turn delay our ability to produce probe arrays or other components for

our GeneChip® system in a timely fashion, in sufficient quantities or under acceptable terms. Alternative sources of supply may be time consuming and expensive to qualify. In addition, we are dependent on our vendors to provide components of appropriate quality and reliability and to meet applicable regulatory requirements. Accordingly, we also take what we believe are appropriate measures to prevent the delay or interruption of supplies from these vendors and to ensure the appropriate quality for our customers.

**Research and Development**

We believe a substantial investment in research and development is essential to a long-term sustainable competitive advantage and critical to expansion into additional high throughput markets such as toxicogenomics, pharmacogenomics, clinical and applied testing applications. Our research and development effort is divided into the major areas of basic research, product research and development and manufacturing process development. Our research and development expenses for the years ended December 31, 2003, 2002 and 2001, were $65.9 million, $69.5 million and $68.2 million, respectively.

*Basic Research*

Basic research efforts are carried out through our Affymetrix Research Laboratories to further advance our GeneChip® platform, develop new concepts that can be rapidly productized, and create innovations that will influence our business model in the future. Our initial focus is on basic technology research including high throughput systems, high resolution chip fabrication and detection, genotyping, gene expression and analysis of the human transcriptome and of other model organism genomes. We are focusing our genotyping research efforts on the development of new assays principally designed to perform whole genome analysis at various resolutions. We believe that products based on this research will ultimately help researchers to develop more effective therapeutics and help identify the diagnostic markers and tests useful in clinical applications.

*Product Research and Development*

Our product research and development efforts are focused primarily on expanding the applications of the GeneChip® technology including development of new probe array products, improving the overall performance of GeneChip® assays, increasing the information capacity per probe array and simplifying highly complex assays. Our research and development efforts are intended to continue to develop new products based on information from the human and other genomes of model organisms as well as new genotyping and DNA analysis products. In addition, we intend to continue developing custom product lines for both expression and DNA analysis so that customers can analyze gene expression or DNA variability for any organism. We plan continued software and instrumentation development efforts to enhance the performance and level of automation of our entire GeneChip® system solution.

*Manufacturing Process and Development*

We are conducting research aimed at enhancing the manufacturing process currently employed in the production of our GeneChip® probe arrays. This process, which leverages semiconductor photolithographic fabrication techniques, is combinatorial in that the number of different compounds synthesized grows exponentially with the number of cycles in the synthesis. The objective of this research is to allow us to produce arrays with higher information density in the same unit area, similar to advances achieved in the semiconductor industry, which has produced silicon chips closely following Moore's Law. Moore's Law is the observation that the number of transistors per square inch on a silicon chip had doubled every 18 months since the silicon chip was invented. To date, we have also been able to achieve rapid advances in genetic information content, reducing commercial product feature size from 100 microns in 1994 to 11 microns in 2003. We are continuing research aimed at

using smaller feature technology in commercial products and implementing novel, cost-effective packaging approaches for the small array formats including packaging these into the standard industry microtitre plate format.

**Intellectual Property**

We rely on a combination of patent, copyright, and trade secret laws, know-how and licensing opportunities to establish and protect our proprietary technologies and products. Our success depends in part on our ability to obtain patent protection for our products and processes, to preserve our copyrights and trade secrets, to operate without infringing the proprietary rights of third parties and to acquire licenses related to enabling technology or products used with our GeneChip® technology.

We are pursuing a patent strategy designed to facilitate our research and development projects and the commercialization of our current and future products. We have been issued 266 patents in the United States and we hold approximately 444 pending United States patent applications. Many of these patents and applications have been filed and/or issued in one or more foreign countries. While no one patent is considered essential to our success, we aggressively seek to protect our patent rights as our patent portfolio as a whole is material to the success of the business.

There are a significant number of United States and foreign patents and patent applications in our areas of interest, and we believe that there will continue to be significant litigation in the industry regarding patent and other intellectual property rights. Others have filed, and in the future are likely to file, patent applications that are similar or identical to ours or those of our licensors. It may be necessary for us to enter into litigation to defend against or assert claims of infringement, to enforce patents issued to us, to protect trade secrets or know-how owned by us or to determine the scope and validity of the proprietary rights of others. To determine the priority of inventions, it may be necessary for us to participate in interference proceedings declared by the United States Patent and Trademark Office. Litigation or interference proceedings could result in substantial costs to and diversion of our effort and our efforts may not be successful. (See Item 3 Legal Proceedings)

We also rely upon copyright and trade secrets to protect our confidential and proprietary information. We seek to protect our proprietary technology and processes by confidentiality agreements with our employees and certain consultants and contractors. These agreements may be breached, we may not have adequate remedies for any breach and our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our employees or our consultants or contractors use intellectual property owned by others in their work for us, disputes may also arise as to the rights in related or resulting know-how and inventions.

We are party to various option, supply and license agreements with third parties which grant us rights to use certain aspects of our technologies. We take such measures as we believe are appropriate to maintain rights to such technology under these agreements. In addition, our academic collaborators have certain rights to publish data and information in which we have rights. There is considerable pressure on academic institutions to publish discoveries in the genetics and genomics fields. We take such steps as we believe are appropriate to ensure that such publication will not adversely affect our ability to obtain patent protection for information in which we may have a commercial interest.

**Competition**

Competition in gene expression monitoring, DNA analysis and clinical applications is intense and is expected to increase. Further, the technologies for monitoring gene expression, discovering and analyzing polymorphisms associated with significant diseases, and approaches for commercializing those discoveries are new and rapidly evolving. Currently, our principal competition comes from existing technologies and other DNA array technologies that are used to perform many of the same functions for which we market our GeneChip® systems.

In the gene expression monitoring and DNA analysis fields, existing competitive technologies include gel-based sequencing using instruments provided by companies such as Applied Biosystems, Beckman Coulter and Amersham Biosciences. Other companies developing or marketing potentially competitive DNA array technology include: Agilent Technologies, Inc., Amersham Biosciences K.K. (pending acquisition by GE), Applied Biosystems, Inc., Axon Instruments, Inc., BD Biosciences Clontech, CombiMatrix Corporation, Digital Gene Technologies, Inc., febit ag, Illumina, Inc., Lynx Therapeutics, Inc., Nanogen, Inc., NimbleGen Systems, Inc., Sequenom, Inc., Xeotron, Inc., and Visible Genetics Inc. (recently acquired by Bayer). In order to compete against existing and emerging technologies, we will need to be successful in demonstrating to customers that the GeneChip® system provides a competitive advantage.

In Japan, Amersham Biosciences K.K., from which we have transitioned to our own direct sales operation during 2003, is a competitor, as well as a licensee of certain of our technology. In addition, we have several other third party licensees that could offer products that compete with our product offering.

The market for clinical applications products derived from gene discovery is currently limited and highly competitive, with several large institutional corporations already having significant market share. Established diagnostic companies could compete with us by developing new products. Companies such as Abbott Laboratories, Becton Dickinson, Bayer AG, Roche, Johnson & Johnson, bioMérieux and Beckman Coulter have the strategic commitment to diagnostics, the financial and other resources to invest in new technologies, substantial intellectual property portfolios, substantial experience in new product development, regulatory expertise, manufacturing capabilities and the distribution channels to deliver products to customers. Established diagnostic companies also have an installed base of instruments in several markets, including clinical and reference laboratories, which are not compatible with the GeneChip® system and could slow acceptance of our products. In addition, these companies have formed alliances with genomics companies which provide them access to genetic information that may be incorporated into their diagnostic tests.

Future competition in existing and potential markets will likely come from existing competitors as well as other companies seeking to develop new technologies for sequencing and analyzing genetic information. In addition, pharmaceutical and biotechnology companies have significant needs for genomic information and may choose to develop or acquire competing technologies to meet these needs. During the course of 2003 we have significantly expanded our network of approved service providers in America, Japan and Europe. While these companies expand the reach of Affymetrix technology and make its analytical power available to a wider base of users they may act as a substitute for outright purchase of instruments and arrays by those end users. In the clinical applications field, competition will likely come from established diagnostic companies, companies developing and marketing DNA probe tests for genetic and other diseases and other companies conducting research on new technologies to ascertain and analyze genetic information.

**Government Regulation**

Regulation by governmental authorities in the United States and other countries will likely be a significant factor in the manufacturing, labeling, distribution and marketing of certain products that may be developed by us or our collaborative partners. In particular, diagnostic products developed by us or our collaborators may require regulatory approval by governmental agencies when distributed outside of the research environment.

Commercially available diagnostic tests are regulated as medical devices and in most cases are subject to rigorous testing and other approval procedures by the United States Food and Drug Administration (the "FDA") in the United States and similar health authorities in other countries. Obtaining these clearances or approvals and the compliance with these regulations require the

expenditure of substantial resources over a significant period of time, and there can be no assurance that any clearances or approvals will be granted on a timely basis, if at all. Once granted, a clearance or approval may place substantial restrictions on how the device is marketed or labeled or to whom it may be sold. Moreover, various federal and state statutes and regulations also govern or influence the manufacturing, safety, labeling, storage, record keeping and marketing of such products or components of such products. Additionally, the FDA's Quality System Regulations ("QSR") may apply if we manufacture arrays as components for use in diagnostic products developed by our partners.

Medical device laws and regulations are also in effect in many of the countries in which we may do business outside the United States. These range from comprehensive device approval requirements for some or all of our medical device products to requests for product data or certifications. The number and scope of these requirements are increasing. We may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining our non-US regulatory approvals. In addition, the export by us of certain of our products which have not yet been cleared for domestic commercial distribution may be subject to FDA or other export restrictions.

**Reimbursement**

The design of our products and the potential market for their use may be directly or indirectly affected by U.S. and other government regulations governing reimbursement for clinical testing services. The availability of third-party reimbursement for our products and services may be limited or uncertain, particularly with respect to genetic tests and other clinical applications products. Third-party payors may deny reimbursement if they determine that a prescribed health care product or service has not received appropriate FDA or other governmental regulatory clearances, is not used in accordance with cost-effective treatment methods as determined by the payor, or is experimental, unnecessary or inappropriate. Furthermore, third-party payors are increasingly challenging the prices charged for health care products and services. The trend towards managed health care in the United States, which could control or significantly influence the purchase of health care products and services, as well as legislative proposals to reform health care or reduce government insurance programs, may all result in lower prices for health care products and services commercialized by our customers and collaborative partners. This could reduce the amount of future royalty payments that may be due to us on such product sales or services. The cost containment measures that health care providers are instituting and the impact of any health care reform may also adversely affect the profits of our customers and collaborative partners. As a result, pharmaceutical and biotechnology companies may choose to reduce or eliminate certain research and development programs that utilize our products.

**Environmental Matters**

We are dedicated to compliance and protection of the environment and individuals. Our operations require the use of hazardous materials (including biological materials) which subject us to a variety of federal, state and local environmental and safety laws and regulations. We believe we are in material compliance with current and applicable laws and regulations. However, some of the regulations under the current regulatory structure allow for "strict liability," holding a party potentially liable without regard to fault or negligence. We could be held liable for damages and fines as a result of our, or others', business operations should contamination of the environment or individual exposure to hazardous substances occur. In addition, we cannot predict how changes in these laws or development of new regulations will affect our business operations or the cost of compliance.

**Employees**

As of December 31, 2003, we had 871 full-time employees. The employee group includes chemists, engineers, computer scientists, mathematicians and molecular biologists with experience in the diagnostic products, medical products, semiconductor, computer software and electronics industries. None of our employees are represented by a collective bargaining agreement, nor have we experienced work stoppages. We believe that we maintain good relationships with our employees. Our success depends in large part on our ability to attract and retain skilled and experienced employees.

**Seasonality**

Customer purchasing patterns do not show significant seasonal variation, although demand for instrumentation systems is usually highest in the fourth quarter of the calendar year as customers spend unused budget allocations before the end of the financial year.

**Financial Information About Industry Segments**

We operate in one business segment, for the development, manufacture, and commercialization of systems for genetic analysis in the life sciences industry. Our operations are treated as one segment as we only report operating information on a total enterprise level to our chief operating decision-makers. Further, resource allocations are also made at the enterprise level by our chief operating decision-makers.

**Financial Information About Geographic Areas**

During the year ended December 31, 2003, we made significant investments in Japan as we transitioned from a distributor sales model to direct sales. We began selling our products direct to customers in Japan in January 2003. However, our distributor, Amersham Biosciences K.K. continued to handle order processing, stockholding, physical distribution and customer invoicing on our behalf through the year ended December 31, 2003. As of December 31, 2003, our distributor agreement with Amersham Biosciences K.K. terminated.

We expect to see increased sales growth in international regions than within the United States until our sales more closely match other mature providers of tools to the life sciences businesses.

Our consolidated product and product related revenue from customers outside of the United States for fiscal years 2003, 2002 and 2001 were $127.8, $88.0 and $62.9 million, or 45.5%, 35.4% and 32.3%, respectively, of our consolidated product and product related revenue. A summary of revenues from external customers attributed to each of our geographic areas for the fiscal years ended December 31, 2003, 2002 and 2001, is included in Note 17 of the Notes to Consolidated Financial Statements included in this report.

**Available Information**

Our internet address is *www.affymetrix.com*. We make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission (SEC). In addition, copies of the Annual Report will be made available free of charge upon written request. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is *http://www.sec.gov*.

**ITEM 2. PROPERTIES**

The following chart indicates the facilities that we own or lease, the location and size of each such facility and their designated use. We believe that these facilities are sufficient to meet our business needs in the foreseeable future.

| Location | Approximate Square Feet | Operation | Own or Lease (Expiration) |
|---|---|---|---|
| Bedford | 80,000 sq. ft. | R&D, manufacturing, administrative | Lease expires 2011 |
| Emeryville | 11,000 sq. ft. | Software development | Lease expires 2005 |
| Osaka, Japan | 710 sq. ft. | Administrative | Lease expires 2005 |
| Santa Clara | 92,000 sq. ft. | R&D, administrative | Lease expires 2013 |
| | 108,000 sq. ft. | Administrative | Lease expires 2013 |
| Singapore | 1,700 sq. ft. | Administrative | Lease expires 2004 |
| Sunnyvale | 31,000 sq. ft. | R&D | Lease expires 2008 |
| | 57,000 sq. ft. | Administrative | Lease expires 2010 |
| Tokyo | 11,000 sq. ft. | Administrative | Lease expires 2005 |
| United Kingdom | 10,000 sq. ft. | Administrative | Lease expires 2016 |
| West Sacramento | 52,000 sq. ft. | Manufacturing | Own (facility and land) |

## ITEM 3. LEGAL PROCEEDINGS

### GENERAL

We have been in the past and continue to be a party to litigation which has consumed and may in the future continue to consume substantial financial and managerial resources and which could adversely affect our business, financial condition and results of operations. If in any pending or future intellectual property litigation involving us or our collaborative partners, we are found to have infringed the valid intellectual property rights of third parties, we, or our collaborative partners, could be subject to significant liability for damages, could be required to obtain a license from a third party, which may not be available on reasonable terms or at all, or could be prevented from manufacturing and selling our products. In addition, if we are unable to enforce our patents and other intellectual property rights against others, or if our patents are found to be invalid or unenforceable, third parties may more easily be able to introduce and sell DNA array technologies that compete with our GeneChip® technology, and our competitive position could suffer. We expect to devote substantial financial and managerial resources to protect our intellectual property rights and to defend against the claims described below as well as any future claims asserted against us. Further, because of the substantial amount of discovery required in connection with any litigation, there is a risk that confidential information could be compromised by disclosure.

*Applera Corporation Litigation*

On July 5, 2000, Applera Corporation and related corporate plaintiffs ("Applera") filed a lawsuit in the United States District Court for the District of Delaware alleging that certain of our products infringe five Applera patents related to processes for making oligonucleotides and reagents that we purchased from Applera licensed vendors. Applera served us with the complaint on October 16, 2000. On January 30, 2001, we filed a motion to dismiss Applera's lawsuit pending in Delaware for lack of subject matter jurisdiction. On January 25, 2001, we filed a declaratory judgment action against Applera in the United States District Court for the Southern District of New York seeking, among other things, a declaration that we have not infringed any of Applera's subject patents, which lawsuit was stayed by the Court in New York pending the Delaware Court's ruling on the aforementioned motion to dismiss. On September 27, 2001, the District Court for the District of Delaware granted our motion to dismiss for lack of subject matter jurisdiction. On October 3, 2001, the New York Court restored the New York case to active status.

On April 17, 2002, the New York Court heard oral arguments on Applera's motions to bifurcate or dismiss certain of our claims, including claims of breach of contract and antitrust violations by Applera. On May 24, 2002, the Court rejected Applera's motion to dismiss our breach of contract and antitrust claims and agreed to bifurcate and stay discovery on antitrust issues as well as on all damages issues. Following the Court's order, on June 6, 2002, Applera filed its counterclaim in the New York case alleging infringement of four of the five patents originally asserted in the Delaware action. We filed a motion seeking summary judgment that the last to expire of Applera's subject patents had, in fact, expired as a matter of law in 2001 in accordance with a terminal disclaimer that had been filed in the Patent Office during prosecution of that patent. On December 24, 2002, the court granted our motion. As a result of the Court's ruling, it is now clear that all of the patents asserted by Applera have expired.

On December 16, 2003, the Court heard argument on our three motions for summary judgment that the Applera patents are unenforceable due to inequitable conduct before the U.S.P.T.O. and that certain of the Applera patent claims are invalid for anticipation and inoperability. On January 27, 2004, the Court granted our motion for summary judgment on anticipation and invalidated many of the claims in the '066 and '418 patents. The Court denied our motion for summary judgment on the issue of the inoperability of the '679 patent. The Court denied our motion for summary judgment on

inequitable conduct, but ordered a bench trial on that issue. Following the Court's summary judgment rulings, on February 23, 2004 the parties announced to the Court that they had reached a settlement agreement. On March 12, 2004, we completed the settlement with Applera. Under the terms of the settlement, we are not required to pay any sums to Applera or license any of Applera's patents and, as such, the settlement is not expected to result in a material adverse effect on our business, financial condition and results of operations.

*Purported Shareholder Class Action Lawsuits*

On April 10, 2003, two individuals filed a purported shareholder class action lawsuit under the federal securities laws in the United States District Court for the Northern District of California. The defendants in this case include the Company, three of its executive officers and one outside director. The lawsuit relates to our January 29, 2003 announcement of our financial expectations for 2003 and subsequent announcement on April 3, 2003, updating our financial guidance for the first quarter of 2003. The lawsuit alleges, among other things, that our January 29, 2003 financial guidance was misleading and GlaxoSmithKline plc sold our shares during the first quarter of 2003 while in possession of material nonpublic information. On June 10, 2003, the plaintiffs in this action filed a notice of voluntary dismissal of the lawsuit without prejudice, and the Court granted the dismissal by order dated June 12, 2003.

On May 20, 2003, two other individuals filed a second purported shareholder class action lawsuit in the United States District Court for the Northern District of California that is substantively identical to the one filed on April 10, 2003. The second lawsuit alleges the same claims against the same defendants on behalf of the same purported class of shareholders (those who purchased securities of Affymetrix between January 29, 2003 and April 3, 2003) as the earlier-filed lawsuit. This case is still in the pleading stage. On September 5, 2003, the Court granted the plaintiffs' unopposed motion for appointment of themselves as lead plaintiffs and approved their selection of lead counsel for the purported class. The plaintiffs filed an amended complaint on November 7, 2003. Affymetrix and the individual defendants filed a motion to dismiss the amended complaint on December 22, 2003 and on March 11, 2004 the Court granted the motion to dismiss without prejudice in order to allow the plaintiffs the opportunity to attempt to remedy the pleading defects in their amended complaint if they choose to do so.

We believe that the claims set forth in the purported class action lawsuit are without merit. However, we cannot be sure that we will prevail in these matters. Our failure to successfully defend against these allegations could result in a material adverse effect on our business, financial condition and results of operations.

*Multilyte Litigation*

Multilyte Ltd., a British corporation, and Affymetrix have commenced legal proceedings in the United States, United Kingdom and German courts to address allegations made by Multilyte that we infringe certain patents owned by Multilyte (the "Multilyte patents") by making and selling the GeneChip® DNA microarray products.

In the actions pending in Germany, on July 18, 2003, Multilyte filed proceedings in the state court of Dusseldorf, alleging infringement of the Multilyte patents. On October 16, 2003, the Dusseldorf court held its first hearing in the case and ruled that the case be divided into two formally separate cases (one dealing with European patent EP 0 134 215 and the other with European patent EP 0 304 202). The trial date for the actions pending in the Dusseldorf court are scheduled for August 10, 2004. In a separate action in Germany, on October 15, 2003, we commenced nullity proceedings in German Federal Patent Court in Munich alleging that the German part of Multilyte's two European patents are

invalid. Trial date for the action pending in the German Federal Patent Court in Munich is scheduled for June 28 and 29, 2004.

In the action pending in the U.K., on August 14, 2003, we commenced proceedings in the English High Court seeking a declaratory judgment that the Multilyte patents are not infringed and are invalid. On September 25, 2003, Multilyte counterclaimed in the U.K. proceedings, alleging that we infringed the Multilyte patents in the U.K. and claiming damages, an injunction and legal costs. The English High Court has directed that the issues of whether the Multilyte patents are valid and whether they have been infringed by us are to be heard together. The trial of the action in the English High Court is set to begin on October 11, 2004. Multilyte sought a stay of the UK proceedings. The English High Court denied Multilyte's motion.

In the action pending in the U.S., on August 13, 2003, we commenced proceedings in the United States District Court for the Northern District of California seeking a declaratory judgment that eight Multilyte patents are not infringed and are invalid. Multilyte has agreed that we do not infringe five of the eight named patents. On October 24, 20003, we filed an amended complaint seeking a declaratory judgment as to three of the original eight named patents—U.S. Patents 5,432,099, 5,599,720 and 5,807,755. On November 12, 2003, Multilyte filed an answer to our complaint for declaratory judgment and asserted counterclaims against us alleging infringement of the three patents named by us in our complaint. Multilyte has voluntary submitted the three patents in suit to the United States Patent and Trademark Office for voluntary re-examination. Typically, re-examination proceedings take at least 12 months. A Markman hearing in which the Court will construe the scope of the claims of the Multilyte patents in this action is scheduled for May 24, 2004, and a trial date is scheduled for January 2005.

We believe that Multilyte's claims are without merit and have filed the declaratory judgment and nullity actions to protect our interests. However, we cannot be sure that we will prevail in these matters. Our failure to successfully defend against these allegations could result in a material adverse effect on our business, financial condition and results of operations.

*Enzo Litigation*

On October 28, 2003, Enzo Life Sciences, Inc., a wholly-owned subsidiary of Enzo Biochem, Inc. (collectively "Enzo") filed a complaint against us in the United States District Court for the Eastern District of New York for breach of contract, injunctive relief and declaratory judgment. The Enzo complaint relates to a 1998 distributorship agreement with Enzo under which we served as a non-exclusive distributor of certain reagent labeling kits supplied by Enzo. In its complaint, Enzo seeks monetary damages and an injunction against us from using, manufacturing or selling Enzo products and from inducing collaborators and customers to use Enzo products in violation of the 1998 agreement. Enzo also seeks the transfer of certain Affymetrix patents to Enzo. In connection with its complaint, Enzo provided us with a notice of termination of the 1998 agreement effective on November 12, 2003.

On November 10, 2003, we filed a complaint against Enzo in the United States District Court for the Southern District of New York for declaratory judgment, breach of contract and injunctive relief relating to the 1998 agreement. In our complaint, we allege that Enzo has engaged in a pattern of wrongful conduct against us and other Enzo labeling reagent customers by, among other things, asserting improperly broad rights in its patent portfolio, improperly using the 1998 agreement and distributorship agreements with others in order to corner the market for non-radioactive labeling reagents, and improperly using the 1998 agreement to claim ownership rights to our proprietary technology. We seek declarations that we have not breached the 1998 agreement, that we are entitled to sell our remaining inventory of Enzo reagent labeling kits, and that nine Enzo patents that are identified in the 1998 agreement are invalid and/or not infringed by us. We also seek damages and injunctive relief to redress Enzo's alleged breaches of the 1998 agreement, its alleged tortious

interference with our business relationships and prospective economic advantage, and Enzo's alleged unfair competition. We filed a notice of related case stating that our complaint against Enzo is related to the complaints already pending in the Southern District of New York against eight other former Enzo distributors. The Southern District of New York has related our case. We have also filed a motion to transfer Enzo's Eastern District of New York complaint to the Southern District of New York which was heard on January 30, 2004. The Eastern District of New York granted our motion and transferred the case to the Southern District of New York**.** There is no trial date in this action.

We believe that the claims set forth in Enzo's complaint are without merit and have filed the action in the Southern District of New York to protect our interests. However, we cannot be sure that we will prevail in these matters. Our failure to successfully defend against these allegations could result in a material adverse effect on our business, financial condition and results of operation.

*Administrative Litigation and Proceedings*

Our intellectual property is expected to be subject to significant additional administrative and litigation actions. For example, in Europe and Japan, third parties are expected to oppose significant patents that we own or control. Currently, Multilyte Ltd. and ProtoGene Laboratories, Inc. are parties that have filed oppositions against our EP 0-619-321 patent in the European Patent Office, and PamGene B.V. has filed an opposition against our EP 0-728-520. Also, Abbott Laboratories, Applera, Clondiag and CombiMatrix are parties in opposition against our EP 0-834-575. Abbott Laboratories, CombiMatrix, PamGene B.V., Applera and Dr. Peter Schneider have filed oppositions against our EP 0-834-576. CombiMatrix has filed an opposition against EP 0-695-941. These procedures will result in the patents being either upheld in their entireties, allowed to issue in amended form in designated European countries, or revoked.

Further, in the United States, we expect that third parties will continue to "copy" the claims of our patents in order to provoke interferences in the United States Patent & Trademark Office, and we may copy the claims of others. These proceedings could result in our patent protection being significantly modified or reduced, and could result in significant costs and consume substantial managerial resources.

At this time, we cannot determine the outcome of any of the matters described above.

**ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS**

No matters were submitted during the fourth quarter of the year ended December 31, 2003.

## PART II

## ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Our common stock is traded on the Nasdaq National Market System under the symbol of AFFX. The following table sets forth, for the periods indicated, the low and high bid prices per share for our common stock as reported by the Nasdaq National Market.

| | Low | High |
|---|---|---|
| **2002** | | |
| First Quarter | $21.19 | $41.95 |
| Second Quarter | $19.21 | $29.49 |
| Third Quarter | $13.80 | $24.08 |
| Fourth Quarter | $19.50 | $29.17 |
| **2003** | | |
| First Quarter | $21.13 | $29.93 |
| Second Quarter | $16.25 | $28.47 |
| Third Quarter | $18.76 | $26.45 |
| Fourth Quarter | $20.45 | $26.56 |

As of March 1, 2004, there were approximately 425 holders of record of our common stock.

No dividends have been paid on our common stock. We currently intend to retain all future earnings, if any, for use in our business and do not anticipate paying any cash dividends on our common stock in the foreseeable future.

***Recent Sales of Unregistered Securities.***

Since January 1, 2001, the Company has sold the following securities without registration under the Securities Act of 1933:

(1) Pursuant to a stock restriction agreement dated December 18, 2003, the Company issued to a former distributor of Genetic MicroSystems, Inc., 126,582 shares of common stock in connection with the settlement of a $3,000,000 common stock purchase right.

(2) On December 11, 2003, the Company issued to J.P. Morgan Securities Inc. and UBS Securities LLC, as initial purchasers, $120,000,000 principal amount of its 0.75% Senior Convertible Notes due 2033 for a purchase price of $116,700,000. The proceeds from the issuance of the 0.75% Notes were used to redeem the Company's 5% Notes in January 2004 and the remaining proceeds, along with cash generated from operations were used to redeem the 4.75% Notes in February 2004.

The issuances of these securities were exempt from registration under the Securities Act pursuant to Section 4(2).

## ITEM 6. SELECTED FINANCIAL DATA

The following selected historical consolidated financial information has been derived from our audited consolidated financial statements. The balance sheet data as of December 31, 2003 and 2002 and statements of operations data for each of the three years in the period ended December 31, 2003 are derived from audited consolidated financial statements included in this Form 10-K. You should read this table in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Item 8, "Financial Statements and Supplementary Data."

| | Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2000 | 1999 |
| | (In thousands, except per share amounts) | | | | |
| **Consolidated Statement of Operations Data:** | | | | | |
| Revenue(1): | | | | | |
| Product sales | $ 222,748 | $ 201,594 | $ 147,566 | $ 128,144 | $ 65,903 |
| Product related revenue | 58,032 | 46,944 | 47,370 | 45,402 | 32,265 |
| Total product and product related revenue | 280,780 | 248,538 | 194,936 | 173,546 | 98,168 |
| Royalties and other revenue | 10,556 | 19,777 | 18,447 | 27,284 | 10,906 |
| Revenue from Perlegen Sciences | 9,460 | 21,559 | 11,491 | — | — |
| Total revenue | 300,796 | 289,874 | 224,874 | 200,830 | 109,074 |
| Cost and expenses(1): | | | | | |
| Cost of product sales | 80,158 | 82,597 | 69,321 | 68,688 | 40,365 |
| Cost of product related revenue | 9,657 | 5,718 | 3,201 | 2,196 | 1,854 |
| Cost of revenue from Perlegen Sciences | 9,460 | 21,000 | 11,491 | — | — |
| Research and development | 65,909 | 69,520 | 68,197 | 57,384 | 43,524 |
| Selling, general and administrative(2) | 104,797 | 96,260 | 94,374 | 113,429 | 53,590 |
| Merger related costs(3) | — | — | — | 2,395 | — |
| Amortization of deferred stock compensation(3) | 2,238 | 8,388 | 12,663 | 2,118 | — |
| Amortization of goodwill and purchased intangibles(4) | 937 | 1,125 | 6,223 | 997 | — |
| Charge for acquired in-process technology(5) | 10,096 | — | — | 14,989 | — |
| Total costs and expenses | 283,252 | 284,608 | 265,470 | 262,196 | 139,333 |
| Income (loss) from operations | 17,544 | 5,266 | (40,596) | (61,366) | (30,259) |
| Interest income and other, net(6) | 16,662 | 13,535 | 27,655 | 26,340 | 7,025 |
| Interest expense | (17,358) | (19,730) | (19,880) | (18,364) | (2,270) |
| Income (loss) before income taxes | 16,848 | (929) | (32,821) | (53,390) | (25,504) |
| Income tax provision | (2,563) | (701) | (300) | (600) | — |
| Net income (loss) | 14,285 | (1,630) | (33,121) | (53,990) | (25,504) |
| Preferred stock dividends | — | — | — | — | (2,055) |
| Income (loss) applicable to common stockholders | $ 14,285 | $ (1,630) | $ (33,121) | $ (53,990) | $ (27,559) |
| Basic and diluted income (loss) applicable to common stockholders | $ 0.24 | $ (0.03) | $ (0.58) | $ (0.98) | $ (0.54) |
| Weighted-average shares used in computing basic income (loss) applicable to common stockholders(7) | 58,860 | 58,018 | 57,382 | 55,035 | 51,167 |
| Weighted-average shares used in computing diluted income (loss) applicable to common stockholders(7) | 60,583 | 58,018 | 57,382 | 55,035 | 51,167 |
| **Balance Sheet Data:** | | | | | |
| Cash, cash equivalents, and available-for-sale securities | $ 459,883 | $ 361,458 | $ 368,823 | $ 436,030 | $226,440 |
| Working capital | 192,778 | 371,708 | 372,718 | 418,302 | 231,382 |
| Total assets | 700,164 | 601,403 | 580,015 | 620,780 | 326,587 |
| Long-term obligations(6) | 166,586 | 380,222 | 378,000 | 383,000 | 158,000 |
| Accumulated deficit | (198,659) | (212,944) | (211,314) | (178,193) | (124,203) |
| Total stockholders' equity | 165,055 | 134,936 | 129,010 | 147,130 | 131,932 |

(1) Revenues and cost of product sales/cost of product related revenue amounts in years 1999 through 2002 have been reclassified to conform to the 2003 presentation, exclusive of revenue from and cost of sales related to Perlegen Sciences.

(2) Selling, general and administrative expense in 2001 and 2000 include charges of approximately $6.4 million and $18.6 million, respectively, related to settlement of litigation.

(3) In February 2000, we completed our merger with Genetic MicroSystems, Inc. ("GMS"), a privately-held, Massachusetts instrumentation company specializing in DNA array technology. Under the terms of the merger, all outstanding shares of GMS common stock and preferred stock were converted into 1,939,798 shares of Affymetrix common stock and we assumed all outstanding GMS options and warrants. In connection with the merger, we recorded $2.4 million in merger related costs. On October 30, 2000, we completed our acquisition of Neomorphic, a privately-held, computational genomics company. Neomorphic common and preferred stockholders received 1,285,636 shares of Affymetrix common stock in exchange for all of their outstanding shares and Neomorphic option holders received 122,797 options to purchase Affymetrix common stock in exchange for their Neomorphic stock options. In addition, the preferred stockholders of Neomorphic received cash of $2.4 million. In accordance with applicable accounting rules, the fair value of unvested common stock subject to restricted stock agreements and the intrinsic value of the unvested options held by employees was deducted from the purchase price and allocated to deferred stock compensation. The deferred stock compensation is being amortized to compensation expense over the remaining vesting term, generally two to four years. We recognized $2.2 million, $8.4 million, $12.7 million and $2.1 million in stock compensation amortization during the years ended December 31, 2003, 2002, 2001 and 2000, respectively.

(4) Amortization of goodwill and purchased intangibles relates to goodwill, developed technology and assembled workforce acquired from Neomorphic. Developed technology ($3.4 million) is being amortized on a straight-line basis over three years. Goodwill ($23.1 million) and assembled workforce ($1.3 million) was amortized on a straight-line basis in fiscal 2000 and 2001 over five years and three years, respectively, until our adoption of SFAS 142 on January 1, 2002, at which time we ceased amortizing goodwill. Beginning in January 2003, amortization of purchased intangibles also includes amortization related to certain technologies licensed from Perlegen. A total of $4.9 million was recorded as intangible assets, which are being amortized over their useful lives of six to ten years.

(5) In connection with the acquisition of Neomorphic in October 2000 we recorded a charge of approximately $15.0 million related to in-process research and development valued using a discounted cash flow methodology. The in-process research and development consisted of software tools that had not yet reached technological feasibility and had no future alternative uses. On January 9, 2003, we entered into an agreement with Perlegen to license certain Perlegen technologies. Under the terms of the licensing agreement, we paid Perlegen a total of $15.0 million in cash. We engaged an independent third party to conduct a valuation analysis of the intangible assets acquired. Based upon that independent valuation, we recorded a charge of approximately $10.1 million related to acquired in-process research and development in the first quarter of 2003. The remaining $4.9 million was recorded as an intangible asset.

(6) In September 1999, we issued $150.0 million principal amount of 5% convertible subordinated notes. In February 2000, we issued $225.0 million principal amount of 4.75% convertible subordinated notes. In August 2001, we repurchased $5.0 million principal amount of the 4.75% notes for total consideration of $3.3 million. In connection with the transaction, we recorded an extraordinary gain of approximately $1.7 million in fiscal 2001 which was reclassified during fiscal 2002 to "interest income and other, net" in accordance with Financial Accounting Standard ("FAS") 145, "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections." In December 2002, we repurchased $1.1 million principal amount of the 4.75% notes for total consideration of approximately $0.9 million. In connection with the transaction we recorded a gain of $0.2 million which is included in "interest income and other, net". In the second quarter of 2003, we repurchased $53.4 million principal amount of our 4.75% convertible subordinated notes due in 2007 and $48.0 million principal amount of our 5.0% convertible subordinated notes due in 2006. In connection with these transactions, we recognized a net loss of approximately $1.0 million which is included in "interest income and other, net." In December 2003, we issued $120.0 million principal amount of 0.75% senior convertible notes.

Included in long-term obligations in 2003 is the long term portion of deferred revenue relating primarily to our collaboration agreement with Roche. In January 2003, we expanded our collaboration with Roche. Under the terms of the collaborative agreement, Roche paid us an up-front, nonrefundable license fee of $70.0 million. We are recognizing this amount as a component of product related revenue over the research and product development phase which is expected to approximate five years.

(7) In July 2000, the Company's Board of Directors approved a two-for-one stock split of its outstanding shares of common stock. The stock split entitled each stockholder of record at the close of business on August 21, 2000, to receive a stock dividend of one additional share for every share of Affymetrix common stock held on that date. Accordingly, all share and per share amounts reflect this event.

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

*The following discussion should be read in conjunction with the consolidated financial statements and the related notes that appear elsewhere in this document.*

This MD&A should be read in conjunction with the other sections of this Annual Report on Form 10-K, including "Item 1: Business"; "Item 6: Selected Financial Data"; and "Item 8: Financial Statements and Supplementary Data." The various sections of this MD&A contain a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risk factors described throughout this filing. Our actual results may differ materially.

*Our Industry*

Our industry is affected by a number of factors that influence its size and development. These factors include the availability of genomic sequence data for human and other organisms, technological innovation that increases throughput and lowers the cost of genomic and genetic analysis, the development of new computational techniques to handle and analyze large amounts of genomic data, the availability of government funding for basic and disease-related research, the amount of capital and ongoing expenditures allocated to research and development spending by biotechnology and pharmaceutical and diagnostic companies, the application of genomics to new areas including clinical diagnostics, agriculture, human identity and consumer goods, and the availability of genetic markers and signatures of diagnostic value.

*Our Business and Financial Results*

We have established our GeneChip® system as the platform of choice for acquiring, analyzing and managing complex genetic information. Our integrated GeneChip® platform includes: disposable DNA probe arrays (chips) consisting of gene sequences set out in an ordered, high density pattern, certain reagents for use with the probe arrays, a scanner and other instruments used to process the probe arrays, and software to analyze and manage genomic information obtained from the probe arrays. We currently sell our products directly to pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies as well as academic research centers, government research laboratories, private foundation laboratories and clinical reference laboratories in North America, Europe and Japan. We also sell our products through life science supply specialists acting as authorized distributors in the Middle East, India and Asia Pacific regions.

Prior to the year ended December 31, 2003, we incurred losses each year since our inception, and as a result have an accumulated deficit of approximately $198.7 million at December 31, 2003. Our losses have resulted principally from costs incurred in research and development, manufacturing and from selling, general and administrative costs associated with our operations, including the costs of patent related litigation. These costs have historically exceeded our revenues and interest income, which to date have been generated principally from product sales, product related revenue, technology access and other license fees, royalties, collaborative research and development agreements, and from interest earned on cash and investment balances.

Our financial results are substantially dependent on our ability to generate significant revenues and maintain profitability. Revenues are impacted principally by our ability to expand our customer base and increase sales of our products to new and existing customers, and by the price of product sales, royalties, design and license fees. To maintain or gain market acceptance of our products in the face of the introduction of new products by our competitors, we may have to reduce or discount the price of

our products resulting in an adverse impact on revenues and gross margins. In addition to the above, our ability to enter into additional supply, license and collaborative arrangements and our ability and that of our collaborative partners to successfully manufacture and commercialize products incorporating our technologies in new applications and in new markets will also impact our revenue and profitability.

Our expenses are impacted principally by the cost of goods for products; the magnitude and duration of research and development; sales and marketing costs; and general and administrative expenses. General and administrative expenses are particularly subject to variation as a result of fluctuations in the intensity of legal activities. Our operating results may also fluctuate significantly depending on other factors which include: the outcome of ongoing or future litigation; the need for additional royalty bearing licenses; adoption of new technologies; the cost, quality and availability of reagents and components; regulatory actions; and third-party reimbursement policies.

*Company Outlook*

In general, as management looks ahead to 2004, the outlook for our Company continues to be favorable for a number of reasons. We anticipate that continued improvements in access to capital markets will favorably influence sales in the biotech arena, that the current regulatory market appears poised to leverage genetic information tools to improve the approval process for new drugs, and that we will see continued standardization on our technology platform for both existing and new applications. Although it is difficult to predict product demand in 2004, we expect continued growth in the total number of probe array and related supply sales as the number of experiments on GeneChip® technology continues to grow. Additionally, due to the strong adoption of our new line of DNA analysis products in the second half of 2003, we anticipate that these products will make a meaningful contribution to our array growth in 2004. Management also expects that we will continue to demonstrate strong operational leverage as we grow into our infrastructure.

Going forward, management is focused on growing the business and increasing its profitability. A key driver will be increasing the breadth of scientific and clinical applications of our technology, while also industrializing, automating and standardizing our technology to open new markets and drive revenue growth. The aim of our automation efforts is to reduce the cost per experiment, minimize operator variability and dramatically improve experimental throughput. We believe that our automation solutions will enjoy the same success in the high-throughput markets as our bench-top systems have in the research markets. In addition, we are industrializing our processes through collaborations with industry leaders such as Beckman Coulter, Caliper Life Sciences and others.

**CRITICAL ACCOUNTING POLICIES & ESTIMATES**

*General*

The following section of Management's Discussion and Analysis of Financial Condition and Results of Operations is based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Our significant accounting policies are fully described in Note 2 to our consolidated financial statements. However, certain accounting policies are particularly important to the reporting of our financial position and results of operations and require the application of significant judgment by our management. An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, and if different estimates that reasonably could have been used, or changes in the accounting estimates that are reasonably likely to occur periodically, could materially impact the financial statements. Management believes the following critical accounting policies reflect its more significant estimates and assumptions used in the preparation of the Consolidated Financial Statements.

***REVENUE RECOGNITION***

We enter into contracts to sell our products and, while the majority of our sales agreements contain standard terms and conditions, there are agreements that contain multiple elements or non-standard terms and conditions. As a result, significant contract interpretation is sometimes required to determine the appropriate accounting, including whether the deliverables specified in a multiple element arrangement should be treated as separate units of accounting for revenue recognition purposes, and if so, how the price should be allocated among the deliverable elements, when to recognize revenue for each element, and the period over which revenue should be recognized. We recognize revenue for delivered elements only when the fair values of undelivered elements are known and there are no uncertainties regarding customer acceptance. Changes in the allocation of the sales price between deliverable elements might impact the timing of revenue recognition, but would not change the total revenue recognized on the contract.

***ACCOUNTS RECEIVABLE***

We evaluate the collectibility of our trade receivables based on a combination of factors. We regularly analyze our significant customer accounts, and, when we become aware of a specific customer's inability to meet its financial obligations to us, such as in the case of bankruptcy filings or deterioration in the customer's operating results or financial position, we record specific bad debt reserves to reduce the related receivable to the amount we reasonably believe is collectible. We also record reserves for bad debt on a small portion of all other customer balances based on a variety of factors including the length of time the receivables are past due, the financial health of the customer, macroeconomic considerations and historical experience. If circumstances related to specific customers change, our estimates of the recoverability of receivables could be further adjusted.

***INVENTORIES***

We enter into inventory purchases and commitments so that we can meet future shipment schedules based on forecasted demand for our products. The business environment in which we operate is subject to rapid changes in technology and customer demand. We perform a detailed assessment of inventory each period, which includes a review of, among other factors, demand requirements, product life cycle and development plans, component cost trends, product pricing, product expiration and quality issues. Based on this analysis, we record adjustments to inventory for potentially excess, obsolete or impaired goods, when appropriate, in order to report inventory at net realizable value. Revisions to our inventory adjustments may be required if actual demand, component costs, supplier arrangements, or product life cycles differ from our estimates.

### *ACCOUNTING FOR ACQUIRED TECHNOLOGY RIGHTS*

Our intangible assets are comprised principally of technology rights. We apply judgment in determining the useful lives of our intangible assets and whether such assets are impaired. Factors we consider include the life of the underlying patent, the existence of competing technology and potential obsolescence, which can all adversely impact the expected period of benefit from the use of the technology. To date, we have not experienced any impairment on our intangible assets.

### *CONTINGENCIES*

We are subject to legal proceedings principally related to intellectual property matters. Based on the information available at the balance sheet dates, we assess the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. If losses are probable and reasonably estimable, we will record a reserve in accordance with SFAS 5, "Accounting for Contingencies." Any reserves recorded may change in the future due to new developments in each matter.

## RESULTS OF OPERATIONS

*F. Hoffmann-La Roche Ltd.*

In January 2003, we expanded our collaboration with Roche by granting Roche access to our GeneChip® technologies to develop and commercialize GeneChip® laboratory tests for DNA analysis, genotyping and resequencing applications, as well as for RNA expression analysis, in a broad range of human disease areas. Using our GeneChip® technologies, Roche is seeking to develop and market tests for diseases such as cancer, osteoporosis, cardiovascular, metabolic, infectious and inflammatory diseases. Under the terms of the collaborative agreement, Roche paid us an up-front, nonrefundable license fee of $70.0 million. We are recognizing this amount as a component of product related revenue over the research and product development phase which is expected to approximate five years. The agreement, which is subject to Roche's option to terminate on December 31, 2007 or any time on or after June 2, 2013, with one year's prior notice, includes a broad range of other compensation payable by Roche to us throughout the life of the agreement based on minimum annual royalties on sales of diagnostic kits, milestone payments for technical and commercial achievements, a manufacturing and supply agreement, and related license installments.

*Perlegen Sciences, Inc.*

On January 9, 2003, we entered into an agreement with Perlegen to license certain Perlegen technologies that are expected to accelerate our plan to design and commercialize microarrays for whole genome and candidate region DNA analysis. In addition to broadening our access to Perlegen technologies, this licensing agreement advances by approximately three years our prior commercialization rights to the Perlegen single nucleotide polymorphism (SNP) database for development of chip-based products. Under the terms of the licensing agreement, we paid Perlegen a total of $15.0 million in cash and granted Perlegen a $3.0 million credit which will be applied against the margin on our future sales of chips to Perlegen. The credit can only be used against the margin on chips that are utilized by Perlegen for revenue generating activities. As of December 31, 2003, Perlegen has used approximately $2.0 million of the credit. This credit expires in three years. This new agreement also eliminates any future royalty obligations for array products that we commercialize based on information contained in Perlegen's SNP database. We engaged an independent third party to conduct a valuation analysis of the licenses acquired. Based upon that independent valuation, we recorded a charge of approximately $10.1 million related to in-process research and development in the

first quarter of 2003. The remaining $4.9 million has been recorded as an intangible asset and will be amortized over the useful lives of the various components of the asset ranging from six to ten years.

On January 27, 2003, Perlegen announced that it completed the first closing of a private financing round raising an aggregate of approximately $30.2 million. As a result of this financing, our collective equity ownership in Perlegen (including that of our affiliates) was reduced to less than 45%, and a previously existing voting trust applicable to a portion of our shares was terminated. In December 2003, we sold 950,000 shares of Perlegen reducing our collective equity ownership in Perlegen (including that of our affiliates). We continue to account for our ownership in Perlegen under the equity method (see Note 10 of the Notes to the Consolidated Financial Statements included in this report).

The following discussion compares the historical results of operations for the years ended December 31, 2003, 2002 and 2001.

**REVENUE**

Certain amounts in 2002 and 2001 have been reclassified to conform to the 2003 presentation, exclusive of revenue from Perlegen.

**PRODUCT SALES**

The components of product sales are as follows (in thousands):

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Probe arrays and related supplies | $160,010 | $155,380 | $101,518 | $ 4,630 | $53,862 |
| Instruments | 62,738 | 46,214 | 46,048 | 16,524 | 166 |
| Total product sales | $222,748 | $201,594 | $147,566 | $21,154 | $54,028 |

Total product sales increased to $222.7 million for the year ended December 31, 2003 compared to $201.6 million for the year ended December 31, 2002. The increase was primarily due to growth in instrument revenue. The new GeneChip® Scanner 3000 and GeneChip® Fluidics Station 450 were launched in the first half of fiscal year 2003, resulting in an increasing number of customer instrument upgrades throughout the year. Unit sales of GeneChip® related supplies also increased during the year as a result of an expanded product offering in the third quarter and overall increased product acceptance. These increases were partially offset by a decrease in unit sales of our full GeneChip® instrument systems for the year ended December 31, 2003 compared to the year ended December 31, 2002. Overall, both the average selling price and the number of units of our GeneChip® probe arrays remained relatively consistent with those in 2002, with the inclusion of the transition of our flagship Human chip product from a two chip set to one chip.

Total product sales increased to $201.6 million in 2002, from $147.6 million in 2001. The increase was primarily due to growth in unit sales and an increase in the average sales price of GeneChip® probe arrays and related supplies. Revenue from sales of probe arrays and related supplies increased to $155.4 million in 2002, up $53.9 million from $101.5 million in 2001. Revenue from the sale of instruments remained relatively consistent increasing from $46.0 million in 2001 to $46.2 million in 2002.

**PRODUCT RELATED REVENUE**

The components of product related revenue are as follows (in thousands):

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Subscription fees | $26,208 | $32,125 | $34,987 | $(5,917) | $(2,862) |
| Service and other | 18,451 | 14,819 | 12,383 | 3,632 | 2,436 |
| License fees and milestone revenue | 13,373 | — | — | 13,373 | — |
| Total product related revenue | $58,032 | $46,944 | $47,370 | $11,088 | $ (426) |

Total product related revenue increased to $58.0 million for the year ended December 31, 2003 compared to $46.9 million for the year ended December 30, 2002. The increase in product related revenue for the year ended December 31, 2003 was primarily due to an increase in license fees of $13.1 million earned in connection with the Roche agreement signed in January 2003, an increase in service revenue associated with the continued growth in our installed base of equipment and the inclusion of custom probe array design fees of $3.9 million in 2003 as a result of the full commercialization of our custom product offering. These increases were partially offset by a decrease in software revenue and a decrease in subscription fees earned under our EasyAccess™ agreements as we transition customers to volume-based discounting on product sales. Revenues from custom probe array design fees of $5.5 million are reported in royalties and other revenue in 2002.

For the year ended December 31, 2002, product and product related revenue decreased to $46.9 million from $47.4 million for the year ended December 31, 2001. The decrease was due to a decline in subscription fees earned under our EasyAccess™ agreements and due to fewer new software agreements being signed during the year. This was offset to some extent by an increase in service revenue, primarily due to the continued growth in our installed base of equipment.

**ROYALTY AND OTHER REVENUE (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Royalties and other revenue | $10,556 | $19,777 | $18,447 | $(9,221) | $1,330 |

Royalty and other revenue decreased to $10.6 million for the year ended December 31, 2003 from $19.8 million for the year ended December 31, 2002. The decline was primarily due to the reporting of custom probe array design fees as product related revenue beginning in January 2003, as a result of the full commercialization of our custom product offering and due to the decline in new license agreements and royalties, as customers moved from licensing our non-core spotting technology to purchasing our GeneChip® probe arrays. In addition, in the second quarter of 2002, we recognized approximately $1.8 million of deferred revenue related to the early completion of a long-term contractual arrangement under which we had no further obligations. The decrease was partially offset by increased research activity related to an existing grant. Royalty and other revenue increased from $18.4 million for the year ended December 31, 2001 to $19.8 million for the year ended December 31, 2002. The

increase was due to higher design fees earned during fiscal 2002 partially offset by a decrease in royalty fees as companies began to purchase our GeneChip® probe arrays rather than manufacturing their own arrays.

**REVENUE FROM PERLEGEN SCIENCES, INC. (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Revenue from Perlegen Sciences | $9,460 | $21,559 | $11,491 | $(12,099) | $10,068 |

Revenue from the sale of wafers to Perlegen, a related party, decreased to $9.5 million for the year ended December 31, 2003, compared to $21.6 million for the year ended December 31, 2002. The decline was consistent with the decrease in Perlegen's contractual obligations to the Company.

Revenue from the sale of wafers to Perlegen, a related party, increased to $21.6 million for the year ended December 31, 2002 from $11.5 million for the year ended December 31, 2001. The increase was due to a number of factors. First, there were additional sales of wafers to Perlegen during 2002. Second, Perlegen was our wholly owned subsidiary until March 30, 2001 and therefore, its activities in the first quarter of 2001 were consolidated into our financial results. Lastly, when Perlegen uses the wafers or arrays supplied by us in commercial activities for the benefit of third parties, then Perlegen is obligated to make additional payments for such wafers so that we receive commercial margins on these wafers. We recognized a gross margin of $0.6 million in 2002 related to payments for such wafers. The revenue associated with the margin on third party activities represented approximately 2.8% of the total revenue received from Perlegen.

**PRODUCT AND PRODUCT RELATED GROSS MARGINS (in thousands, except percentage amounts)**

| | For the years ended December 31, | | | Dollar / Percentage change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Total gross margin on product sales | $142,590 | $118,997 | $ 78,245 | $23,593 | $40,752 |
| Total gross margin on product related revenue | 48,375 | 41,226 | 44,169 | 7,149 | (2,943) |
| Total gross margin on product and product related revenue | $190,965 | $160,223 | $122,414 | $30,742 | $37,809 |
| Product gross margin as a percentage of product sales | 64.0% | 59.0% | 53.0% | 5.0% | 6.0% |
| Product related gross margin as a percentage of product related revenue | 83.4% | 87.8% | 93.2% | (4.4%) | (5.4%) |

Total gross margin on product sales improved to 64.0% in 2003 from 59.0% in 2002. The increase was primarily due to higher gross margins on instruments resulting from higher average selling prices and a lower cost of production associated with the internal manufacturing of the GeneChip® scanner 3000, as the Company transitioned from the GeneArray® scanner 2500 which was manufactured for us under a supply agreement. The transition to internal manufacturing resulted in increased production volume in our Bedford facility. Gross margins on probe arrays were also slightly higher in fiscal 2003 compared to fiscal 2002 as a result of lower production costs per unit due to increased manufacturing efficiencies. Gross margin on product related revenue decreased by 4.4% to 83.4% for the year ended December 31, 2003 due to the inclusion of costs associated with our custom probe array design fees beginning in January 2003 as a result of the full commercialization of our custom product offering, as

well as a decrease in software revenue and subscription fees. The impact on margins from the decrease in software revenue and subscription fees were partially offset by an increase in license revenue from the Roche agreement signed in January 2003.

Total gross margins on product sales improved to 59.0% in 2002, up from 53.0% in 2001. Principal factors that favorably impacted gross margins included: favorable changes in product sales mix, increased production volumes of 33% for probe arrays resulting in improved overhead absorption, and improved probe array manufacturing yields. Total gross margins on product related revenue decreased by 5.4% from 93.2% to 87.8% for the year ended December 31, 2002 and 2003, respectively. The decrease was due to a decline in our subscription fees in 2002.

**COST OF PERLEGEN REVENUES (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Cost of revenue from Perlegen Sciences . . . . | $9,460 | $21,000 | $11,491 | $(11,540) | $9,509 |

Pursuant to a supply agreement with Perlegen, we sell whole wafers to Perlegen for use in Perlegen's research and development activities at our fully burdened cost of manufacturing. Cost of Perlegen revenue decreased to approximately $9.5 million in 2003 from $21.0 million in 2002. The decrease in the cost of Perlegen revenue is related to the reduction in Perlegen revenue, both of which are declining as Perlegen's contractual obligations to purchase wafers decreases. Cost of Perlegen revenue increased to $21.0 million in 2002 from $11.5 million in 2001. The increase was due to increased sales of wafers to Perlegen during fiscal 2002. In addition, Perlegen was a wholly owned subsidiary of Affymetrix until March 30, 2001 and therefore, its activities in the first quarter of 2001 were consolidated into our financial results.

**RESEARCH AND DEVELOPMENT EXPENSES (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Research and development . . . . . | $65,909 | $69,520 | $68,197 | $(3,611) | $1,323 |

Research and development expenses, which primarily consist of basic research, product research and development and manufacturing process and development, decreased to $65.9 million for the year ended December 31, 2003, compared to $69.5 million for the year ended December 31, 2002. The decrease in research and development expenses for the year ended December 31, 2003 was primarily due to the reporting of costs associated with custom probe array design fees as cost of product related revenue starting in January 2003 as a result of the full commercialization of our custom product offering and the decrease in product development costs associated with the release of two GeneChip® instrument systems. These decreases were partially offset by an increase in R&D consulting fees. In 2002 and in prior years, costs of custom probe array design fees were reported as research and development expense. Costs of custom probe array design fees were $3.8 million for the year ended December 31, 2002.

Research and development expenses, increased to $69.5 million in 2002, up from $68.2 million in 2001. In 2001, research and development expenses included $4.5 million of expenses associated with Perlegen that are not included in 2002. Excluding the expenses related to Perlegen in fiscal 2001, the increase in 2002 was primarily due to expanded investments in basic research as well as in the development costs associated with our new GeneChip® Scanner 3000.

We believe a substantial investment in research and development is essential to a long-term sustainable competitive advantage and critical to expansion into additional high throughput markets

such as toxicogenomics, pharmacogenomics and clinical applications. We expect research and development spending to increase as basic research and product research and development efforts continue to expand.

**SELLING, GENERAL AND ADMINISTRATIVE EXPENSES (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Selling, general and administrative . . . . . | $104,797 | $96,260 | $94,374 | $8,537 | $1,886 |

Selling, general and administrative expenses increased to $104.8 million compared to $96.3 million for the years ended December 31, 2003 and 2002, respectively. The increase in selling, general and administrative expenses in 2003 was primarily due to an increased investment in our sales and support infrastructure in Japan and Europe, and an increase in general legal expenses related to our current litigation. These increases were partially offset by the recovery of a $1.3 million account receivable that was reserved for in the second half of 2002.

For the year ended December 31, 2002, selling, general and administrative expenses increased to $96.3 million up from $94.4 in the year ended December 31, 2001. The increase in selling, general and administrative expenses was primarily due to an increase of $15.0 million related to increased investments in the worldwide sales, marketing, technical support, and administrative infrastructures. Specifically in 2002, we significantly expanded our European operations and began to establish our sales and support infrastructure in Japan. This growth in spending was partially offset by a decrease of $13.1 million in legal expense as the result of settlement of litigation.

Selling, general and administrative expenses are expected to continue to increase as we expand sales, marketing, and technical support functions, management and administrative functions, prosecute and defend our intellectual property position and defend against claims made by third parties in ongoing litigation. We expect legal costs to vary substantially as the intensity of legal activity changes. There can be no assurance that we have adequately estimated our exposure for potential damages associated with pending or future litigation.

**AMORTIZATION OF DEFERRED STOCK COMPENSATION (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Amortization of deferred stock compensation . | $2,238 | $8,388 | $12,663 | $(6,150) | $(4,275) |

Upon the acquisition of Neomorphic in October 2000, the fair value of unvested common stock subject to restricted stock agreements and the intrinsic value of the unvested options held by employees were deducted from the purchase price and allocated to deferred stock compensation. Deferred stock compensation of $30.0 million is being amortized to compensation expense over the remaining vesting term, generally two to four years. The fair value of unvested options held by non-employees was also deducted from the purchase price and will be periodically revalued as they vest in accordance with applicable accounting guidance. Stock compensation expense has continued to decrease from $12.7 million in 2001, to $8.4 million in 2002, to $2.2 million for the year ended December 31, 2003, and will continue to decrease as a result of the completed amortization of deferred stock compensation related to many of the Neomorphic employees. In addition, during fiscal 2003, $0.6 million in deferred compensation was removed in connection with the termination of employment of a former Neomorphic employee. The expense for fiscal 2002 and 2003 is also impacted by the fact that the Company ceased amortizing approximately $4.4 million of deferred stock compensation related to an executive level Neomorphic employee who commenced a leave of absence during the latter part of fiscal 2001. The

remaining $4.4 million balance will be amortized if and when the employee resumes active status with the Company.

**AMORTIZATION OF GOODWILL AND PURCHASED INTANGIBLES (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Amortization of goodwill and purchased intangibles | $937 | $1,125 | $6,223 | $(188) | $(5,098) |

For fiscal 2003 and 2002, the amortization of goodwill and purchased intangibles represents the amortization of intangibles related to the acquisition of Neomorphic, Inc. The Company adopted Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets" ("SFAS 142") on January 1, 2002. In accordance with SFAS 142, we reclassified $0.8 million of assembled workforce to goodwill and ceased the amortization of goodwill. Prior to January 1, 2002, the amortization of goodwill and purchased intangibles includes the amortization of goodwill in addition to the amortization of intangibles.

We completed our review for potential impairment of goodwill as of June 30, 2003, and concluded there was no impairment of goodwill. In addition, there were no indicators of potential impairment at December 31, 2003.

**CHARGE FOR ACQUIRED IN-PROCESS TECHNOLOGY (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Charge for acquired in-process technology . . . . . | $10,096 | — | — | $10,096 | — |

During the year ended December 31, 2003, we recorded a charge of approximately $10.1 million related to acquired in-process technology. The charge associated with licensing the Perlegen SNP database was included in acquired in-process technology in the consolidated statement of operations as the database has no alternative future use to us. Specifically, the database contains over one million SNPs and will be used in our research and development program to develop high quality, high content DNA analysis microarray products. The value of the SNP database license was determined by estimating the net present value of future cash flows expected from the sale of DNA analysis products developed from this database using a present value discount rate of 30%, which is based on our weighted cost of capital adjusted for the risks associated with the in-process research project in which the SNP database content will be used. Upon entering into this license agreement in January 2003, our DNA analysis development program was approximately 33% complete.

The estimates used by us in valuing the licensed technologies were based upon assumptions we believe to be reasonable but which are inherently uncertain and unpredictable. Our assumptions may be incomplete or inaccurate, and no assurance can be given that unanticipated events and circumstances will not occur. Accordingly, actual results may vary from the projected results.

**INTEREST INCOME AND OTHER, NET (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Interest income and other, net . . . . . | $16,662 | $13,535 | $27,655 | $3,127 | $(14,120) |

Interest income and other, net increased by approximately $3.2 million, from $13.5 million in 2002 to $16.7 million in 2003. The increase in interest income and other, net was primarily due to the

$1.4 million gain realized on the sale of some of our Perlegen stock, along with the acquisition by a publicly traded entity in April 2003 of a privately-held biotechnology company in which we owned an equity investment. Consistent with Emerging Issues Task Force 91-5, "Nonmonetary Exchange of Cost Method Investments", we realized a $2.6 million gain on the acquisition date and recognized an additional gain of $1.8 million upon the subsequent sale of a portion of these securities. This was partially offset by a decrease in interest income as a result of a lower average balance in our marketable securities account, lower returns on our cash and marketable securities portfolio and by a $0.9 million realized loss related to an other-than-temporary write down of our investment in a venture capital limited partnership.

In 2002, we recorded a $4.0 million write down related to an other-than-temporary decline in the value of our investment in Orchid Biosciences, Inc. and had a $0.8 million realized loss related to related to an other-than-temporary write down of our investment in a venture capital limited partnership.

Interest income and other, net decreased to $13.5 million in 2002, down from $27.7 million in 2001. The decrease in interest income and other, net was primarily due to a decrease in interest income because we experienced lower returns on our cash and marketable securities portfolio and also due to the other than temporary write down of our investment discussed in the preceding paragraph. In addition, we recognized fewer gains on the repurchase of our convertible subordinated notes. In 2001, gains from the repurchase of our convertible subordinated notes were reported as extraordinary income. The gains were reclassified during fiscal 2002 from extraordinary income in accordance with Financial Accounting Standard ("FAS") 145, "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections" to interest and other income, net.

**INTEREST EXPENSE (in thousands)**

| | For the years ended December 31, | | | Dollar change from | |
|---|---|---|---|---|---|
| | 2003 | 2002 | 2001 | 2002 | 2001 |
| Interest expense | $(17,358) | $(19,730) | $(19,880) | $2,372 | $150 |

Interest expense relates primarily to interest paid on our 5% and 4.75% convertible subordinated notes due in 2006 and 2007. Interest expense decreased to $17.4 million in 2003 from $19.7 million in 2002 because in the second quarter of fiscal 2003 we repurchased $53.4 million principal amount of our 4.75% convertible subordinated notes due in 2007, and $48.0 million principal amount of our 5.0% convertible subordinated notes due in 2006. As a result of the repurchases, interest expense decreased by $2.9 million. This was partially offset by interest expense and foreign exchange losses relating to certain in-licensing payments. Interest expense remained relatively consistent from 2001 to 2002. We expect to see interest expense decrease in future years with the issuance of the 0.75% senior convertible notes, and as a result of the redemptions of the 5% convertible subordinated notes in January 2004 and the 4.75% convertible subordinated notes in February 2004. The savings will be offset in fiscal 2004 however, by the write off of approximately $8.0 million in issuance costs and the redemption fees related to both the 5% and 4.75% convertible subordinated notes.

**INCOME TAX PROVISION**

The provision for income tax was approximately $2.6 million in 2003, up from $0.7 million in 2002. In 2003, the provision consists of current taxes accrued on the profits attributable to our foreign operations, federal alternative minimum tax, and state taxes. In 2002, the provision consists of current taxes accrued on the profits attributable to our foreign operations and state taxes.

Statement of Financial Accounting Standards No. 109, "Accounting for Income Taxes" ("SFAS 109") provides for the recognition of deferred tax assets if realization of such assets is more likely than not. Based upon the weight of available evidence, which includes the historical operating

performance and the reported cumulative net losses in all prior years, at December 31, 2003, we provided a full valuation allowance against our net deferred tax assets.

As of December 31, 2003, we had federal net operating loss carryforwards for income tax purposes of approximately $162.0 million, which will expire at various dates in 2008 through 2021, if not utilized. In addition, we have federal research and development credit carryforwards of approximately $7.1 million, which expire at various dates beginning in 2008 through 2023, if not utilized. Utilization of the net operating loss and tax credit carryforwards may be subject to substantial annual limitation due to the ownership change limitations provided by the Internal Revenue Code. We believe the effect of such limitations will not result in the expiration of the net operating loss and tax credit carryforwards before utilization.

The provision for income tax was approximately $0.7 million in 2002, up from $0.3 million in 2001. Consistent with fiscal 2002, the 2001 provision consists of current taxes accrued on the profits attributable to our foreign operations.

**LIQUIDITY AND CAPITAL RESOURCES**

*Cash and Cashflow (in thousands)*

| | For the years ended December 31, | | |
|---|---|---|---|
| | **2003** | **2002** | **2001** |
| Net cash provided by (used in) operating activities | $ 89,858 | $ 31,279 | $(26,942) |
| Net cash provided by (used in) investing activities | 86,396 | (25,147) | 73,250 |
| Net cash provided by financing activities | 32,140 | 3,605 | 5,224 |
| Effect of foreign currency translation on cash and cash equivalents | (354) | (644) | — |
| Net increase in cash and cash equivalents | $208,040 | $ 9,093 | $ 51,532 |

Net cash provided by operating activities was $89.9 million in 2003 compared to $31.3 million in 2002. The improvement in net cash flow from operating activities was primarily due to the increase in sales experienced during the year ended December 31, 2003, reduced inventory levels as a result of those sales, and an increase in deferred revenue resulting from cash received in January 2003 pursuant to the Roche transaction. Cash flows from operating activities also increased from $26.9 million used in operating activities in fiscal 2001 to $31.3 million provided by operating activities in fiscal 2002. The improvement in net cash flow from operating activities in 2002 was primarily due to an increase in sales, an increase in our accounts payable and accrued liability balances, and a reduction in our inventory balance as we focused on reducing our inventory levels. This was partially offset by an increase in our accounts receivable. In 2002 and 2001, the net cash used for operations was primarily to fund our operating losses as well as our working capital requirements. In addition, operating lease commitments increased during 2002 by $41.4 million due to the signing of four lease extensions for some of our facilities in California and the addition of a lease associated with our office in Japan.

During 2003, our investing activities, other than purchases, sales and maturities of available-for-sale securities, primarily consisted of capital expenditures, which totaled $12.4 million in 2003. In addition, $7.5 million in cash was utilized to fund strategic investments and $6.3 million was used to purchase an option to license technology and technology rights. For the year ended December 31, 2002, net cash used in investing activities was attributable to $24.4 million in 2002 used on capital expenditures, $4.0 million which was invested in non-marketable equity securities and another $7.3 million used to purchase technology rights. In fiscal 2001, $33.4 million was used for capital expenditures. In addition, we provided a loan of $4.0 million to Nuvelo. The loan bears interest at 7.5%, matures in 2006 and is

repayable by Nuvelo at any time. The loan balance plus accrued interest was $4.6 million as of December 31, 2003. At December 31, 2003, Nuvelo was in compliance with its financial covenants under the loan agreement. Capital expenditures for 2001 through 2003 included investments in facilities and production and laboratory equipment.

Net cash provided by financing activities was $32.1 million in 2003. During 2003, we repurchased $53.4 million principal amount of our 4.75% convertible subordinated notes due in 2007 and $48.0 million principal amount of our 5.0% convertible subordinated notes due in 2006. Additionally, in December 2003 we raised $120.0 million from the sale of 0.75% senior convertible notes due 2033. Interest on the 0.75% senior convertible notes is due June 15th and December 15th of each year, beginning on June 15, 2004 and will be paid using cash from operations. The proceeds from the sale of our 0.75% senior convertible notes along with our cash generated from operating activities were used to fund the redemption of our 5.0% notes in January 2004 and the redemption of our 4.75% convertible subordinated notes in February 2004. As a result of the redemptions, we expect our cash from operating activities to increase in years subsequent to 2004 given that we will now be paying at a lower interest rate on a lower outstanding balance. We also received proceeds of $12.5 million during the year from the issuance of our common stock through our stock option plans. Net cash from operating activities decreased to $3.6 million in 2002 from $5.2 million in 2001. In 2002, we repurchased $1.1 million face value of the convertible subordinated notes that bear interest at 4.75% per annum for cash consideration of $0.9 million. In addition, proceeds of $4.5 million resulted from the exercise of stock options. During 2001, we repurchased $5.0 million face value of the convertible subordinated notes that bear interest at 4.75% per annum for cash consideration of $3.3 million, which was offset by proceeds of $7.8 million resulting from the issuance of stock options.

*Off-Balance Sheet Arrangements and Aggregate Contractual Obligations*

As part of our ongoing business, we do not participate in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities ("SPEs"), which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of December 31, 2003, we are not involved in any SPE transactions.

The impact that our contractual obligations as of December 31, 2003 are expected to have on our liquidity and cash flow in future periods is as follows (in thousands):

| | Total | 2004 | 2005-2006 | 2007-2008 | After 2008 |
|---|---|---|---|---|---|
| Convertible subordinated notes (1) | $267,460 | $267,460 | $ — | $ — | $ — |
| Senior convertible notes (2) | 120,000 | — | — | 120,000 | — |
| Operating leases | 61,981 | 6,792 | 14,055 | 14,434 | 26,700 |
| Purchase commitments (3) | 8,900 | 8,900 | — | — | — |
| Other commitments (4) | 6,580 | 4,070 | 1,010 | 1,000 | 500 |
| Total contractual obligations | $464,921 | $287,222 | $15,065 | $135,434 | $27,200 |

(1) Amounts represent the face value of our short-term notes and does not include any fair value adjustments or bond premiums or discounts. The 2006 convertible subordinated notes will be redeemed in January 2004 and the 2007 convertible subordinated notes will be redeemed by us in February 2004 using the proceeds from the issuance of our 0.75% senior convertible notes in addition to our cash generated from operations.

(2) Our 0.75% senior convertible notes are due in 2033, however holders may require us to repurchase all or a portion of their notes on December 31, 2008, 2013, 2018, 2023, and 2028.

(3) Purchase commitments include agreements to purchase goods or services that are enforceable and legally binding on Affymetrix and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. Purchase obligations exclude agreements that are cancelable without penalty.

(4) Other commitments relate to an obligation held by the Company to contribute money in a venture capital limited partnership. The venture capital limited partnership may call in this amount, in part or in full at any time according to the contract terms. Other commitments also include a funding obligation related to a research and development agreement which expires in 2005 and funding to support two fellowships under the Bio-X Program at Stanford.

We have financed our operations primarily through product sales, sales of equity and debt securities, collaborative agreements, interest income, and licensing of our technology. As of December 31, 2003, we had cash, cash equivalents, and available-for-sale securities of approximately $459.9 million. We anticipate that our existing capital resources along with the cash to be generated from operations will enable us to maintain currently planned operations and planned capital expenditures (estimated to be between $23.0 million and $27.0 million for the year ending December 31, 2004), for the foreseeable future. However, this expectation is based on our current operating, financing and capital expenditure plans, which are subject to change, and therefore we could require additional funding. We also expect that our capital requirements will increase over the next several years as we expand our worldwide commercial operations, expand our manufacturing capabilities, increase our investments in third parties and expand our research and development efforts. Our long-term capital expenditure requirements will depend on numerous factors, including: the expansion of commercial scale manufacturing capabilities; our ability to maintain existing collaborative and customer arrangements and establish and maintain new collaborative and customer arrangements; the progress of our research and development programs; initiation or expansion of research programs and collaborations; the costs involved in preparing, filing, prosecuting, defending and enforcing intellectual property rights; the effectiveness of product commercialization activities and arrangements; the purchase of patent licenses; and other factors.

As of December 31, 2003, we have no credit facility or other committed sources of capital. To the extent capital resources are insufficient to meet future capital requirements, we will have to raise additional funds to continue the development of our technologies. There can be no assurance that such funds will be available on favorable terms, or at all. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of such securities could result in dilution to our stockholders. If adequate funds are not available, we may be required to curtail operations significantly or to obtain funds by entering into collaboration agreements on unattractive terms. Our inability to raise capital would have a material adverse effect on our business, financial condition and results of operations.

## FORWARD-LOOKING INFORMATION AND CAUTIONARY FACTORS THAT MAY AFFECT FUTURE RESULTS

This Form 10-K contains forward-looking information based on our current expectations. Because our actual results may differ materially from any forward-looking statements made by or on behalf of Affymetrix, this section includes a discussion of important factors that could affect our actual future results.

### We have a history of operating losses and may incur future losses.

We have experienced significant operating losses since inception. We incurred net losses of $1.6 million in 2002 and $33.1 million in 2001. Although we had net income of $14.3 million for the

year ended December 31, 2003 we had an accumulated deficit of approximately $198.7 million as of such date. We expect to continue experiencing fluctuations in our operating results and cannot assure sustained profitability. Our losses have resulted principally from costs incurred in research and development, manufacturing and from selling, general and administrative costs associated with our operations, including the costs of patent related litigation.

Our ability to generate significant revenues and maintain profitability is dependent in large part on our ability to expand our customer base, increase sales of our current products to existing customers, manage our expense growth, and enter into additional supply, license and collaborative arrangements as well as on our ability and that of our collaborative partners to successfully manufacture and commercialize products incorporating our technologies in new applications and in new markets.

**Our quarterly results have historically fluctuated significantly and may continue to fluctuate unpredictably, which could cause our stock price to decrease.**

Our revenues and operating results may fluctuate significantly due in part to factors that are beyond our control and which we cannot predict. The timing of our customers' orders may fluctuate from quarter to quarter. However, we have historically experienced customer ordering patterns for GeneChip® instrumentation and GeneChip® arrays where the majority of the shipments occur in the last month of the quarter. These ordering patterns may limit management's ability to accurately forecast our future revenues. Because our expenses are largely fixed in the short to medium term, any material shortfall in revenues will materially reduce our profitability and may cause us to experience losses. In particular, our revenue growth and profitability depend on sales of our GeneChip® products. Factors that could cause sales for these products to fluctuate include:

- our inability to produce products in sufficient quantities and with appropriate quality;
- the loss of or reduction in orders from key customers;
- the frequency of experiments conducted by our customers;
- our customers' inventory of GeneChip® products;
- the receipt of relatively large orders with short lead times; and
- our customers' expectations as to how long it takes us to fill future orders.

Some additional factors that could cause our operating results to fluctuate include:

- weakness in the global economy and changing market conditions;
- general economic conditions affecting our target industries;
- changes in the attitude of the pharmaceutical industry towards the use of genetic information and genetic testing as a methodology for drug discovery and development; and
- changes in the competitive landscape.

Many of these factors have impacted, and may in the future impact, the demand for our products and our quarterly operating results. Although we are expanding our customer base, our revenues are generated from a relatively small number of pharmaceutical and biotechnology companies and academic research centers. We expect that these customers will in the aggregate continue to account for a substantial portion of revenues for the foreseeable future. In the event that we continue to experience cautious capital spending by academic and biotech customers and general economic weakness in the biotechnology sector as we did in the first quarter of 2003, revenue expectations from these customer segments may continue to fluctuate.

**Our business depends on research and development spending levels for pharmaceutical and biotechnology companies and academic and governmental research institutions.**

We expect that our revenues in the foreseeable future will be derived primarily from products and services provided to pharmaceutical and biotechnology companies and academic, governmental and other research institutions. Our success will depend upon their demand for and use of our products and services. Our operating results may fluctuate substantially due to reductions and delays in research and development expenditures by these customers. For example, reductions in capital expenditures by these customers may result in lower than expected instrumentation sales and similarly, reductions in operating expenditures by these customers could result in lower than expected GeneChip® array sales. These reductions and delays may result from factors that are not within our control, such as:

- changes in economic conditions;
- changes in government programs that provide funding to companies and research institutions;
- changes in the regulatory environment affecting life sciences companies and life sciences research;
- market-driven pressures on companies to consolidate and reduce costs; and
- other factors affecting research and development spending.

**We may lose customers if we are unable to manufacture our products and ensure their proper performance and quality.**

We produce our GeneChip® products in an innovative and complicated manufacturing process which has the potential for significant variability in manufacturing yields. We have encountered and may in the future encounter difficulties in manufacturing our products and, due to the complexity of our products and our manufacturing process, we cannot be sure we fully understand all of the factors that affect our manufacturing processes or product performance. Manufacturing and product quality issues may arise as we increase production rates at our manufacturing facility and launch new products. As a result, we may experience difficulties in meeting customer, collaborator and internal demand, in which case we could lose customers or be required to delay new product introductions, and demand for our products could decline. Although we rely on internal quality control procedures to verify our manufacturing process, due to the complexity of our products and manufacturing process, it is possible that probe arrays that do not meet all of our performance specifications may not be identified before they are shipped. If our products do not consistently meet our customers' performance expectations, demand for our products will decline. In addition, we do not maintain any backup manufacturing capabilities for the production of our GeneChip® arrays and GeneChip® instruments. Any interruption in our ability to continue operations at our existing manufacturing facilities could delay our ability to develop or sell our products, which could result in lost revenue and seriously harm our business, financial condition and results of operations.

**We may not be able to deliver acceptable products to our customers due to the rapidly evolving nature of genetic sequence information upon which our products are based.**

The genetic sequence information upon which we rely to develop and manufacture our products is contained in a variety of public databases throughout the world. These genetic sequence databases are rapidly expanding and evolving. In addition, the accuracy of such databases and resulting genetic research is dependent on various scientific interpretations and it is not expected that global genetic research efforts will result in standardized genetic sequence databases for particular genomes in the near future. Although we have implemented ongoing internal quality control efforts to help ensure the quality and accuracy of our products, the fundamental nature of our products requires us to rely on genetic sequence databases and scientific interpretations which are continuously evolving. As a result,

these variables may cause us to develop and manufacture products that incorporate sequence errors or ambiguities. The magnitude and importance of these errors depends on multiple and complex factors that would be considered in determining the appropriate actions required to remedy any inaccuracies. Our inability to timely deliver acceptable products as a result of these factors would likely adversely affect our relationship with customers, and could have a material adverse effect on our business, financial condition and results of operations.

**We depend on a limited number of suppliers and we will be unable to manufacture our products if shipments from these suppliers are delayed or interrupted.**

We depend on our vendors to provide components of our products in required volumes, at appropriate quality and reliability levels, and in compliance with regulatory requirements. Key parts of the GeneChip® product line, such as the hybridization oven, certain reagent kits and lithographic masks as well as certain raw materials used in the synthesis of probe arrays, are currently available only from a single source or limited sources. For example, we have relied on Enzo Life Sciences, Inc. to manufacture various labeling kits recommended for the processing of samples for use with probe arrays in expression analysis applications. In connection with Enzo's lawsuit against us, effective November 12, 2003, Enzo terminated its agreement under which Affymetrix served as a non-exclusive distributor of certain reagent labeling kits supplied by Enzo. (See Part II, Item 1, Legal Proceedings.) Although we intend to meet the demands of our customers' needs by selling our own GeneChip® brand labeling kits, our inability to do so either as a result of Enzo's legal proceedings against us or our inability to obtain a supply of components from other vendors that meet our customers' performance and quality demands, could result in lost revenue and harm our business, financial condition and results of operations.

In addition, components of our manufacturing equipment and certain raw materials used in the synthesis of probe arrays are available from one of only a few suppliers. If supplies from these vendors were delayed or interrupted for any reason, we would not be able to get manufacturing equipment, produce probe arrays, or sell scanners or other components for our GeneChip® products in a timely fashion or in sufficient quantities or under acceptable terms.

**Our success will require that we establish a strong intellectual property position and that we can defend ourselves against intellectual property claims from others.**

Maintaining a strong patent position is critical to our competitive advantage. Litigation on these matters has been prevalent in our industry and we expect that this will continue. Patent law relating to the scope of claims in the technology fields in which we operate is still evolving and the extent of future protection is highly uncertain, so there can be no assurance that the patent rights that we have or may obtain will be valuable. Others have filed, and in the future are likely to file, patent applications that are similar or identical to ours or those of our licensors. To determine the priority of inventions, we will have to participate in interference proceedings declared by the United States Patent and Trademark Office that could result in substantial costs in legal fees and could substantially affect the scope of our patent protection. We cannot assure investors that any such patent applications will not have priority over our patent applications. Also, our intellectual property may be subject to significant administrative and litigation proceedings such as opposition proceedings against our patents in Europe, Japan and other jurisdictions. In addition, we have incurred and may in future periods incur substantial costs in litigation to defend against patent suits brought by third parties and when we initiate such suits. We currently are engaged in litigation regarding intellectual property rights with Multilyte Ltd and Enzo Life Sciences, Inc. For additional information concerning intellectual property litigation and administrative proceedings, see the section of this Form 10-K entitled "Legal Proceedings."

In addition to patent protection, we also rely upon copyright and trade secret protection for our confidential and proprietary information. There can be no assurance, however, that such measures will

provide adequate protection for our copyrights, trade secrets or other proprietary information. In addition, there can be no assurance that trade secrets and other proprietary information will not be disclosed, that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to or disclose our trade secrets and other proprietary information. There can be no assurance that we can effectively protect our copyrights, trade secrets or other proprietary information. If we cannot obtain, maintain or enforce intellectual property rights, competitors can design probe array systems similar to our GeneChip® technology.

Our success depends in part on us neither infringing patents or other proprietary rights of third parties nor breaching any licenses that may relate to our technologies and products. We are aware of third-party patents that may relate to our technology, including reagents used in probe array synthesis and in probe array assays, probe array scanners, synthesis techniques, polynucleotide amplification techniques, assays, and probe arrays. We routinely receive notices claiming infringement from third parties as well as invitations to take licenses under third party patents. There can be no assurance that we will not infringe on these patents or other patents or proprietary rights or that we would be able to obtain a license to such patents or proprietary rights on commercially acceptable terms, if at all.

**We expect to face increasing competition.**

The market for clinical applications products is currently limited and highly competitive, with several large companies already having significant market share. Companies such as Abbott Laboratories, Becton Dickinson, Bayer AG, Celera Diagnostics, Roche Diagnostics, Johnson & Johnson, bioMérieux and Beckman Coulter have the strategic commitment to diagnostics, the financial and other resources to invest in new technologies, substantial intellectual property portfolios, substantial experience in new product development, regulatory expertise, manufacturing capabilities and the distribution channels to deliver products to customers. Established diagnostic companies also have an installed base of instruments in several markets, including clinical and reference laboratories, which are not compatible with the GeneChip® system and could deter acceptance of our products. In addition, these companies have formed alliances with genomics companies which provide them access to genetic information that may be incorporated into their diagnostic tests.

Future competition will likely come from existing competitors as well as other companies seeking to develop new technologies for analyzing genetic information. For example companies such as Applied Biosystems and Agilent Technologies have recently introduced new products for gene expression research and analysis. In addition, pharmaceutical and biotechnology companies have significant needs for genomic information and may choose to develop or acquire competing technologies to meet these needs. In the clinical applications field, competition will likely come from established diagnostic companies, companies developing and marketing DNA probe tests for genetic and other diseases and other companies conducting research on new technologies to ascertain and analyze genetic information. Further, in the event that we develop new technology and products that compete with existing technology and products of well established companies, there can be no guarantee that the marketplace will readily adopt any such new technology and products that we may introduce in the future.

**If we are unable to maintain our relationships with collaborative partners, we may have difficulty developing and selling our products and services.**

We believe that our success in penetrating our target markets depends in part on our ability to develop and maintain collaborative relationships with key companies as well as with key academic researchers. Currently, our significant collaborative partners include Qiagen GmBH for the sample preparation and purification systems, Invitrogen Corporation for reagents and Ingenuity Systems Inc for analytical software. We collaborate with both Beckman Coulter Inc. and Caliper Life Sciences in the development of automation for GeneChip® technology applications for use in drug discovery and development. Roche and bioMérieux are collaborative partners in the development of chip products for

medical diagnostic and applied testing markets. Relying on these or other collaborative relationships is risky to our future success because:

- our partners may develop technologies or components competitive with our GeneChip® products;
- our existing collaborations may preclude us from entering into additional future arrangements;
- our partners may not obtain regulatory approvals necessary to continue the collaborations in a timely manner;
- some of our agreements may terminate prematurely due to disagreements between us and our partners;
- our partners may not devote sufficient resources to the development and sale of our products;
- our partners may be unable to provide the resources required for us to progress in the collaboration on a timely basis;
- our collaborations may be unsuccessful; or
- we may not be able to negotiate future collaborative arrangements on acceptable terms.

**Our success depends on the continuous development of new products.**

We compete in markets that are new, intensely competitive, highly fragmented and rapidly changing, and many of our current and potential competitors have significantly greater financial, technical, marketing and other resources. In addition, many current and potential competitors have greater name recognition, more extensive customer bases and access to proprietary genetic content. The continued success of our GeneChip® products will depend on our ability to produce products with smaller feature sizes, our ability to dice the wafer, and create greater information capacity at our current or lower costs. If we fail to keep pace with emerging technologies our products will become uncompetitive, our pricing and margins will decline and our business will suffer.

**Our success in penetrating emerging market opportunities in health management depends on the ability of our GeneChip® technologies to be used in clinical applications for diagnosing and informing the treatment of disease.**

The clinical applications of GeneChip® technologies for diagnosing and informing the treatment of disease is an emerging market opportunity in health management that seeks to improve the effectiveness of health care by collecting information about DNA variation and RNA expression in patients at various times from prognosis, through diagnosis and on to the end of therapy. Our success depends on our ability to continue to explore and develop market opportunities in health management for clinical applications of our GeneChip® technologies. These markets, however, are new and emerging and there can be no assurances that they will develop as quickly as we expect or that they will reach their full potential. In addition, although we believe that there will be clinical applications of our GeneChip® technologies that will be utilized for diagnosing and informing the treatment of disease, there can be no assurance that the application of our GeneChip® technologies in health management will achieve technical or commercial success.

**Risks associated with technological obsolescence and emergence of standardized systems for genetic analysis.**

The RNA/DNA probe array field is undergoing rapid technological changes. New technologies, techniques or products could emerge which might allow the packaging and analysis of genomic information at a similar or higher density to our microarray technology. Other companies may begin to

offer products that are directly competitive with, or are technologically superior to our products. Although we know of no such technology at the present time, there can be no guarantee that we will be able to maintain our technological advantages over emerging technologies in the future. Over time, we will need to respond to technological innovation in a rapidly changing industry. In addition, although we believe that we are recognized as a market leader in creating systems for genetic analysis in the life sciences, standardization of tools and systems for genetic research is still ongoing and there can be no assurance that our products will emerge as the standard for genetic research. The emergence of competing technologies and systems as market standards for genetic research may result in our products becoming uncompetitive and could cause our business to suffer.

**Our current sales, marketing and technical support organization may limit our ability to sell our products.**

To assist our sales and support activities, we have entered into distribution agreements through certain distributors, principally in markets outside of North America, Europe and Japan. These and other third parties on whom we rely for sales, marketing and technical support in these geographic areas may decide to develop and sell competitive products or otherwise become our competitors, which could harm our business. Although we have invested significant other resources to expand our direct sales force and our technical and support staff, including the opening of a Tokyo office in January 2003 to provide direct sales in that region, we may not be able to establish a sufficiently sized global sales, marketing or technical support organization to sell, market or support our products globally.

**Due to the international nature of our business, political or economic changes or other factors could harm our business.**

A significant amount of the Company's revenue is currently generated from sales outside the United States. Though such transactions are denominated in both U.S. dollars and foreign currencies, the Company's future revenue, gross margin, expenses and financial condition are still affected by such factors as changes in foreign currency exchange rates, unexpected changes in, or impositions of, legislative or regulatory requirements, including export and trade barriers and taxes; longer payment cycles and greater difficulty in accounts receivable collection. We are also subject to general geopolitical risks in connection with international operations, such as political, social and economic instability, potential hostilities and changes in diplomatic and trade relationships. We cannot assure investors that one or more of the foregoing factors will not have a material adverse effect on our business, financial condition and operating results or require us to modify our current business practices.

**We may be exposed to liability due to product defects.**

The risk of product liability claims is inherent in the testing, manufacturing, marketing and sale of human diagnostic and therapeutic products. We may seek to acquire additional insurance for clinical liability risks. We may not be able to obtain such insurance or general product liability insurance on acceptable terms or in sufficient amounts. A product liability claim or recall could have a serious adverse effect on our business, financial condition and results of operations.

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

Genetic testing has raised ethical issues regarding privacy and the appropriate uses of the resulting information. For these reasons, governmental authorities may call for limits on or regulation of the use of genetic testing or prohibit testing for genetic predisposition to certain conditions, particularly for those that have no known cure. Similarly, such concerns may lead individuals to refuse to use genetics tests even if permissible. Any of these scenarios could reduce the potential markets for our clinical applications products, which could have a material adverse effect on our business, financial condition and results of operations.

**Healthcare reform and restrictions on reimbursements may limit our returns on diagnostic products that we may develop with our collaborators.**

We are currently developing diagnostic and therapeutic products with our collaborators. The ability of our collaborators to commercialize such products may depend, in part, on the extent to which reimbursement for the cost of these products will be available under U.S. and foreign regulations governing reimbursement for clinical testing services by government authorities, private health insurers and other organizations. In the U.S., third-party payor price resistance, the trend towards managed health care and legislative proposals to reform health care or reduce government insurance programs could reduce prices for health care products and services, adversely affect the profits of our customers and collaborative partners and reduce our future royalties.

**We may not successfully obtain regulatory approval of any diagnostic or other product which we or our collaborative partners develop.**

The United States Food and Drug Administration must approve certain in-vitro diagnostic products before they can be marketed in the U.S. Certain in-vitro diagnostic products must also be approved by the regulatory agencies of foreign governments before the product can be sold outside the U.S. Commercialization of in-vitro diagnostic products outside of the research environment that we or our collaborators may develop, may depend upon successful completion of clinical trials. Clinical development is a long, expensive and an uncertain process and we do not know whether we, or any of our collaborative partners, will be permitted to undertake clinical trials of any potential in-vitro diagnostic products. It may take us or our collaborative partners many years to complete any such testing, and failure can occur at any stage of testing. Delays or rejections of potential products may be encountered based on changes in regulatory policy for product approval during the period of product development and regulatory agency review. Moreover, if and when our projects reach clinical trials, we or our collaborative partners may decide to discontinue development of any or all of these projects at any time for commercial, scientific or other reasons. Any of the foregoing matters could have a material adverse effect on our business, financial condition and results of operations.

Even where a product is exempted from FDA clearance or approval, the FDA may impose restrictions as to the types of customers to which we can market and sell our products. Such restrictions may materially and adversely affect our business, financial condition and results of operations.

Medical device laws and regulations are also in effect in many countries, ranging from comprehensive device approval requirements to requests for product data or certifications. The number and scope of these requirements are increasing. We may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining our foreign regulatory approvals. In addition, the export by us of certain of our products which have not yet been cleared for domestic commercial distribution may be subject to FDA or other export restrictions.

**Because our business depends on key executives and scientists, our inability to recruit and retain these people could hinder our business expansion plans.**

We are highly dependent on our officers and our senior scientists and engineers, including scientific advisors. Our product development and marketing efforts could be delayed or curtailed if we are unable to attract or retain key talent.

We rely on our scientific advisors and consultants to assist us in formulating our research, development and commercialization strategy. All of these individuals are engaged by other employers and have commitments to other entities that may limit their availability to us. Some of them also consult for companies that may be our competitors. A scientific advisor's other obligations may prevent him or her from assisting us in developing our technical and business strategies.

To expand our research, product development and sales efforts we need additional people skilled in areas such as bioinformatics, organic chemistry, information services, regulatory affairs, manufacturing, sales, marketing and technical support. Competition for these people is intense. We will not be able to expand our business if we are unable to hire, train and retain a sufficient number of qualified employees. There can be no assurance that we will be successful in hiring or retaining qualified personnel and our failure to do so could have a material adverse impact on our business, financial condition and results of operations.

**Our strategic equity investments may result in losses.**

We periodically make strategic equity investments in various publicly traded and non-publicly traded companies with businesses or technologies that may complement our business. The market values of these strategic equity investments may fluctuate due to market conditions and other conditions over which we have no control. Other than temporary fluctuations in the market price and valuations of the securities that we hold in other companies will require us to record losses relative to our ownership interest. This could result in future charges on our earnings and as a result, it is uncertain whether or not we will realize any long term benefits associated with these strategic investments.

**Future acquisitions may disrupt our business and distract our management.**

We have previously engaged in acquisitions and may do so in the future in order to exploit technology or market opportunities. If we acquire another company, we may not be able to successfully integrate the acquired business into our existing business in a timely and non-disruptive manner or at all. Furthermore, an acquisition may not produce the revenues, earnings or business synergies that we anticipate. If we fail to integrate the acquired business effectively or if key employees of that business leave, the anticipated benefits of the acquisition would be jeopardized. The time, capital management and other resources spent on an acquisition that fails to meet our expectations could cause our business and financial condition to be materially and adversely affected. In addition, acquisitions can involve substantial charges and amortization of significant amounts of deferred stock compensation that could adversely affect our results of operations.

**The market price of our common stock has been extremely volatile.**

The market price of our common stock is extremely volatile. To demonstrate the volatility of our stock price, during the twelve-month period ending on March 1, 2004, the volume of our common stock traded on any given day has ranged from 286,700 to 19,405,300 shares. Moreover, during that period, our common stock has traded as low as $16.25 per share and as high as $35.30 per share.

Furthermore, volatility in the stock price of other companies has often led to securities class action litigation against those companies. For example, purported securities class action lawsuits were filed against us in the United States District Court for the Northern District of California after a drop in our stock price following our April 3, 2003 announcement updating our financial guidance for the first

quarter of 2003. For additional information concerning these purported securities class action lawsuits, see the section of this Form 10-K entitled "Legal Proceedings." Securities litigation against us could result in substantial costs and divert management's attention and resources, which could seriously harm our business, financial condition and results of operations.

## ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

Our exposure to interest rate risk relates primarily to our investment portfolio and our convertible subordinated notes. Fixed rate securities and borrowings may have their fair market value adversely impacted due to fluctuations in interest rates, while floating rate securities may produce less income than expected if interest rates fall and floating rate borrowings may lead to additional interest expense if interest rates increase. Due in part to these factors, our future investment income may fall short of expectations due to changes in interest rates or we may suffer losses in principal if forced to sell securities which have declined in market value due to changes in interest rates.

The primary objective of our investment activities is to preserve principal while at the same time maximize yields without significantly increasing risk. To achieve this objective, we invest our excess cash in debt instruments of the U.S. Government and its agencies and high-quality corporate issuers, and, by policy, restrict our exposure to any single corporate issuer by imposing concentration limits. To minimize the exposure due to adverse shifts in interest rates, we maintain investments at an average maturity of less than three years.

The table below presents principal amounts and related weighted interest rates by year of maturity for our assets and debt obligations and the fair value of each as of December 31, 2003 and 2002.

| | Periods of Maturity | | | | | Fair Value at December 31, |
|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | Thereafter | Total | 2003 |
| **ASSETS:** | | | | | | |
| Available-for-sale securities | $336,121 | $57,087 | $10,151 | $ — | $403,359 | $404,294 |
| Average interest rate | 1.3% | 3.1% | 4.2% | | | |
| Loan receivable | $ — | $ — | $ 4,640 | $ — | $ 4,640 | $ 4,640 |
| Average interest rate | | | 7.5% | | | |
| **LIABILITIES:** | | | | | | |
| 5% convertible subordinated notes due 2006 | $102,000 | $ — | $ — | $ — | $102,000 | $104,068 |
| Average interest rate | 5.00% | | | | | |
| 4.75% convertible subordinated notes due 2007 | $165,460 | $ — | $ — | $ — | $165,460 | $160,645 |
| Average interest rate | 4.75% | | | | | |
| 0.75% senior convertible notes due 2033 | $ — | $ — | $ — | $120,000 | $120,000 | $120,000 |
| Average interest rate | | | | 0.75% | | |

| | Periods of Maturity | | | | | Fair Value at December 31, |
|---|---|---|---|---|---|---|
| | 2003 | 2004 | 2005 | Thereafter | Total | 2002 |
| **ASSETS:** | | | | | | |
| Available-for-sale securities | $127,368 | $202,053 | $2,100 | $ — | $331,521 | $333,109 |
| Average interest rate | 3.2% | 4.2% | 5.1% | | | |
| Loan receivable | $ — | $ — | $ — | $ 4,300 | $ 4,300 | $ 4,300 |
| Average interest rate | | | | 7.5% | | |
| **LIABILITIES:** | | | | | | |
| 5% convertible subordinated notes due 2006 | $ — | $ — | $ — | $150,000 | $150,000 | $133,500 |
| Average interest rate | | | | 5.00% | | |
| 4.75% convertible subordinated notes due 2007 | $ — | $ — | $ — | $218,900 | $218,900 | $180,877 |
| Average interest rate | | | | 4.75% | | |

We derive a portion of our revenues in foreign currencies, predominantly in Europe and Japan. Historically, we have not hedged our foreign currency exposures and have not had significant foreign currency differences. However, in 2002 we established a Foreign Exchange Risk Management Committee ("FXRMC") which has been chartered to review and manage foreign currency exposures. In early 2003, the FXRMC began hedging activities by using currency forward contracts to manage a portion of the currency exposures created from our activities denominated in foreign currencies. (See Note 1 of the notes to the Consolidated Financial Statements included in this report.) Our hedging program reduces, but does not entirely eliminate, the impact of currency exchange rate movements.

We hedge a percentage of forecasted international revenue with forward contracts and the gains and losses on these contracts largely offset gains and losses on the transactions being hedged. Our revenue hedging policy is designed to reduce the negative impact on our forecasted revenue due to foreign currency exchange rate movements. At December 31, 2003, total outstanding contracts included the notional equivalent of $18.9 million in foreign currency forward exchange contracts with a fair market value of $(1.0) million. As of December 31, 2003, all contracts were set to expire at various times through December 2004. The bank counterparties in these contracts expose us to credit-related losses in the event of their nonperformance. However, to mitigate that risk we only contract with reputable institutions.

A sensitivity analysis was performed on all of our foreign exchange derivatives as of December 31, 2003. This sensitivity analysis was based on a modeling technique that measures the hypothetical market value resulting from a 10% shift in the value of exchange rates relative to the U.S. dollar. For our forward contracts, we used a hypothetical change made to the spot rates of the currency. A 10% increase in the value of the U.S. dollar would lead to an increase in the fair value of our financial hedging instruments by $1.9 million. Conversely, a 10% decrease in the value of the U.S. dollar would result in a decrease in the fair value of these financial instruments by $2.1 million.

We are also exposed to foreign currency exchange rate risk inherent in our assets and liabilities predominately denominated in euros, yen and GBP. For most of these currencies we are a net receiver of foreign currencies and therefore benefit from a weaker U.S. dollar and are adversely affected by a stronger U.S. dollar relative to those foreign currencies. We have performed a sensitivity analysis as of December 31, 2003 and 2002, using a modeling technique that measures the change in the fair values arising from a hypothetical 10% adverse movement in the levels of foreign currency exchange rates relative to the U.S. dollar with all other variables held constant. The foreign currency exchange rates used were based on market rates in effect at December 31, 2003 and 2002. The sensitivity analysis indicated that a hypothetical 10% adverse movement in foreign currency exchange rates would result in a loss of $0.4 million at December 31, 2003 and $0.3 million at December 31, 2002.

## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

### INDEX TO CONSOLIDATED FINANCIAL STATEMENTS
### AFFYMETRIX, INC.

## REPORT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

To the Board of Directors and Stockholders
Affymetrix, Inc.

We have audited the consolidated balance sheets of Affymetrix, Inc. as of December 31, 2003 and 2002, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2003. Our audits also included the financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the 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 consolidated financial position of Affymetrix, Inc. at December 31, 2003 and 2002, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2003, in conformity with accounting principles generally accepted in the United States. 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.

As discussed in Note 2 to the consolidated financial statements, in 2002 the Company changed its method of accounting for goodwill and other intangible assets.

/s/ ERNST & YOUNG LLP

Palo Alto, California,
January 23, 2004,
except for Note 19,
as to which the date is March 8, 2004.

**AFFYMETRIX, INC.**

**CONSOLIDATED BALANCE SHEETS**

**(In thousands, except per share amounts)**

| | December 31, 2003 | December 31, 2002 |
|---|---|---|
| **ASSETS:** | | |
| Current assets: | | |
| Cash and cash equivalents (Note 19) | $275,928 | $ 67,888 |
| Available-for-sale securities | 183,955 | 293,570 |
| Accounts receivable, net of allowances for doubtful accounts of $761 in 2003 and $2,835 in 2002 | 71,343 | 65,986 |
| Inventories | 22,632 | 26,739 |
| Prepaid expenses and other current assets | 7,443 | 3,770 |
| Total current assets | 561,301 | 457,953 |
| Property and equipment, net | 62,611 | 72,836 |
| Acquired technology rights, net | 27,818 | 23,039 |
| Goodwill | 18,601 | 18,601 |
| Notes receivable from employees | 1,500 | 1,674 |
| Other assets | 28,333 | 27,300 |
| Total assets | $700,164 | $601,403 |
| **LIABILITIES AND STOCKHOLDERS' EQUITY:** | | |
| Current liabilities: | | |
| Accounts payable and accrued liabilities | $ 69,646 | $ 66,864 |
| Deferred revenue — current portion | 30,019 | 19,381 |
| Convertible subordinated notes — short-term (Note 19) | 267,460 | — |
| Other current liabilities | 1,398 | — |
| Total current liabilities | 368,523 | 86,245 |
| Deferred revenue — long-term portion | 43,346 | — |
| Other long-term liabilities | 3,240 | 8,322 |
| Convertible notes | 120,000 | 368,900 |
| Commitments and contingencies (Note 11) | | |
| Common stock purchase rights | — | 3,000 |
| Stockholders' equity: | | |
| Convertible redeemable preferred stock, $0.01 par value; 5,000 shares authorized; no shares issued and outstanding at December 31, 2003 and 2002 | — | — |
| Common stock, $0.01 par value; 200,000 shares authorized; 59,454 and 58,504 shares issued and outstanding at December 31, 2003 and 2002, respectively | 595 | 585 |
| Additional paid-in capital | 370,304 | 355,515 |
| Notes receivable from stockholders | (428) | (720) |
| Deferred stock compensation | (5,185) | (8,015) |
| Accumulated other comprehensive (loss) income | (1,572) | 515 |
| Accumulated deficit | (198,659) | (212,944) |
| Total stockholders' equity | 165,055 | 134,936 |
| | $700,164 | $601,403 |

See Accompanying Notes

**AFFYMETRIX, INC.**

**CONSOLIDATED STATEMENTS OF OPERATIONS**

**(In thousands, except per share amounts)**

| | Year Ended December 31, | | |
|---|---|---|---|
| | **2003** | **2002** | **2001** |
| **REVENUE:** | | | |
| Product sales | $222,748 | $201,594 | $147,566 |
| Product related revenue | 58,032 | 46,944 | 47,370 |
| Total product and product related revenue | 280,780 | 248,538 | 194,936 |
| Royalties and other revenue | 10,556 | 19,777 | 18,447 |
| Revenue from Perlegen Sciences | 9,460 | 21,559 | 11,491 |
| Total revenue | 300,796 | 289,874 | 224,874 |
| **COSTS AND EXPENSES:** | | | |
| Cost of product sales | 80,158 | 82,597 | 69,321 |
| Cost of product related revenue | 9,657 | 5,718 | 3,201 |
| Cost of revenue from Perlegen Sciences | 9,460 | 21,000 | 11,491 |
| Research and development | 65,909 | 69,520 | 68,197 |
| Selling, general and administrative | 104,797 | 96,260 | 94,374 |
| Amortization of deferred stock compensation | 2,238 | 8,388 | 12,663 |
| Amortization of goodwill and purchased intangibles | 937 | 1,125 | 6,223 |
| Charge for acquired in-process technology | 10,096 | — | — |
| Total costs and expenses | 283,252 | 284,608 | 265,470 |
| Income (loss) from operations | 17,544 | 5,266 | (40,596) |
| Interest income and other, net | 16,662 | 13,535 | 27,655 |
| Interest expense | (17,358) | (19,730) | (19,880) |
| Income (loss) before income taxes | 16,848 | (929) | (32,821) |
| Income tax provision | (2,563) | (701) | (300) |
| Net income (loss) | $ 14,285 | $ (1,630) | $ (33,121) |
| Basic and diluted net income (loss) per common share | $ 0.24 | $ (0.03) | $ (0.58) |
| Weighted-average shares used in computing basic net income (loss) per share | 58,860 | 58,018 | 57,382 |
| Weighted-average shares used in computing diluted net income (loss) per share | 60,583 | 58,018 | 57,382 |

See Accompanying Notes

## AFFYMETRIX, INC.

## CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

## (In thousands, except share amounts)

| | Common Stock | | Additional Paid-in Capital | Notes Receivable from Stockholders | Deferred Stock Compensation | Accumulated Other Comprehensive Income (Loss) | Accumulated Deficit | Total Stockholders' Equity |
|---|---|---|---|---|---|---|---|---|
| | Shares | Amount | | | | | | |
| Balance, December 31, 2000 | 57,143 | $571 | $341,541 | $(994) | $(27,875) | $12,080 | $(178,193) | $147,130 |
| Comprehensive loss: | | | | | | | | |
| Unrealized loss on available-for-sale securities of $375, net of reclassification adjustments for gains included in net loss of $5,829 | — | — | — | — | — | (6,204) | — | (6,204) |
| Net loss | — | — | — | — | — | — | (33,121) | (33,121) |
| Comprehensive loss | | | | | | | | (39,325) |
| Issuance of common stock upon exercise of stock options | 864 | 9 | 7,834 | — | — | — | — | 7,843 |
| Amortization of deferred stock compensation | — | — | — | — | 13,002 | — | — | 13,002 |
| Repayment of notes receivable from stockholders | — | — | — | 765 | — | — | — | 765 |
| Accretion of interest on notes receivable from stockholders | — | — | — | (405) | — | — | — | (405) |
| Balance, December 31, 2001 | 58,007 | 580 | 349,375 | (634) | (14,873) | 5,876 | (211,314) | 129,010 |
| Comprehensive loss: | | | | | | | | |
| Unrealized loss on available-for-sale securities of $3,333, net of reclassification adjustments for gains included in net loss of $1,384 | — | — | — | — | — | (4,717) | — | (4,717) |
| Foreign currency translation adjustment | — | — | — | — | — | (644) | — | (644) |
| Net loss | — | — | — | — | — | — | (1,630) | (1,630) |
| Comprehensive loss | | | | | | | | (6,991) |
| Issuance of common stock upon exercise of stock options | 497 | 5 | 4,535 | — | — | — | — | 4,540 |
| Amortization of deferred stock compensation | — | — | 1,605 | — | 6,858 | — | — | 8,463 |
| Accretion of interest on notes receivable from stockholders | — | — | — | (86) | — | — | — | (86) |
| Balance, December 31, 2002 | 58,504 | 585 | 355,515 | (720) | (8,015) | 515 | (212,944) | 134,936 |
| Comprehensive loss: | | | | | | | | |
| Unrealized loss on available-for-sale securities of $6,827, net of reclassification adjustments for gains included in net income of $6,057 | — | — | — | — | — | (770) | — | (770) |
| Unrealized loss on hedging contracts | — | — | — | — | — | (963) | — | (963) |
| Foreign currency translation adjustment | — | — | — | — | — | (354) | — | (354) |
| Net income | — | — | — | — | — | — | 14,285 | 14,285 |
| Comprehensive income | | | | | | | | 12,198 |
| Issuance of common stock upon exercise of stock options | 823 | 10 | 12,487 | — | — | — | — | 12,497 |
| Issuance of common stock upon exercise of stock purchase right | 127 | — | 3,000 | — | — | — | — | 3,000 |
| Cancellation of common stock | — | — | (106) | 106 | — | — | — | — |
| Repayment of notes receivable from stockholders | — | — | — | 344 | — | — | — | 344 |
| Reduction of deferred stock compensation for terminated employee | — | — | (592) | — | 592 | — | — | — |
| Amortization of deferred stock compensation | — | — | — | — | 2,238 | — | — | 2,238 |
| Accretion of interest on notes receivable from stockholders | — | — | — | (158) | — | — | — | (158) |
| Balance, December 31, 2003 | 59,454 | $595 | $370,304 | $(428) | $ (5,185) | $(1,572) | $(198,659) | $165,055 |

See Accompanying Notes

## AFFYMETRIX, INC.
## CONSOLIDATED STATEMENTS OF CASH FLOWS
## (In thousands)

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| **CASH FLOWS FROM OPERATING ACTIVITIES:** | | | |
| Net income (loss) | $ 14,285 | $ (1,630) | $(33,121) |
| Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities: | | | |
| Depreciation and amortization | 22,214 | 21,955 | 16,290 |
| Amortization of intangible assets | 4,463 | 3,976 | 6,966 |
| Gain from repurchase of convertible notes | (739) | (165) | (1,699) |
| Amortization of investment premiums, net | 2,013 | 2,234 | 4,336 |
| Stock-based compensation | 2,238 | 8,463 | 12,663 |
| Write down of equity investments | 938 | 4,774 | — |
| Realized gain on the sales of investments | (5,603) | (5,162) | (5,829) |
| Gain on sale of technology rights | — | — | (313) |
| Amortization of debt offering costs | 1,538 | 1,765 | 1,780 |
| Accretion of interest on notes receivable from stockholders | (158) | (86) | (405) |
| Loss on disposal of equipment | 447 | 436 | 156 |
| Changes in operating assets and liabilities: | | | |
| Accounts receivable, net | (5,357) | (21,174) | 8,292 |
| Inventories | 4,107 | 2,073 | (11,578) |
| Prepaid expenses and other current assets | 104 | (443) | (780) |
| Other assets | (2,751) | (1,206) | (726) |
| Accounts payable and accrued liabilities | 3,217 | 15,665 | (23,007) |
| Deferred revenue | 53,984 | (196) | 33 |
| Other long-term liabilities | (5,082) | — | — |
| Net cash provided by (used in) operating activities | 89,858 | 31,279 | (26,942) |
| **CASH FLOWS FROM INVESTING ACTIVITIES:** | | | |
| Capital expenditures | (12,436) | (24,409) | (33,408) |
| Purchases of available-for-sale securities | (447,422) | (639,588) | (344,382) |
| Proceeds from sales and maturities of available-for-sale securities | 560,057 | 650,318 | 458,411 |
| Purchase of non-marketable equity investments | (7,500) | (4,000) | (2,200) |
| Loans receivable | — | — | (4,000) |
| Collection of notes receivable from employees | — | 147 | 1,150 |
| Increase in notes receivable from employees | — | (360) | (400) |
| Proceeds from the sale of equipment | — | — | 479 |
| Proceeds from the sale of technology rights | — | — | 1,600 |
| Purchases of technology rights | (3,303) | (7,255) | (4,000) |
| Purchase of option to license technology | (3,000) | — | — |
| Net cash provided by (used in) investing activities | 86,396 | (25,147) | 73,250 |
| **CASH FLOWS FROM FINANCING ACTIVITIES:** | | | |
| Issuance of common stock | 12,497 | 4,540 | 7,843 |
| Repayment of notes receivable from stockholders | 344 | — | 765 |
| Issuance of senior convertible notes | 120,000 | — | — |
| Repurchase of convertible subordinated notes | (100,701) | (935) | (3,301) |
| Payments on capital lease obligation | — | — | (83) |
| Net cash provided by financing activities | 32,140 | 3,605 | 5,224 |
| Effect of foreign currency translation on cash and cash equivalents | (354) | (644) | — |
| Net increase in cash and cash equivalents | 208,040 | 9,093 | 51,532 |
| Cash and cash equivalents at beginning of year | 67,888 | 58,795 | 7,263 |
| Cash and cash equivalents at end of year | $275,928 | $ 67,888 | $ 58,795 |
| **SUPPLEMENTAL DISCLOSURE OF NONCASH INVESTING AND FINANCING ACTIVITIES:** | | | |
| Acquisition of technology rights | $ 3,000 | $ 3,000 | $ 5,850 |
| Issuance of common stock upon exercise of common stock purchase rights | $ 3,000 | $ — | $ — |
| **SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:** | | | |
| Interest paid | $ 17,346 | $ 17,950 | $ 18,188 |
| Taxes paid | $ 1,751 | $ 119 | $ 100 |

See Accompanying Notes

## NOTE 1—NATURE OF OPERATIONS

Affymetrix is engaged in the development, manufacture, sale and service of systems for genetic analysis for use in the life sciences. Affymetrix has developed its GeneChip® system and related microarray technology as the platform of choice for acquiring, analyzing and managing complex genetic information. The Company's integrated GeneChip® platform includes: disposable DNA probe arrays (chips) consisting of gene sequences set out in an ordered, high density pattern, certain reagents for use with the probe arrays, a scanner and other instruments used to process the probe arrays, and software to analyze and manage genomic information obtained from the probe arrays. Related microarray technology also offered by Affymetrix includes instrumentation, software and licenses for fabricating, scanning, collecting and analyzing results from low density microarrays. The Company commenced the first commercial sale for research use in August 1994, with broader commercial sales beginning in April 1996. The Company currently sells its products directly to pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies as well as academic research centers, government research laboratories, private foundation laboratories and clinical reference laboratories in North America, Europe and Japan. The Company also sells some of its products through life science supply specialists acting as authorized distributors in the Middle East, India and Asia Pacific regions.

## NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

### BASIS OF PRESENTATION

The consolidated financial statements include the accounts of Affymetrix and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated. The Company has accounted for its ownership interest in Perlegen Sciences, Inc. ("Perlegen") using the equity method since March 30, 2001. (See Note 10).

Certain amounts presented in the consolidated financial statements for prior periods have been reclassified to conform to the current period presentation. Revenue and cost of sales amounts for the years ended December 31, 2002 and 2001, exclusive of revenue and cost of revenue related to Perlegen, have been reclassified to conform to the 2003 presentation.

### USE OF ESTIMATES

The preparation of the financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect amounts reported in the financial statements and accompanying notes. Actual results could differ materially from those estimates.

### FOREIGN CURRENCY

Historically, the functional currency of Affymetrix' European subsidiaries ("European subsidiaries") was the U.S. dollar. Effective January 1, 2002, the Company changed the functional currency of its European subsidiaries to their respective local currencies due to the European subsidiaries' operations becoming more self-contained and integrated within Europe. As a result, the financial statements of the Company's European subsidiaries and its Japanese subsidiary (which commenced operations in January 2003), have been translated into U.S. dollars using the appropriate exchange rates with the resulting translation adjustments recorded directly to accumulated comprehensive income (loss).

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

Currency transaction gains and losses are recognized in interest income and other, net and were comprised of a $3.6 million net gain for 2003, a $2.7 million net gain for 2002 and a $1.2 million net loss for 2001.

**DERIVATIVE INSTRUMENTS**

The Company has international operations and during the normal course of business is exposed to foreign currency exchange risks as a result of transactions that are denominated in currencies other than the United States dollar. During the quarter ended March 31, 2003, the Company began entering into foreign currency forward contracts to manage a portion of the volatility of transactions that are denominated in foreign currencies. The Company's foreign currency forward contracts are entered into for periods consistent with the related underlying exposures and do not constitute positions that are independent of those exposures. In addition, the Company does not enter into foreign currency forward contracts for trading or speculative purposes, is not party to any leveraged derivative instrument, and may only enter into derivative agreements with highly rated counterparties.

The foreign currency forward contracts used by the Company are generally short-term in nature, maturing within one year, and are accounted for as cashflow hedges. The effect of exchange rate changes on foreign currency forward contracts is expected to offset the effect of exchange rate changes on the underlying hedged items. For these contracts, unrealized gains or losses from the effective portion of the hedge is reported as a component of other comprehensive income (loss) in stockholders' equity and is reclassified using the specific identification method into earnings in the same period or periods in which the hedged transaction affects earnings, and within the same consolidated statement of operations line item. The gain or loss from the ineffective portion of the hedge in excess of the cumulative change in the present value of future cash flows of the hedged item, if any, is recognized in interest income and other, net during the period of change. During the year ended December 31, 2003, all of the Company's hedges were deemed effective. The net realized foreign currency gains and losses related to the foreign currency forward contracts was $1.2 million for the year ended December 31, 2003.

**REVENUE RECOGNITION**

*Product Sales*

Product sales as well as revenues from Perlegen Sciences, include sales of GeneChip® probe arrays and related instrumentation. Probe array and instrumentation revenues are recognized when earned, which is generally upon shipment and transfer of title to the customer and fulfillment of any significant post-delivery obligations. Accruals are provided for anticipated warranty expenses at the time the associated revenue is recognized.

*Product Related Revenue*

Product related revenue includes subscription fees earned under EasyAccess™ agreements; license fees, milestones and royalties earned from collaborative product development and supply agreements; service revenue; revenue from custom probe array design fees; and software revenue.

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

Revenue from subscription fees earned under EasyAccess™ agreements is recorded ratably over the related supply term.

The Company enters into collaborative arrangements which generally include a research and product development phase and a manufacturing and product supply phase. These arrangements may include up-front nonrefundable license fees, milestones, the rights to royalties based on the sale of final product by the partner, product supply agreements and distribution arrangements. The Company accounts for multiple element arrangements under Emerging Issues Task Force Issue No. 00-21 (“EITF 00-21”), “Revenue Arrangements with Multiple Deliverables.” EITF 00-21 provides guidance on accounting for arrangements that involve the delivery or performance of multiple products, services and/or rights to use assets. The provisions of EITF 00-21 were adopted prospectively for revenue arrangements with multiple elements signed subsequent to June 30, 2003. The adoption of EITF 00-21 did not have a material impact on our results of operations or financial condition.

In accordance with EITF 00-21, the Company allocates revenue for transactions or collaborations that include multiple elements to each unit of accounting based on its relative fair value, and recognizes revenue for each unit of accounting when the revenue recognition criteria have been met. The price charged when the element is sold separately generally determines fair value. In the absence of fair value of a delivered element, the Company allocates revenue first to the fair value of the undelivered elements and the residual revenue to the delivered elements. The Company recognizes revenue for delivered elements only when undelivered elements are not essential to the functionality of delivered elements and the fair value for all undelivered elements is known. If the fair value of any undelivered element included in a multiple element arrangement cannot be objectively determined, revenue is deferred until all elements are delivered and services have been performed, or until fair value can objectively be determined for any remaining undelivered elements.

Any up-front, nonrefundable payments from collaborative product development agreements are recognized over the research and product development period, and at-risk substantive based milestones are recognized when earned. Any payments received which are not yet earned are included in deferred revenue.

Revenue related to extended warranty arrangements is deferred and recognized over the applicable periods. Revenue from custom probe array design fees associated with the Company’s GeneChip® CustomExpress™ and CustomSeq™ products are recognized when the associated products are shipped. In 2002, custom probe array design fees were included in research revenue based on the fact that we had not fully commercialized this product offering.

*Royalties and Other Revenue*

Royalties and other revenue include royalties earned from third party license agreements and research revenue which mainly consists of amounts earned under government grants. Additionally, other revenue includes fees earned through the license of the Company’s intellectual property. In 2002, research revenue also included custom probe array design fees.

Royalty revenues are earned from the sale of products by third parties who have been licensed under the Company’s intellectual property portfolio. Revenue from minimum royalties is amortized over the term of the creditable royalty period. Any royalties received in excess of minimum royalty

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

payments are recognized under the terms of the related agreement, generally upon notification of manufacture or shipment of a product by a licensee.

Research revenue is mainly comprised of amounts earned under government grants. Research revenue is recorded in the period in which the associated costs are incurred. The costs associated with these grants are reported as research and development expense.

License revenues are generally recognized upon execution of the agreement unless the Company has continuing performance obligations, in which case the license revenue is recognized ratably over the period of expected performance.

**RESEARCH AND DEVELOPMENT EXPENSES**

Research and development expenses consist of costs incurred for internal, contract and grant-sponsored research and development. Research and development expenses include salaries, contractor fees, building costs, utilities and allocations of shared corporate services. In addition, the Company funds research and development at other companies and research institutions under agreements which are generally cancelable. All such costs are charged to research and development expense as incurred.

**SOFTWARE DEVELOPMENT COSTS**

Statement of Financial Accounting Standards No. 86, "Accounting for the Costs of Computer Software to be Sold, Leased or Otherwise Marketed," requires the capitalization of certain software development costs subsequent to the establishment of technological feasibility. The Company's software is deemed to be technologically feasible at the point a working model of the software product is developed. Through December 31, 2003, for products developed by the Company, the period from attainment of technological feasibility to general release has been brief and qualifying costs were not significant. Accordingly, the Company has not capitalized any qualifying software development costs in the accompanying consolidated financial statements. The costs of developing routine enhancements are expensed as research and development costs as incurred because of the short time between the determination of technological feasibility and the date of general release of the related products.

The Company applies Statement of Position ("SOP") No. 98-1, "Accounting for the Costs of Computer Software Developed or Obtained for Internal Use." Historically, internal use software costs were insignificant. During fiscal 2001 and 2002, the Company capitalized certain costs incurred to acquire internal use software, principally related to software coding, designing system interfaces, installation and testing of the software. The Company also capitalized certain website development costs during fiscal 2001. For the years ended December 31 2002 and 2001, the Company capitalized approximately $2.0 million and $4.8 million, respectively, in development costs for internal use software primarily associated with the implementation of our Enterprise Resource Planning system ("ERP") and our website. The Company began amortizing the costs associated with our website and our ERP system during the years ended December 31, 2001 and 2002 respectively, at the time when the software was ready for its intended use.

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**ADVERTISING COSTS**

The Company expenses advertising costs as incurred. Advertising costs were $1.5 million for 2003, $1.1 million for 2002, and $1.4 million for 2001.

**STOCK-BASED COMPENSATION**

At December 31, 2003, the Company has six stock-based employee and non-employee director compensation plans, which are described more fully in Note 15. The Company has elected to continue to follow the recognition and measurement principles of Accounting Principles Board Opinion No. 25, "*Accounting for Stock Issued to Employees*" ("APB 25") and related Interpretations for these plans. During 2002, employee-based stock compensation relates to the modification of certain previously granted awards. No stock-based employee compensation cost is reflected in reported results of operation for 2003 and 2001, as all options granted in those years had an exercise price equal to the market value of the underlying common stock on the date of grant in accordance with APB 25.

The following table illustrates the effect on reported net income (loss) and net income (loss) per share if the Company had applied the fair value recognition provisions of FASB Statement No. 123, as amended by SFAS 148, to stock-based employee compensation (in thousands, except per share amounts):

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| Net income (loss)—as reported | $ 14,285 | $ (1,630) | $(33,121) |
| Add: Stock-based employee compensation expense included in reported net loss | — | 1,605 | — |
| Deduct: Total stock-based employee compensation expense determined under fair value method for all awards | (26,982) | (40,676) | (61,022) |
| Pro forma net loss | $(12,697) | $(40,701) | $(94,143) |
| Net income (loss) per share: | | | |
| Basic and diluted net income (loss) per share — as reported | $ 0.24 | $ (0.03) | $ (0.58) |
| Basic and diluted net loss per share — pro forma | $ (0.22) | $ (0.70) | $ (1.64) |

The pro forma information above may not be representative of the effects on potential pro forma effects on results for future years.

The fair value of options was estimated at the date of grant using a Black-Scholes option pricing model with the following assumptions for 2003, 2002 and 2001 risk free interest rate of 2.0%, 1.9%, and 3.6%, respectively; a dividend yield of zero; volatility of 0.72, 0.81, and 0.79, respectively; and a weighted average expected option term of 3 years.

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options which have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions including the expected stock volatility. Because the Company's employee stock options have characteristics significantly different

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

Based on this calculation, the weighted average fair value of options granted during 2003, 2002 and 2001 was $10.72, $11.48 and $17.52, respectively. For purposes of pro forma disclosures pursuant to SFAS 123, as amended by SFAS 148, the estimated fair value of the options in excess of the expense recognized in conjunction with the amortization of deferred compensation is amortized to expense over the options' vesting period, generally four years.

**COMPREHENSIVE INCOME (LOSS)**

Comprehensive income (loss) is comprised of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) includes unrealized gains and losses on the Company's available-for-sale securities and hedging contracts that are excluded from net income (loss), changes in fair value of derivatives designated as and effective as cash flow hedges, and foreign currency translation adjustments. Total comprehensive income (loss) has been disclosed in the consolidated statement of stockholders' equity.

The components of accumulated other comprehensive (loss) income are as follows (in thousands):

| | Year Ended December 31, | |
|---|---|---|
| | 2003 | 2002 |
| Foreign currency translation adjustment | $ (998) | $(644) |
| Unrealized gain on available-for-sale securities | 389 | 1,159 |
| Unrealized loss on hedging contracts | (963) | — |
| Accumulated other comprehensive (loss) income | $(1,572) | $ 515 |

**NET INCOME (LOSS) PER SHARE**

Basic net income (loss) per share is calculated using the weighted-average number of common shares outstanding during the period less the weighted-average shares subject to repurchase. Diluted income (loss) per share, gives effect to the dilutive effect of stock options and warrants (calculated based on the treasury stock method), and convertible debt (calculated using an as if-converted method).

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

For fiscal 2002 and 2001 diluted net loss is the same as basic net loss per share because the Company was in a net loss position.

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| | (in thousands) | | |
| Numerator: | | | |
| Net income (loss)—as reported | $14,285 | $(1,630) | $(33,121) |
| Denominator: | | | |
| Basic weighted-average shares outstanding | 58,970 | 58,206 | 57,734 |
| Less: weighted-average shares of common stock subject to repurchase | (110) | (188) | (352) |
| Weighted-averaged shares used in computing basic net income (loss) per share | 58,860 | 58,018 | 57,382 |
| Add effect of dilutive securities: | | | |
| Employee stock options | 1,685 | — | — |
| Warrants to purchase common stock | 38 | — | — |
| Weighted-averaged shares used in computing diluted net income (loss) per share | 60,583 | 58,018 | 57,382 |
| Basic and diluted net income (loss) per share | $ 0.24 | $ (0.03) | $ (0.58) |

For fiscal 2003, diluted earnings per share include common share equivalents from outstanding stock options (on the treasury stock method) and outstanding warrants to purchase common stock. The impact of the Company's convertible notes (on an if-converted basis) has not been included in the table above since there is no dilutive effect. For the years ended December 31, 2002 and 2001, all of these securities have been excluded since the Company is in a net loss position, and they had an antidilutive effect. The excluded securities, on an actual outstanding basis, were as follows (in thousands):

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| | (in thousands) | | |
| Options and warrants | — | 11,100 | 11,784 |
| Convertible subordinated notes | 2,689 | 3,803 | 3,810 |
| Common stock subject to repurchase | — | 132 | 244 |
| Total | 2,689 | 15,035 | 15,838 |

**CASH EQUIVALENTS, AVAILABLE-FOR-SALE SECURITIES AND INVESTMENTS**

Affymetrix reports all debt securities with maturities at the date of purchase of three months or less that are readily convertible into cash and have insignificant interest rate risk as cash equivalents. Cash equivalents and available-for-sale securities consist of marketable equity and debt securities. Management determines the appropriate classification of debt securities at the time of purchase. As of December 31, 2003 and 2002, Affymetrix' investments in debt securities are classified as available-for-sale and are carried at fair value with unrealized gains and losses reported in accumulated

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

other comprehensive income (loss) in stockholders' equity. The cost of debt securities is adjusted for amortization of premiums and discounts to maturity. This amortization is included in interest income. Realized gains and losses on available-for-sale securities are also included in interest income. The cost of securities sold is based on the specific identification method. Interest and dividends on securities classified as available-for-sale are included in interest income. The fair values of securities are based on quoted market prices. All of the Company's available-for-sale securities are included in current assets as management considers the securities readily available to fund current operations.

**LOSSES ON INVESTMENTS**

The Company monitors its investment portfolio for impairment on a periodic basis. In the event that the carrying value of an investment exceeds its fair value and the decline in value is determined to be other-than-temporary, an impairment charge is recorded and a new cost basis for the investment is established. Fair values for investments in public companies are determined using quoted market prices. Fair values for investments in privately-held companies are estimated based upon one or more of the following: current market rates; liquidation values; the values of recent rounds of financing; and quoted market prices of comparable public companies. In order to determine whether a decline in value is other-than-temporary, the Company evaluates, among other factors: the duration and extent to which the fair value has been less than the carrying value; the financial condition of and business outlook for the company, including key operational and cash flow metrics, current market conditions; and the Company's intent and ability to retain the investment for a period of time sufficient to allow for any anticipated recovery in fair value.

The declines in value of certain investments were determined to be other-than-temporary. Accordingly, the Company recorded net investment losses, including impairments, on its investments in both publicly-traded and privately-held emerging technology companies of $0.9 million in fiscal 2003 and $4.8 million in fiscal 2002. No net investment losses were recorded in fiscal 2001. Net investment losses are included in interest and other income, net on the Consolidated Statement of Operations. Depending on market conditions, the Company may incur additional charges on this investment portfolio in the future.

**ACCOUNTS AND NOTES RECEIVABLE**

Trade accounts receivables are recorded at net invoice value and notes receivables are recorded at contractual value plus accrued interest. Interest income on notes receivable is recognized according to the terms of each related agreement. The Company considers receivables past due based on the related contractual terms. The Company reviews its exposure to amounts receivable and reserve specific amounts if collectibility is no longer reasonably assured. The Company also reserves a percentage of the net trade receivable balance based on its collection history.

**INVENTORIES**

Inventories are stated at the lower of cost or market, cost being determined on the first-in, first-out method. Provisions for slow moving, excess and obsolete inventories are provided based on demand requirements, product life cycle and development plans, component cost trends, product pricing, product expiration and quality issues.

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

**PROPERTY AND EQUIPMENT**

Property and equipment are recorded at cost and are depreciated for financial reporting purposes using the straight-line method over the estimated useful lives of the assets or the lease term, whichever is shorter. Equipment and furniture is depreciated over useful lives ranging from 3 to 7 years, company-owned buildings are depreciated over 25 years and leasehold improvements are depreciated over lease terms ranging from 5 to 10 years. Maintenance and repair costs are expensed as incurred.

**ACQUIRED TECHNOLOGY RIGHTS**

Acquired technology rights are comprised of licenses to technology covered by patents from third parties and are amortized over the expected useful life of the underlying patents, which range from one to fifteen years. Accumulated amortization of these rights amounted to $8.0 million and $5.3 million at December 31, 2003 and 2002, respectively.

**GOODWILL AND OTHER INTANGIBLE ASSETS**

Goodwill represents the difference between the purchase price and the fair value of the net assets acquired arising from the acquisition of Neomorphic in October, 2000. Prior to 2002, goodwill was amortized using the straight-line method over five years. On January 1, 2002, the Company adopted Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets" ("SFAS 142"). In accordance with SFAS 142, the Company reclassified $0.8 million of assembled workforce to goodwill and has ceased amortization of goodwill.

The following table presents reported net loss and adjusted net loss for the impact of SFAS 142 (in thousands, except per share amounts):

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| Reported net income (loss) | $14,285 | $(1,630) | $(33,121) |
| Add back: Goodwill amortization | — | — | 4,684 |
| Amortization of assembled workforce | — | — | 430 |
| Adjusted net income (loss) | $14,285 | $(1,630) | $(28,007) |
| *Basic and diluted net income(loss) per share:* | | | |
| As reported | $ 0.24 | $ (0.03) | $ (0.58) |
| Add back: Goodwill amortization | — | — | 0.08 |
| Amortization of assembled workforce | — | — | 0.01 |
| Adjusted basic net income (loss) per share | $ 0.24 | $ (0.03) | $ (0.49) |

The Company completed its review for potential impairment of its goodwill as of June 30, 2003, and concluded there was no impairment of goodwill. All remaining and future acquired goodwill will be subject to impairment tests annually, or earlier if indicators of potential impairment exist, using a fair-value-based approach.

**NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)**

The expected future annual amortization expense of our acquired technology rights and other intangible assets is as follows (in thousands):

| For the Year Ending December 31, | Amortization Expense |
|---|---|
| 2004 | $ 3,776 |
| 2005 | 3,559 |
| 2006 | 3,476 |
| 2007 | 3,476 |
| 2008 | 3,461 |
| Thereafter | 10,070 |
| Total expected future annual amortization | $27,818 |

**IMPAIRMENT OF LONG-LIVED ASSETS**

Long-lived assets and certain identifiable intangible assets to be held and used are reviewed for impairment when events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability is based on an estimate of undiscounted future cash flows resulting from the use of the asset and its eventual disposition. In the event that such cash flows are not expected to be sufficient to recover the carrying amount of the assets, the assets are written down to their estimated fair values. Long-lived assets and certain identifiable intangible assets to be disposed of are reported at the lower of carrying amount or fair value less cost to sell.

**INCOME TAXES**

Under the asset and liability method, deferred tax assets and liabilities are recognized for future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities, and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the statement of operations in the period of enactment.

**CONTINGENCIES**

The Company is subject to legal proceedings principally related to intellectual property matters. Based on the information available at the balance sheet dates, the Company assesses the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. If losses are probable and reasonably estimable, the Company will record a reserve in accordance with SFAS 5, "Accounting for Contingencies." Any reserves recorded may change in the future due to new developments in each matter.

## NOTE 3—PRODUCT SALES AND PRODUCT RELATED REVENUE

The components of product sales are as follows (in thousands):

| | For the years ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| Probe arrays and related supplies | $160,010 | $155,380 | $101,518 |
| Instruments | 62,738 | 46,214 | 46,048 |
| Total product sales | $222,748 | $201,594 | $147,566 |

The components of product related revenue are as follows (in thousands):

| | For the years ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| Subscription fees | $26,208 | $32,125 | $34,987 |
| Service and other | 18,451 | 14,819 | 12,383 |
| License fees and milestone revenue | 13,373 | — | — |
| Total product related revenue | $58,032 | $46,944 | $47,370 |

## NOTE 4—COLLABORATIVE AND RESEARCH AGREEMENTS

The Company has agreements with many entities to develop and test probe arrays for the detection of certain gene sequences, mutations or organisms. Under such agreements, the Company may receive development fees and may receive payments upon achievement of certain technical goals. The Company also has research agreements with many universities and research organizations.

### *COLLABORATIVE AGREEMENTS*

### BECKMAN COULTER, INC. ("Beckman")

In July 1998, the Company entered into an arrangement with Beckman that involved the execution of a series of agreements including an Asset Purchase Agreement (the "APA"). Pursuant to the APA, which was implemented and became effective in June 1999, the Company purchased Beckman's array business. Under the APA, the Company agreed to grant Beckman licenses to commercialize probe arrays manufactured using certain Affymetrix technologies other than light-directed synthesis, and an OEM supply agreement for products that use the Company's GeneChip® array technology. Under the arrangement, Beckman would pay Affymetrix transfer prices and royalties on sales of these products.

Under the agreements, Affymetrix made a $5.9 million payment to Beckman in 1998 and agreed to provide a credit of $5.0 million to be applied against research and development services to be performed by the Company. Affymetrix had the option of performing or agreeing to perform such services by July 2003, or paying the amount of the unapplied credit in cash or stock to Beckman. In addition, under the agreement Affymetrix contracted to establish a joint venture with Beckman. The $5.0 million obligation is classified as a non-current liability in the accompanying consolidated balance sheet as of December 31, 2002. The payments and credit obligation to Beckman were accounted for as the purchase of an intangible asset which is being amortized on a straight-line basis over its estimated

**NOTE 4—COLLABORATIVE AND RESEARCH AGREEMENTS (Continued)**

useful life of 15 years. At December 31, 2003 and 2002, accumulated amortization amounted to $3.7 million and $3.0 million, respectively. During the year ended December 31, 2003, the Company paid to Beckman $5.0 million in settlement of the obligation to perform research and development activities and established a joint venture with Beckman called Array Automation, LLC. (See Note 10 Related Parties).

**BIOMÉRIEUX, INC. ("bioMérieux")**

In September 1996, bioMérieux and Affymetrix entered into a collaborative development agreement and associated supply agreement to develop and commercialize DNA probe arrays using the Affymetrix GeneChip® technology for clinical diagnostic kits for bacterial identification and antibiotic resistance analysis. On March 31, 2003, Affymetrix signed a Multi-Agreement Amendment with bioMérieux modifying the existing collaboration agreement to reinstate bioMérieux's license and to extend the contract terms through January 1, 2020. The agreement provides for certain research funding, license and milestone payments. bioMérieux is also funding certain research activities at Affymetrix. Research revenue under this contract was approximately $0.2 million, $0.7 million, and $0.9 million, for the years ended December 31, 2003, 2002 and 2001, respectively. The associated research costs incurred approximated revenue for each of the years presented. Additionally, a manufacturing agreement was signed under which Affymetrix will manufacture GeneChip® probe arrays for sale to bioMérieux. The agreement provides for royalties to Affymetrix on bioMérieux's sales of GeneChip® probe arrays.

**F. HOFFMANN-LA ROCHE LTD. ("Roche")**

In February 1998, Affymetrix entered into a non-exclusive collaborative development agreement with Roche to initially develop probe array-based diagnostic products. Under the terms of the agreement the parties were collaborating to develop mutually agreed upon arrays directed to selected genes, as well as associated instrumentation and reagents. In January 2003, the Company expanded its collaboration with Roche by granting Roche access to its GeneChip® technologies to develop and commercialize GeneChip® laboratory tests for DNA analysis, genotyping and resequencing applications, as well as for RNA expression analysis, in a broad range of human disease areas. Using Affymetrix' GeneChip® technologies, Roche is seeking to develop and market tests for diseases such as cancer, osteoporosis, cardiovascular, metabolic, infectious and inflammatory diseases. Affymetrix and Roche believe that developing targeted microarray expression profiles for cancer and genotyping and resequencing profiles for other diseases will enable the creation and commercialization of novel standardized diagnostic solutions. These solutions ultimately may allow physicians to better diagnose and treat human disease. Under the terms of the expanded collaborative agreement, Roche paid Affymetrix an access fee of $70 million, which we are recognizing as a component of product related revenue over the estimated research and development period of approximately five years. The expanded collaboration agreement, which is subject to Roche's option to terminate on December 31, 2007 or any time on or after June 2, 2013, with one year's prior notice, includes a broad range of other compensation payable by Roche to Affymetrix throughout the life of the agreement based on annual royalties on sales of diagnostic kits, milestone payments for technical and commercial achievements, a manufacturing and supply agreement, and related license installments.

**NOTE 4—COLLABORATIVE AND RESEARCH AGREEMENTS (Continued)**

**NUVELO, INC. (formerly Hyseq Pharmaceuticals, Inc.) ("Nuvelo")**

In October 2001, Nuvelo created a new majority owned subsidiary, Callida Genomics, Inc. ("Callida"), which will focus on the development and commercialization of Nuvelo's sequencing-by-hybridization ("SBH") technology. Nuvelo contributed all of its SBH patents to Callida. Affymetrix has an initial 10% equity interest in Callida. Callida has entered into a collaboration arrangement with Affymetrix, through Callida's wholly owned subsidiary, N-Mer, Inc. ("N-Mer"), for the development and commercialization of a high speed DNA sequencing chip. Affymetrix, Nuvelo, Callida and N-Mer also have entered into various cross-licensing arrangements. In October 2001, Affymetrix paid Nuvelo a one-time license fee for the non-exclusive license described above, and loaned Nuvelo $4.0 million, all of which will be used to fund Callida and N-Mer. The loan bears interest at the rate of 7.5% and matures in 2006. The loan is repayable by Nuvelo at any time and, subject to specified conditions, exchangeable for common stock of Nuvelo. The loan is secured by all of Nuvelo's equity interest in Callida and is recorded in other assets. The license fee has been capitalized in acquired technology rights and is being amortized over the remaining patent lives. Affymetrix and Nuvelo have agreed to each make additional investments, which will be conditioned on N-Mer's attainment of a specified technical milestone and the procurement of third-party financing. To date, the technical milestone and the procurement of third-party financing for N-Mer have not been attained. As part of the agreement, Callida granted Affymetrix an option to purchase a majority interest in N-Mer, which can be exercisable at any time through October 2006.

**ORCHID BIOSCIENCES, INC. ("Orchid")**

In December 1999, Affymetrix and Orchid entered into an agreement to develop and commercialize single nucleotide polymorphism (SNP) genotyping assays that combine Orchid's proprietary GBA® primer extension technology with Affymetrix' new GenFlex® Tag array product offering.

As part of the agreement, Affymetrix loaned $2.3 million to Orchid under a promissory note. In January 2000, the promissory note was converted into shares of Orchid Series E Convertible Preferred Stock and Affymetrix purchased an additional $2.2 million of Series E Convertible Preferred Stock of Orchid. All shares of Orchid Preferred Stock converted into Orchid Common Stock upon the close of Orchid's initial public offering in May 2000.

In 2002, Affymetrix recorded a $4.0 million write down related to an other-than-temporary decline in the value of the investment in Orchid. At December 31, 2002, the Company held 855,897 shares of Orchid common stock. In May 2003, the Company sold all of its shares of Orchid. In connection with the sale, a gain of $0.3 million was recorded to interest income and other, net.

***RESEARCH AGREEMENTS***

**WHITEHEAD INSTITUTE**

In September 2002, the Company extended its previous collaborative relationship with the Whitehead Institute and announced a research collaboration to use its GeneChip® brand technology to conduct cancer clinical studies. The collaboration is designed to standardize experimental procedures and further validate numerous studies demonstrating the power of expression data for cancer

**NOTE 4—COLLABORATIVE AND RESEARCH AGREEMENTS (Continued)**

classification. The Whitehead Institute is initiating a research program to study sample collection from tissue biopsies, amplification, data collection and analysis in order to accelerate the use of DNA array technology in clinical settings. The Company provided funding to the Whitehead Institute of approximately $0.8 million, $0.8 million and $1.0 million in cash each of 2003, 2002 and 2001, respectively.

**NOTE 5—CONCENTRATIONS OF RISK**

Cash equivalents and investments are financial instruments that potentially subject Affymetrix to concentrations of risk to the extent of amounts recorded in the consolidated balance sheet. Company policy restricts the amount of credit exposure to any one issuer and to any one type of investment, other than securities issued by the United States Government.

The Company has not experienced significant credit losses from its accounts receivable, grants or collaborative research agreements. Affymetrix performs a regular review of its customer activity and associated credit risks and does not require collateral from its customers. The Company maintains an allowance for doubtful accounts receivable based upon the expected collectibility of accounts receivable.

Key parts of the GeneChip® product line, such as certain reagent kits and lithographic masks as well as certain raw materials used in the synthesis of probe arrays, are currently available only from a single source or limited sources. No assurance can be given that reagents, lithographic masks or other components of the GeneChip® system will be available in commercial quantities at acceptable costs from other vendors should the need arise. If the Company is required to seek alternative sources of supply, it could be time consuming and expensive.

In addition, the Company is dependent on its vendors to provide components of appropriate quality and reliability and to meet applicable regulatory requirements. Consequently, in the event that supplies from these vendors are delayed or interrupted for any reason, the Company's ability to develop and supply its products could be impaired, which could have a material adverse effect on the Company's business, financial condition and results of operations.

Approximately 47% of the Company's revenue is generated from sales outside the United States. Though such transactions are denominated in both U.S. dollars and foreign currencies, the Company's results are still affected by such factors as changes in foreign currency exchange rates, trade protection measures, longer accounts receivable collection patterns and changes in regional or worldwide economic or political conditions. The risks of the Company's international operations are mitigated in part by the extent to which its sales are geographically distributed and its foreign currency hedging program.

**NOTE 6—AVAILABLE-FOR-SALE SECURITIES AND OTHER FINANCIAL INSTRUMENTS**

**INVESTMENTS IN DEBT AND EQUITY SECURITIES**

The fair values of all securities are based on quoted market prices. All of the Company's available-for-sale securities are included in current assets as management considers the securities readily available to fund current operations.

**NOTE 6—AVAILABLE-FOR-SALE SECURITIES AND OTHER FINANCIAL INSTRUMENTS (Continued)**

The following is a summary of available-for-sale securities as of December 31, 2003 (in thousands):

| | Cost | Gross Unrealized Gains | Gross Unrealized Losses | Fair Value |
|---|---|---|---|---|
| U.S. Government obligations and U.S. Government agency securities | $214,041 | $ 29 | $(137) | $213,933 |
| U.S. corporate debt securities | 190,237 | 355 | (231) | 190,361 |
| Total debt securities | 404,278 | 384 | (368) | 404,294 |
| Equity securities | 349 | 374 | — | 723 |
| Total securities | $404,627 | $758 | $(368) | $405,017 |
| Amounts included in: | | | | |
| Cash equivalents | $221,060 | $ 2 | $ — | $221,062 |
| Available-for-sale securities | 183,567 | 756 | (368) | 183,955 |
| Total securities | $404,627 | $758 | $(368) | $405,017 |

The following is a summary of available-for-sale securities as of December 31, 2002 (in thousands):

| | Cost | Gross Unrealized Gains | Gross Unrealized Losses | Fair Value |
|---|---|---|---|---|
| U.S. Government obligations and U.S. Government agency securities | $115,353 | $ 610 | $ — | $115,963 |
| U.S. corporate debt securities | 216,596 | 572 | (22) | 217,146 |
| Total debt securities | 331,949 | 1,182 | (22) | 333,109 |
| Equity securities | 428 | — | — | 428 |
| Total securities | $332,377 | $1,182 | $(22) | $333,537 |
| Amounts included in: | | | | |
| Cash equivalents | $ 39,966 | $ 1 | $ — | $ 39,967 |
| Available-for-sale securities | 292,411 | 1,181 | (22) | 293,570 |
| Total securities | $332,377 | $1,182 | $(22) | $333,537 |

**NOTE 6—AVAILABLE-FOR-SALE SECURITIES AND OTHER FINANCIAL INSTRUMENTS (Continued)**

Realized gains and losses for the year ended December 31, 2003 were $6.0 million and $0.4 million, respectively. The realized gains and losses for the year ended December 31, 2002 were $5.2 million and $4.0 million, respectively. Realized gains for 2001 were $5.8 million and losses were not material. The realized gains and losses are included as part of interest income and other, net in the accompanying consolidated statements of operations.

The following is a summary of the cost and estimated fair value of available-for-sale debt securities at December 31, 2003 by contractual maturity (in thousands):

| | 2003 | |
|---|---|---|
| | Amortized Cost | Fair Value |
| Mature in less than one year | $336,612 | $336,722 |
| Mature in one to three years | 67,666 | 67,572 |
| Total | $404,278 | $404,294 |

DERIVATIVE FINANCIAL INSTRUMENTS

The Company is exposed to foreign currency exchange rate fluctuations in the normal course of its business. As part of its risk management strategy, the Company uses derivative instruments to hedge certain foreign currency exposures. The Company hedges a percentage of forecasted international revenue with forward contracts and the gains and losses on these contracts largely offset gains and losses on the transactions being hedged. The Company's revenue hedging policy is designed to reduce the negative impact on its forecasted revenue due to foreign currency exchange rate movements. The Company does not use derivative contracts for speculative purposes. At December 31, 2003, total outstanding contracts included the notional equivalent of $18.9 million in foreign currency forward exchange contracts with a fair value of $(1.0) million. As of December 31, 2003, all contracts were set to expire at various times through December 2004. The Company applies hedge accounting based upon the criteria established by Statement of Financial Accounting Standards No. 133, whereby the Company designates its derivatives as cash flow hedges.

**NOTE 6—AVAILABLE-FOR-SALE SECURITIES AND OTHER FINANCIAL INSTRUMENTS (Continued)**

OTHER FINANCIAL INSTRUMENTS

The carrying amounts and fair values of financial instruments, other than those accounted for in accordance with Statement of Financial Accounting Standards No. 115, were as follows at December 31, 2003 and 2002 (in thousands):

| | 2003 | | 2002 | |
|---|---|---|---|---|
| | Carrying Amount | Fair Value | Carrying Amount | Fair Value |
| Assets: | | | | |
| Non-marketable equity investments (accounted for under the cost method) | $ 14,530 | $ 14,530 | $ 5,250 | $ 5,250 |
| Note receivable from Nuvelo | 4,640 | 4,640 | 4,300 | 4,300 |
| Employee loans receivable | 1,500 | 1,500 | 1,674 | 1,674 |
| Notes receivable from shareholders | 428 | 428 | 720 | 720 |
| Liability: | | | | |
| Convertible notes | 387,460 | 384,713 | 368,900 | 314,377 |

The fair value estimates provided above for the Company's convertible notes were based on quoted market prices available at December 31, 2003 and 2002. All other fair values were based on current market rates, liquidation and net realizable values.

**NOTE 7—INVENTORIES**

Inventories consist of the following at December 31, 2003 and 2002 (in thousands):

| | 2003 | 2002 |
|---|---|---|
| Raw materials | $ 9,129 | $ 8,023 |
| Work-in-process | 4,226 | 2,597 |
| Finished goods | 9,277 | 16,119 |
| Total | $22,632 | $26,739 |

## NOTE 8—PROPERTY AND EQUIPMENT

Property and equipment consists of the following as of December 31, 2003 and 2002 (in thousands):

| | 2003 | 2002 |
|---|---|---|
| Property and equipment: | | |
| Construction-in-progress | $ 9,314 | $ 12,947 |
| Land | 1,310 | 1,310 |
| Equipment and furniture | 101,207 | 78,214 |
| Building and leasehold improvements | 29,828 | 38,718 |
| | 141,659 | 131,189 |
| Less accumulated depreciation and amortization | (79,048) | (58,353) |
| Net property and equipment | $ 62,611 | $ 72,836 |

Construction-in-progress includes construction costs for new and upgraded facilities as well as related purchased equipment not yet placed in service.

Depreciation expense was $22.2 million in 2003, $22.0 million in 2002 and $16.8 million in 2001.

## NOTE 9—ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

Accounts payable and accrued liabilities as of December 31, 2003 and 2002 consist of the following (in thousands):

| | 2003 | 2002 |
|---|---|---|
| Accounts payable | $15,130 | $15,174 |
| Accrued compensation and related liabilities | 18,767 | 16,687 |
| Accrued interest on convertible subordinated notes | 4,260 | 5,789 |
| Accrued sales and use tax | 3,394 | 3,135 |
| Accrued legal | 3,261 | 2,897 |
| Accrued royalties | 15,465 | 15,645 |
| Other | 9,369 | 7,537 |
| Total | $69,646 | $66,864 |

## NOTE 10—RELATED PARTY TRANSACTIONS

### PERLEGEN

In October 2000, Affymetrix formed Perlegen as a wholly-owned subsidiary. In connection with the formation of Perlegen, the Company contributed to Perlegen the rights to use certain intellectual property with no cost basis and has the rights to use and commercialize certain data generated by Perlegen in the array field. From Perlegen's inception through March 30, 2001 the operating results of Perlegen were consolidated into the Company's financial statements. On March 30, 2001, Perlegen completed a private financing with outside investors raising approximately $100.0 million, which reduced our ownership position in Perlegen to approximately 53%. Two of the outside investors in this financing included trusts of which two of the Company's current directors are trustees. The investments

**NOTE 10—RELATED PARTY TRANSACTIONS (Continued)**

by these trusts represented less than $0.6 million of the total financing for Perlegen. In connection with Perlegen's March 30, 2001 financing, the Company, and certain of its affiliates, including its chief executive officer Stephen P.A. Fodor, placed a portion of their collective holdings (approximately 8%) into an irrevocable voting trust, relinquishing certain voting rights and, in doing so, the Company relinquished control of Perlegen. Under the terms of the voting trust, the trustee, U.S. Bank Corp. (formerly State Street Bank and Trust Company of California), was required to vote the shares held in the trust on all matters subject to shareholder vote in proportion to the votes of all non-Affymetrix and affiliated shareholders.

On January 9, 2003, the Company entered into an agreement with Perlegen to license certain Perlegen technologies that are expected to accelerate the Company's plan to design and commercialize microarrays for whole genome and candidate region DNA analysis. In addition to broadening the Company's access to Perlegen technologies, this licensing agreement advances by approximately three years the Company's prior commercialization rights to the Perlegen single nucleotide polymorphism (SNP) database for development of chip-based products. Under the terms of the licensing agreement, the Company paid Perlegen a total of $15.0 million in cash and granted Perlegen a $3.0 million credit which will be applied against the margin on the Company's future sales of chips to Perlegen. The credit can only be used against the margin on chips that are utilized by Perlegen for revenue generating activities. As of December 31, 2003, Perlegen has used approximately $2.0 million of the credit. This credit expires three years from the effective date of the agreement. This new agreement also eliminates any future royalty obligations for array products that the Company commercializes based on information contained in Perlegen's SNP database. Affymetrix engaged an independent third party to conduct a valuation analysis of the licenses acquired. Based upon that independent valuation, Affymetrix recorded a charge of approximately $10.1 million related to acquired in-process research and development in the first quarter of 2003. The remaining $4.9 million was recorded as intangible assets which are being amortized over their useful lives of six to ten years.

The charge associated with licensing the Perlegen SNP database was included in acquired in-process research and development in the consolidated statement of operations as the database has no alternative future use to Affymetrix. Specifically, the database contains over one million SNPs and will be used in the Company's research and development program to develop high quality, high density DNA analysis microarray products. The value of the SNP database license was determined by estimating the net present value of future cash flows expected from the sale of DNA analysis products developed in partial reliance on this database using a present value discount rate of 30%, which is based on Affymetrix' weighted average cost of capital adjusted for the risks associated with the in-process research project in which the SNP database content will be used.

The estimates used by the Company in valuing the licensed technologies were based upon assumptions the Company believes to be reasonable but which are inherently uncertain and unpredictable. The Company's assumptions may be incomplete or inaccurate, and no assurance can be given that unanticipated events and circumstances will not occur. Accordingly, actual results may vary from the projected results.

On January 27, 2003, Perlegen announced that it completed the first closing of a private financing round, raising an aggregate of approximately $30.2 million. The terms of the voting trust allow it to be terminated once Affymetrix' and its affiliates cease to own 45% or more of the voting securities of

**NOTE 10—RELATED PARTY TRANSACTIONS (Continued)**

Perlegen. As a result of this financing, the Company's collective equity ownership in Perlegen (including that of its affiliates) was reduced to below 45%. Accordingly, following Perlegen's January 27, 2003 financing, the voting trust was terminated. In connection with Perlegen's January 27, 2003 financing, the Company was granted the right to designate two members of Perlegen's Board of Directors which shall consist of not more than seven members. Previously, the Company had the right to designate three of the seven members of Perlegen's Board. The Company's two current designees to Perlegen's Board are also members of the Company's Board of Directors.

In December 2003, the Company sold 950,000 shares of Perlegen common stock for $1.4 million, further reducing its collective equity ownership in Perlegen (including that of its affiliates). As the Company has no cost basis in its Perlegen investment, the Company recorded the cash proceeds of $1.4 million as a gain which is included in interest and other income, net.

The Company accounts for its ownership interest in Perlegen using the equity method as the Company and its affiliates do not control the strategic, operating, investing and financing activities of Perlegen. Further, the Company has no obligations to provide funding to Perlegen nor does it guarantee or otherwise have any obligations related to the liabilities or results of operations of Perlegen or its investors. Given that the Company's investment in Perlegen has no cost basis for accounting purposes under generally accepted accounting principles, the Company has not recorded any proportionate share of Perlegen's operating losses in its financial statements since the completion of Perlegen's initial financing.

In January 2003, the Financial Accounting Standards Board issued Interpretation No. 46 ("FIN 46"), "Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51." Based on the application of FIN 46, as amended, the Company concluded that Perlegen is a Variable Interest Entity (VIE) in which it holds a variable interest, and that the Company is not the primary beneficiary. Accordingly, no change in accounting is appropriate and the Company will continue to account for its ownership interest in Perlegen under the equity method as described in the preceding paragraph.

At December 31, 2003 and December 31, 2002, the amounts due from Perlegen were $2.9 million and $8.8 million, respectively, and have been included in accounts receivable in the accompanying consolidated balance sheets. Amounts due from Perlegen are payable to the Company on its normal commercial terms.

**ARRAY AUTOMATION, LLC**

The Company is currently a partner in Array Automation, LLC ("AAL"), a joint venture with Beckman Coulter, Inc. ("Beckman"). In July 1998, the Company entered into an asset purchase agreement with Beckman. As part of the asset purchase agreement, the Company agreed to establish a joint venture with Beckman. AAL was incorporated in July 2003, with the primary purpose of product research and development in the field of non-photolithographic arrays of polynucleotide sequences and instruments. In accordance with the agreement between the Company and Beckman, 100% of the losses generated by AAL are allocated to Beckman. Future net income generated by AAL, if any, is allocated 51% to the Company and 49% to Beckman, after Beckman has recovered all of the cumulative losses it has recorded.

**NOTE 10—RELATED PARTY TRANSACTIONS (Continued)**

Based on the application of FIN 46, the Company has concluded that AAL is a VIE and the Company is not the primary beneficiary. Accordingly, the Company will account for its investment in AAL using the equity method. Since the cost basis of the Company's assets contributed to AAL were of zero value, the Company's investment in AAL is also recorded at zero value. As a result, the Company will not record any impact of AAL's operating results in its consolidated statements of operations until, and only if, Beckman has recovered all of the losses that it will absorb pursuant to the terms of the joint venture agreement. If AAL is terminated with a cumulative deficit, the Company is not obligated to fund any such losses. In addition, the Company does not have any obligation to provide funding to AAL, guarantee or otherwise have any obligations related to the liabilities of AAL or its investors.

**GLAXOSMITHKLINE PLC ("Glaxo")**

At December 31, 2002, Glaxo had an ownership interest in the Company of approximate 8%. In March 2003, Glaxo sold all of its remaining shares of Affymetrix. The Company has entered into research and supply agreements with Glaxo, resulting in revenue of $7.6 million in 2003, $7.3 million in 2002, and $1.6 million in 2001. At December 31, 2003, amounts due from Glaxo amounted to $0.7 million.

**EOS BIOTECHNOLOGY, INC. ("Eos")**

In April 1998, the Company entered into a series of agreements with Eos under which Eos became an EasyAccess™ customer of the Company. In return for granting Eos access to certain technology and licenses, the Company received 3,750,000 shares of Eos Series C preferred stock and the right to name one director to the Eos board. During fiscal 1999 and 2000, the Company purchased and additional $0.2 million of Eos preferred stock. For the year ended December 31, 2003, the Company did not record significant revenue from Eos under the EasyAccess™ supply agreement. For the years ended December 31, 2002 and 2001, the Company recorded revenue of $1.2 million, and $0.3 million, respectively under the EasyAccess™ supply agreement.

In April 2003, Eos was acquired by Protein Design Labs, Inc. ("PDL"). As a result of the acquisition, Affymetrix' shares of Eos preferred stocks were converted into a total of 322,312 shares of PDL common stock. This resulted in an immediate gain of $2.6 million. During 2003, the Company sold a total of 282,023 shares of PDL stock for an additional gain of approximately $1.8 million. The gains are recorded in interest income and other, net. As of December 31, 2003, Affymetrix owned less than one percent of PDL.

**NOTE 11—COMMITMENTS AND CONTINGENCIES**

***OPERATING LEASES***

Affymetrix leases laboratory, office and manufacturing facilities under non-cancelable operating leases that expire at various times through 2016. Some of these leases contain renewal options ranging from two to five years and escalation clauses. Rent expense related to operating leases was approximately $6.9 million in 2003, $7.0 million in 2002, and $5.9 million in 2001. In connection with some of these facility leases, the Company has $2.5 million in cash held as security deposits, which is included in other assets in the consolidated balance sheets.

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

Future minimum lease obligations at December 31, 2003 under all non-cancelable operating leases are as follows (in thousands):

| Year Ending December 31, | |
|---|---|
| 2004 | $ 6,792 |
| 2005 | 7,294 |
| 2006 | 6,761 |
| 2007 | 7,122 |
| 2008 | 7,312 |
| Thereafter | 26,700 |
| Total minimum lease payments | $61,981 |

***PRODUCT WARRANTY COMMITMENT***

The Company provides for anticipated warranty costs at the time the associated revenue is recognized. Product warranty costs are estimated based upon the Company's historical experience and the warranty period. Information regarding the changes in the Company's product warranty liability for the years ended December 31, 2002 and December 31, 2003 was as follows (in thousands):

| | |
|---|---|
| Balance at December 31, 2001 | $ 955 |
| New warranties issued | 5,356 |
| Repairs and replacements | (4,387) |
| Balance at December 31, 2002 | $ 1,924 |
| New warranties issued | 4,190 |
| Repairs and replacements | (3,164) |
| Balance at December 31, 2003 | $ 2,950 |

***EXTENSION OF CREDIT***

In July 2001, the Company entered into a credit arrangement with an executive of the Company who is also an officer for an amount not to exceed $1.2 million. Amounts under the arrangement may be drawn in one lump-sum or in periodic draws. As of December 31, 2003, no amounts under the extension of credit were drawn. In January 2004, the executive withdrew the entire $1.2 million available under the arrangement. Repayment of the $1.2 million is due on the earlier date of i) four years from the date of withdrawal or ii) the date the executive leaves the Company. Interest will accrue at the IRS imputed rate of interest and is payable after two years.

***FUNDING COMMITMENTS***

The Company has invested $6.2 million and is committed to invest up to additional $3.8 million in a venture capital limited partnership. The Company accounts for the investment using the cost method of accounting, given that its ownership percentage is so minor that the Company has no influence over partnership operating and financial policies. The investment is included on the consolidated balance sheet as a component of other assets.

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

In October 2001, Affymetrix and Millennium entered into a four-year supply and research and development agreement to co-develop GeneChip® technology applications for use in drug discovery and development. Under the agreement, Affymetrix and Millennium are jointly developing gene expression array processes and applications to enhance the productivity of genome-based drug discovery and development. Over the course of the four-year term of this agreement, Affymetrix is committed to spend an aggregate of approximately $1.9 million in research funding. Affymetrix has the right to commercialize certain technologies developed under the collaboration. As of December 31, 2003, approximately $0.6 million of the $1.9 million aggregate amount remained outstanding, to be paid evenly over the next two years.

In connection with the Company's settlement agreement in December 2002 with the Board of Trustees of the Leland Stanford Junior University ("Stanford"), Affymetrix and Stanford agreed to mutual releases of claims from one another. In addition, Affymetrix agreed to provide funding to support two fellowships under the Bio-X Program at Stanford. As of December 31, 2003, and 2002, $2.2 million and $2.7 respectively, remained to be paid to Stanford in connection with the fellowships. The amounts are classified as long-term liabilities on the Consolidated Balance Sheets.

***LEGAL PROCEEDINGS***

**GENERAL**

Affymetrix has been in the past and continues to be a party to litigation which has consumed and may in the future continue to consume substantial financial and managerial resources and which could adversely affect its business, financial condition and results of operations. If in any pending or future intellectual property litigation involving the Company or its collaborative partners, the Company is found to have infringed the valid intellectual property rights of third parties, the Company, or its collaborative partners, could be subject to significant liability for damages, could be required to obtain a license from a third party, which may not be available on reasonable terms or at all, or could be prevented from manufacturing and selling its products. In addition, if the Company is unable to enforce its patents and other intellectual property rights against others, or if its patents are found to be invalid or unenforceable, third parties may more easily be able to introduce and sell DNA array technologies that compete with the Company's GeneChip® brand technology, and the Company's competitive position could suffer. The Company expects to devote substantial financial and managerial resources to protect its intellectual property rights and to defend against the claims described below as well as any future claims asserted against it. Further, because of the substantial amount of discovery required in connection with any litigation, there is a risk that confidential information could be compromised by disclosure.

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

*Applera Corporation Litigation*

On July 5, 2000, Applera Corporation and related corporate plaintiffs ("Applera") filed a lawsuit in the United States District Court for the District of Delaware alleging that certain of the Company's products infringe five Applera patents related to processes for making oligonucleotides and reagents that it purchased from Applera licensed vendors. Applera served the Company with the complaint on October 16, 2000. On January 30, 2001, the Company filed a motion to dismiss Applera's lawsuit pending in Delaware for lack of subject matter jurisdiction. On January 25, 2001, the Company filed a declaratory judgment action against Applera in the United States District Court for the Southern District of New York seeking, among other things, a declaration that it has not infringed any of Applera's subject patents, which lawsuit was stayed by the Court in New York pending the Delaware Court's ruling on the aforementioned motion to dismiss. On September 27, 2001, the District Court for the District of Delaware granted the Company's motion to dismiss for lack of subject matter jurisdiction. On October 3, 2001, the New York Court restored the New York case to active status.

On April 17, 2002, the New York Court heard oral arguments on Applera's motions to bifurcate or dismiss certain of the Company's claims, including claims of breach of contract and antitrust violations by Applera. On May 24, 2002, the Court rejected Applera's motion to dismiss the Company's breach of contract and antitrust claims and agreed to bifurcate and stay discovery on antitrust issues as well as on all damages issues. Following the Court's order, on June 6, 2002, Applera filed its counterclaim in the New York case alleging infringement of four of the five patents originally asserted in the Delaware action. The Company filed a motion seeking summary judgment that the last to expire of Applera's subject patents had, in fact, expired as a matter of law in 2001 in accordance with a terminal disclaimer that had been filed in the Patent Office during prosecution of that patent. On December 24, 2002, the court granted the Company's motion. As a result of the Court's ruling, it is now clear that all of the patents asserted by Applera have expired. On December 16, 2003, the Court heard argument on Affymetrix's three motions for summary judgment that the Applera patents are unenforceable due to inequitable conduct before the U.S.P.T.O. and that certain of the Applera patent claims are invalid for anticipation and inoperability. On January 27, 2004, the Court granted the Company's motion for summary judgment on anticipation and invalidated many of the claims in the '066 and '418 patents. The Court denied the Company's motion for summary judgment on the issue of the inoperability of the '679 patent. The Court denied the Company's motion for summary judgment on inequitable conduct, but ordered a bench trial on that issue. Following the Court's summary judgment rulings, on February 23, 2004 the parties announced to the Court that they had reached a settlement agreement. On March 12, 2004, the Company completed the settlement with Applera. Under the terms of the settlement, we are not required to pay any sums to Applera or license any of Applera's patents and, as such, the settlement is not expected to result in a material adverse effect on our business, financial condition and results of operations.

*Purported Shareholder Class Action Lawsuits*

On April 10, 2003, two individuals filed a purported shareholder class action lawsuit under the federal securities laws in the United States District Court for the Northern District of California. The defendants in this case include the Company, three of its executive officers and one outside director. The lawsuit relates to the Company's January 29, 2003 announcement of the its financial expectations for 2003 and subsequent announcement on April 3, 2003, updating its financial guidance for the first

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

quarter of 2003. The lawsuit alleges, among other things, that the Company's January 29, 2003 financial guidance was misleading and GlaxoSmithKline plc sold Affymetrix shares during the first quarter of 2003 while in possession of material nonpublic information. On June 10, 2003, the plaintiffs in this action filed a notice of voluntary dismissal of the lawsuit without prejudice, and the Court granted the dismissal by order dated June 12, 2003.

On May 20, 2003, two other individuals filed a second purported shareholder class action lawsuit in the United States District Court for the Northern District of California that is substantively identical to the one filed on April 10, 2003. The second lawsuit alleges the same claims against the same defendants on behalf of the same purported class of shareholders (those who purchased securities of Affymetrix between January 29, 2003 and April 3, 2003) as the earlier-filed lawsuit. This case is still in the pleading stage. On September 5, 2003, the Court granted the plaintiffs' unopposed motion for appointment of themselves as lead plaintiffs and approved their selection of lead counsel for the purported class. The plaintiffs filed an amended complaint on November 7, 2003. Affymetrix and the individual defendants filed a motion to dismiss the amended complaint on December 22, 2003 and on March 11, 2004, the Court granted the motion to dismiss without prejudice in order to allow the plaintiffs the opportunity to attempt to remedy the pleading defects in their amended complaint if they choose to do so.

The Company believes that the claims set forth in the purported class action lawsuit are without merit. However, it cannot be sure that it will prevail in these matters. The Company's failure to successfully defend against these allegations could result in a material adverse effect on its business, financial condition and results of operations.

*Multilyte Litigation*

Multilyte Ltd., a British corporation, and Affymetrix have commenced legal proceedings in the United States, United Kingdom and German courts to address allegations made by Multilyte that the Company infringes certain patents owned by Multilyte (the "Multilyte patents") by making and selling the GeneChip® DNA microarray products.

In the actions pending in Germany, on July 18, 2003, Multilyte filed proceedings in the state court of Dusseldorf, alleging infringement of the Multilyte patents. On October 16, 2003, the Dusseldorf court held its first hearing in the case and ruled that the case be divided into two formally separate cases (one dealing with European patent EP 0 134 215 and the other with European patent EP 0 304 202). The trial date for the actions pending in the Dusseldorf court are scheduled for August 10, 2004. In a separate action in Germany, on October 15, 2003, the Company commenced nullity proceedings in German Federal Patent Court in Munich alleging that the German part of Multilyte's two European patents are invalid. Trial date for the action pending in the German Federal Patent Court in Munich is scheduled for June 28 and 29, 2004.

In the action pending in the U.K., on August 14, 2003, the Company commenced proceedings in the English High Court seeking a declaratory judgment that the Multilyte patents are not infringed and are invalid. On September 25, 2003, Multilyte counterclaimed in the U.K. proceedings, alleging that the Company infringed the Multilyte patents in the U.K. and claiming damages, an injunction and legal costs. The English High Court has directed that the issues of whether the Multilyte patents are valid and whether they have been infringed by the Company are to be heard together. The trial of the action

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

in the English High Court is set to begin on October 11, 2004. Multilyte sought a stay of the UK proceedings. The English High Court denied Multilyte's motion.

In the action pending in the U.S., on August 13, 2003, the Company commenced proceedings in the United States District Court for the Northern District of California seeking a declaratory judgment that eight Multilyte patents are not infringed and are invalid. Multilyte has agreed that the Company does not infringe five of the eight named patents. On October 24, 2003, the Company filed an amended complaint seeking a declaratory judgment as to three of the original eight named patents—U.S. Patents 5,432,099, 5,599,720 and 5,807,755. On November 12, 2003, Multilyte filed an answer to the Company's complaint for declaratory judgment and asserted counterclaims against the Company alleging infringement of the three patents named by the Company in its complaint. Multilyte has voluntary submitted the three patents in suit to the United States Patent and Trademark Office for voluntary re-examination. Typically, re-examination proceedings take at least 12 months. A Markman hearing in which the Court will construe the scope of the claims of the Multilyte patents in this action is scheduled for May 24, 2004, and a trial date is scheduled for January 2005.

The Company believes that Multilyte's claims are without merit and has filed the declaratory judgment and nullity actions to protect its interests. However, the Company cannot be sure that it will prevail in these matters. The Company's failure to successfully defend against these allegations could result in a material adverse effect on its business, financial condition and results of operations.

*Enzo Litigation*

On October 28, 2003, Enzo Life Sciences, Inc., a wholly-owned subsidiary of Enzo Biochem, Inc. (collectively "Enzo") filed a complaint against the Company in the United States District Court for the Eastern District of New York for breach of contract, injunctive relief and declaratory judgment. The Enzo complaint relates to a 1998 distributorship agreement with Enzo under which the Company served as a non-exclusive distributor of certain reagent labeling kits supplied by Enzo. In its complaint, Enzo seeks monetary damages and an injunction against the Company from using, manufacturing or selling Enzo products and from inducing collaborators and customers to use Enzo products in violation of the 1998 agreement. Enzo also seeks the transfer of certain Affymetrix patents to Enzo. In connection with its complaint, Enzo provided the Company with a notice of termination of the 1998 agreement effective on November 12, 2003.

On November 10, 2003, the Company filed a complaint against Enzo in the United States District Court for the Southern District of New York for declaratory judgment, breach of contract and injunctive relief relating to the 1998 agreement. In its complaint, the Company alleges that Enzo has engaged in a pattern of wrongful conduct against it and other Enzo labeling reagent customers by, among other things, asserting improperly broad rights in its patent portfolio, improperly using the 1998 agreement and distributorship agreements with others in order to corner the market for non-radioactive labeling reagents, and improperly using the 1998 agreement to claim ownership rights to the Company's proprietary technology. The Company seeks declarations that it has not breached the 1998 agreement, that it is entitled to sell its remaining inventory of Enzo reagent labeling kits, and that nine Enzo patents that are identified in the 1998 agreement are invalid and/or not infringed by it. The Company also seeks damages and injunctive relief to redress Enzo's alleged breaches of the 1998 agreement, its alleged tortuous interference with the Company's business relationships and prospective economic

**NOTE 11—COMMITMENTS AND CONTINGENCIES (Continued)**

advantage, and Enzo's alleged unfair competition. The Company filed a notice of related case stating that its complaint against Enzo is related to the complaints already pending in the Southern District of New York against eight other former Enzo distributors. The Southern District of New York has related the Company's case. The Company has also filed a motion to transfer Enzo's Eastern District of New York complaint to the Southern District of New York which was heard on January 30, 2004. The Eastern District of New York granted the Company's motion and transferred the case to the Southern District of New York. There is no trial date in this action.

The Company believes that the claims set forth in Enzo's complaint are without merit and have filed the action in the Southern District of New York to protect its interests. However, the Company cannot be sure that it will prevail in these matters. The Company's failure to successfully defend against these allegations could result in a material adverse effect on its business, financial condition and results of operation.

*Administrative Litigation and Proceedings*

The Company's intellectual property is expected to be subject to significant additional administrative and litigation actions. For example, in Europe and Japan, third parties are expected to oppose significant patents that the Company owns or controls. Currently, Multilyte Ltd. and ProtoGene Laboratories, Inc. are parties that have filed oppositions against the Company's EP 0-619-321 patent in the European Patent Office, and PamGene B.V. has filed an opposition against the Company's EP 0-728-520. Also, Abbott Laboratories, Applera, Clondiag and CombiMatrix are parties in opposition against the Company's EP 0-834-575. Abbott Laboratories, CombiMatrix, PamGene B.V., Applera and Dr. Peter Schneider have filed oppositions against the Company's EP 0-834-576. CombiMatrix has filed an opposition against EP 0-695-941. These procedures will result in the patents being either upheld in their entireties, allowed to issue in amended form in designated European countries, or revoked.

Further, in the United States, the Company expects that third parties will continue to "copy" the claims of its patents in order to provoke interferences in the United States Patent & Trademark Office, and it may copy the claims of others. These proceedings could result in the Company's patent protection being significantly modified or reduced, and could result in significant costs and consume substantial managerial resources.

At this time, the Company cannot determine the outcome of any of the matters described above.

**NOTE 12—CONVERTIBLE SUBORDINATED NOTES**

On September 22, 1999, the Company completed the sale of $150 million principal amount of 5% convertible subordinated notes due 2006 (the "5% Notes"). The 5% Notes mature on October 1, 2006 and bear interest at a rate of 5% per annum, which is payable semi-annually on April 1 and October 1. The 5% Notes are convertible, at the option of the holder at any time prior to maturity or redemption, into shares of the Company's common stock at a conversion price of $61.50 per share, subject to adjustment. The Company can redeem some or all of the 5% Notes at any time after October 7, 2002, and the debt holder has a right to require the Company to purchase all or a portion of the 5% Notes upon a change in control. The 5% Notes are subordinated to all of the Company's existing and future senior indebtedness. Total offering expenses related to the 5% notes were $5.4 million and have been included in other assets. These expenses will be amortized to interest expense over the life of the notes.

**NOTE 12—CONVERTIBLE SUBORDINATED NOTES (Continued)**

On February 14, 2000, the Company completed the sale of $225 million principal amount of 4.75% convertible subordinated notes due 2007 (the "4.75% Notes"). The 4.75% Notes mature on February 15, 2007 and bear interest at a rate of 4.75% per annum, which is payable semi-annually on February 15 and August 15. The 4.75% Notes are convertible, at the option of the holder at any time prior to maturity or redemption, into shares of the Company's common stock at a conversion price of $160.50 per share, subject to adjustment. The Company can redeem some or all of the 4.75% Notes at any time after February 20, 2003 and the debt holders have a right to require the Company to purchase all or a portion of the 4.75% Notes upon a change in control. The 4.75% Notes are subordinated to all of the Company's existing and future senior indebtedness. Total offering expenses related to these notes were $7.2 million and have been included in other assets. These expenses will be amortized to interest expense over the life of the notes.

In August 2001 and December 2002, the Company repurchased $5.0 million and $1.1 million principal amounts, respectively, of the 4.75% Notes for total consideration of $3.3 million and $0.9 million. In connection with the August 2001 transaction, the Company recorded an extraordinary gain of approximately $1.7 million which was reclassified during fiscal 2002 from extraordinary income to interest and other income, net in accordance with Financial Accounting Standard ("FAS") 145, "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections." In connection with the December 2002 transaction, the Company recorded a gain of approximately $0.2 million in interest and other income, net.

In May and June 2003, the Company repurchased a total of $53.4 million principal amount of its 4.75% convertible subordinated notes due in 2007. In June 2003, the Company also repurchased $48.0 million principal amount of its 5.0% convertible subordinated notes due in 2006. In connection with these repurchases, the Company recorded a loss of $0.9 million.

The fair value of the 5% Notes at December 31, 2003 was $104.1 million, based on the market value in the PORTAL market where the 5% Notes are traded. The fair value of the 4.75% Notes at December 31, 2003 was $160.1 million, based on the market value in the PORTAL market where the 4.75% Notes are traded.

**NOTE 13—SENIOR CONVERTIBLE NOTES**

On December 10, 2003, the Company issued $120.0 million of 0.75% Senior Convertible Notes (the "0.75% Notes") due December 15, 2033. The net proceeds after issuance costs (which will be amortized over 5 years, the earliest term for redemption outside of the Company's control), from the 0.75% Notes offering were $116.0 million. The 0.75% Notes bear interest of 0.75% per year on the principal amount payable semi-annually in arrears on June 15 and December 15 of each year, beginning June 15, 2004. The 0.75% Notes are convertible into 32.2431 shares of Affymetrix common stock per $1,000 principal amount of notes, (or $31.01 per share of common stock subject to adjustment, prior to the close of business on the business day prior to the maturity date under the following circumstances: (1) during any quarterly conversion period prior to December 15, 2028, if the sales price of the Company's common stock for at least 20 trading days in the 30 consecutive trading-day period ending on the first day of such conversion period reaches a specified threshold, (2) on or after December 28, 2028, at any time after the sale price of the Company's common stock on any date is greater than 130% of the then current conversion price, (3) during the five consecutive

**NOTE 13—SENIOR CONVERTIBLE NOTES (Continued)**

trading-day period in which the average of the trading prices for the notes was less than 98% of the average of the sale price of the Company's common stock multiplied by the then applicable conversion rate (4) the 0.75% Notes are called for redemption, or (5) specified corporate transactions have occurred.

On December 15, 2008, the security holders have the option to deliver the 0.75% Notes to Affymetrix and require the Company to repurchase all outstanding 0.75% Notes for $1,000 in cash each up to a maximum of $120.0 million for all outstanding 0.75% Notes. Additionally, security holders also have the option to require the Company to repurchase the 0.75% Notes payable in cash along with any accrued but unpaid interest on December 15, 2013, 2018, 2023, and 2028. The Company intends to use the net proceeds of the offering to repurchase its 4.75% Notes (see note 19). Additionally, Affymetrix has the option of redeeming all or part of the 0.75% Notes plus accrued but unpaid interest on or after December 15, 2008 for cash.

**NOTE 14—COMMON STOCK PURCHASE RIGHT**

Under the terms of an agreement with a distributor, the Company provided to the distributor a common stock purchase right ("purchase right") to acquire shares of the Company's common stock through an advance payment of $3.0 million. This purchase right was included in the consolidated balance sheet for the year ended December 31, 2002. Upon exercise of the purchase right, the distributor will receive $3.0 million worth of shares of common stock of the Company based on the fair market value of the Company's Common Stock on August 19, 2003.

In the fourth quarter of 2003, the Company issued approximately 127,000 shares to the distributor in settlement of the common stock purchase right.

**NOTE 15—STOCKHOLDERS' EQUITY**

**COMMON STOCK WARRANTS**

As of December 31, 2003, there were warrants to purchase 27,970 shares of common stock at $3.58 per share and 38,150 shares of common stock at $15.20 per share outstanding. The warrants expire in 2008 and 2009, respectively.

**STOCK OPTION EXCHANGE OFFERING**

On March 7, 2002, the Company filed a Schedule Tender Offer, as subsequently amended on April 4, 2002, with the Securities and Exchange Commission relating to an offer (the "Offer") to current employees (excluding officers as defined in Rule 16a-1(f) of the Securities Exchange Act of 1934, as amended) of the Company or its wholly owned subsidiaries, to exchange all of the options outstanding under the Affymetrix, Inc. Amended and Restated 1993 Stock Plan, Affymetrix, Inc. 1998 Stock Incentive Plan, Affymetrix/Genetic MicroSystems 1998 Stock Option Plan, Affymetrix/ Neomorphic 1998 Stock Option Plan, and Affymetrix, Inc. Amended and Restated 2000 Equity Incentive Plan (collectively, the "Plans") to purchase shares of the Company's common stock ("Common Stock"), for new options (the "New Options") to purchase shares of the Common Stock to be granted under the Plans, upon the terms and subject to the conditions described in an Offer to Exchange and related Letter of Transmittal. Following the expiration of the Offer on April 12, 2002,

**NOTE 15—STOCKHOLDERS' EQUITY (Continued)**

the Company accepted for exchange options to purchase 2,272,984 shares of its common stock (the "Tendered Options"), representing approximately 27.5% of the 8,269,774 options that were eligible to be tendered in the Offer. After a period of more than six months and a day from the expiration date of the Offer, on October 16, 2002 the Company granted New Options to purchase an aggregate of 1,276,234 shares of its common stock in exchange for the Tendered Options. The New Options were granted with exercise prices equal to $23.185 which was the fair market value of the Company's common stock on October 16, 2002. Executive officers of the Company were not permitted to participate in the offer.

The number of shares of common stock subject to the New Options was equal to the number of shares of common stock subject to the Tendered Options that were accepted for exchange and canceled in accordance with the following exchange ratios:

| Exercise Price of Option Tendered | Exchange Ratio |
|---|---|
| $44.99 or less | 1 for 1 |
| $45.00–$59.99 | 0.67 for 1 |
| $60.00–$99.99 | 0.50 for 1 |
| $100.00 or more | 0.33 for 1 |

**STOCKHOLDER RIGHTS PLAN**

On October 15, 1998, the Board of Directors of the Company declared a dividend of (i) one preferred share purchase right (a "Right") for each outstanding share of common stock of the Company, and (ii) a number of Rights for each share of Series AA Preferred Stock of the Company equal to the number of shares of common stock into which such share of Series AA Preferred Stock was convertible. The dividend was paid on October 27, 1998 (the "Record Date") to the stockholders of record on that date. Each Right entitles the registered holder to purchase from the Company one one-thousandth of a share of Series B Junior Participating Preferred Stock, par value $.01 per share, of the Company (the "Series B Preferred Stock") at a price of $62.50 per one one-thousandth of a share of Series B Preferred Stock, subject to adjustment. The Rights will be exercisable if a person or group hereafter acquires beneficial ownership of 15% or more of the common stock of the Company or announces a tender offer for 15% or more of the common stock. The Board of Directors will be entitled to redeem the Rights at one cent per Right at any time before any such person acquires beneficial ownership of 15% or more of the outstanding common stock. If a person or group acquires 15% or more of the outstanding common stock of the Company, each Right will entitle its holder to purchase, at the Right's exercise price, a number of shares of common stock having a market value at that time of twice the Right's exercise price. Rights held by the 15% holder will become void and will not be exercisable to purchase shares at the bargain purchase price. If the Company is acquired in a merger or other business combination transaction after a person acquires 15% or more of the Company's common stock, each Right will entitle its holder to purchase, at the Right's then-current exercise price, a number of the acquiring company's common shares having a market value at that time of twice the Right's exercise price.

On February 7, 2000, the Company's Board of the Directors approved an amendment to its stockholders rights plan. The amendment increases the exercise price of the Preferred Share Purchase

**NOTE 15—STOCKHOLDERS' EQUITY (Continued)**

Rights to $625.00 and extends the expiration date of the plan to February 2010. Under the amended plan, each Preferred Share Purchase Right entitles stockholders to buy one one-thousandth of a share of Series B Junior Participating Preferred Stock of the Company at the new exercise price of $625.00. The Rights will be exercisable if a person or group acquires beneficial ownership of 15% or more of the common stock of the Company or announces a tender offer for 15% or more of the common stock.

**STOCK OPTION AND BENEFIT PLANS**

In 1993, the Board of Directors adopted the Affymetrix 1993 Stock Plan (the "1993 Stock Plan"), which was amended and restated in 1995, under which incentive stock options, nonqualified stock options and purchase rights may be granted to employees and outside consultants. Options granted under the 1993 Stock Plan expire no later than ten years from the date of grant. The option price shall be at least 100% of the fair value of the Company's common stock on the date of grant (110% in certain circumstances), as determined by the Board of Directors. Options may be granted with different vesting terms from time to time but not to exceed five years from the date of grant. A total of 10,400,000 shares of common stock are authorized for issuance under the 1993 Stock Plan and no shares are subject to repurchase by the Company. As of December 31, 2003, a total of 659,952 options to purchase shares expired under this plan.

In 1996, the Board of Directors adopted the Affymetrix 1996 Non-Employee Directors Stock Option Plan (the "1996 Stock Plan"), which was amended and restated in 2001, under which only nonqualified stock options may be granted to non-employee directors of the Company. Options granted under the 1996 Stock Plan expire no later than ten years and two days from the date of grant. The option price shall be at least 100% of the fair value of the Company's common stock on the date of grant (110% in certain circumstances), as determined by the Board of Directors. Options granted under the 1996 Stock Plan are subject to the vesting provisions set forth in that plan. A total of 600,000 shares of common stock are authorized for issuance under the 1996 Stock Plan and the shares are subject to repurchase by the Company under the terms of the grant. All options granted under the 1996 Stock Plan are exercisable in full six months after the date of grant and are subject to repurchase at the original exercise price by the Company over the remaining vesting period which is generally five years for initial grants and one year for annual grants. At December 31, 2003, there were no shares subject to repurchase under this plan.

In 1998, the Board of Directors adopted the Affymetrix 1998 Stock Incentive Plan (the "1998 Stock Plan") under which nonqualified stock options and restricted stock may be granted to employees and outside consultants, except that members of the Board of Directors and individuals who are considered officers of the Company under the rules of the National Association of Securities Dealers shall not be eligible. Options granted under the 1998 Stock Plan expire no later than ten years from the date of grant. The option price shall be at least 100% of the fair value of the Company's common stock on the date of grant (110% in certain circumstances), as determined by the Board of Directors. Options may be granted with different vesting terms from time to time as determined by the Board of Directors. A total of 3,600,000 shares of common stock are authorized for issuance under the 1998 Stock Plan and no shares are subject to repurchase by the Company.

On February 9, 2000, Affymetrix completed the acquisition of Genetic MicroSystems and assumed all options outstanding under a Genetic MicroSystems stock option plan, now the Affymetrix/GMS 1998

**NOTE 15—STOCKHOLDERS' EQUITY (Continued)**

Stock Plan ("GMS Stock Plan"), which if fully vested and exercised, would amount to 144,776 shares of Affymetrix' common stock. No additional options are authorized for grant. Options granted under the GMS Stock Plan expire no later than ten years from the date of grant.

On October 30, 2000, Affymetrix completed the acquisition of Neomorphic and assumed all options outstanding under a Neomorphic stock option plan, now the Affymetrix/Neomorphic 1998 Stock Plan ("Neomorphic Stock Plan"), which if fully vested and exercised, would amount to 122,757 shares of Affymetrix' common stock. No additional options are authorized for grant. Options granted under the Neomorphic Plan expire no later than ten years from the date of grant.

In 2000, the Board of Directors adopted the 2000 Equity Incentive Plan (the "2000 Stock Plan"), which was amended and restated in 2001, under which restricted shares, stock units, stock options and stock appreciation rights may be granted to employees, outside directors and consultants. Options granted under the 2000 Stock Plan expire no later than ten years from the date of grant. The option price shall be at least 100% of the fair value of the Company's common stock on the date of grant (110% in certain circumstances), as determined by the Board of Directors. Options may be granted with different vesting terms from time to time as determined by the Board of Directors. A total of 5,000,000 shares of common stock are authorized for issuance under the 2000 Stock Plan and no shares are subject to repurchase by the Company.

Activity under the stock plans through December 31, 2003 is as follows:

| | Options Available for Grant | Number of Shares | Weighted Averaged Exercise Price Per Share |
|---|---|---|---|
| Balance at December 31, 2000 | 3,680,060 | 10,885,847 | $37.28 |
| Options granted | (2,500,182) | 2,500,182 | $32.23 |
| Options exercised | — | (861,429) | $ 8.85 |
| Options canceled | 806,776 | (806,776) | $57.40 |
| Balance at December 31, 2001 | 1,986,654 | 11,717,824 | $36.99 |
| Options granted | (3,336,284) | 3,336,284 | $23.46 |
| Options exercised | — | (496,569) | $ 9.27 |
| Options canceled | 3,431,698 | (3,431,698) | $66.61 |
| Balance at December 31, 2002 | 2,082,067 | 11,125,841 | $24.66 |
| Options granted | (436,350) | 436,350 | $23.10 |
| Options exercised | — | (834,325) | $14.33 |
| Options canceled | 652,623 | (652,623) | $24.21 |
| Options expired | (659,952) | — | — |
| Balance at December 31, 2003 | 1,638,388 | 10,075,243 | $25.48 |

## NOTE 15—STOCKHOLDERS' EQUITY (Continued)

| | Options Outstanding | | | Options Exercisable | |
|---|---|---|---|---|---|
| Range of Exercise Prices | Number | Weighted-Average Remaining Contractual Life (In Years) | Weighted-Average Exercise Price Per Share | Number | Weighted-Average Exercise Price Per Share |
| $0.15–10.64 | 1,015,881 | 2.40 | $ 2.31 | 1,005,066 | $ 2.27 |
| $10.75–20.86 | 2,163,592 | 6.04 | $16.81 | 1,515,524 | $15.83 |
| $21.17–24.44 | 3,192,513 | 6.45 | $23.44 | 2,310,191 | $23.81 |
| $24.48–46.16 | 2,353,342 | 6.82 | $31.10 | 984,952 | $33.38 |
| $47.85–148.75 | 1,349,915 | 6.74 | $51.84 | 1,141,745 | $51.17 |
| $0.15–148.75 | 10,075,243 | 6.08 | $25.48 | 6,957,478 | $24.81 |

There were 5,836,929 options exercisable with a weighted-average exercise price of $22.80 and 4,701,770 options exercisable with a weighted-average exercise price of $28.26 in 2002 and 2001, respectively.

Upon the acquisition of Neomorphic, the fair value of unvested common stock subject to restricted stock agreements and the intrinsic value of the unvested options held by employees was deducted from the purchase price and allocated to deferred stock compensation. Deferred stock compensation is being amortized on a straight-line basis to compensation expense over the remaining vesting term, generally two to four years. The fair value of unvested options held by non-employees was also deducted from the purchase price. These options will be periodically revalued as they vest in accordance with applicable accounting guidance.

### RESERVED SHARES

At December 31, 2003, shares reserved for future issuance are as follows:

| | |
|---|---|
| Options outstanding | 10,075,243 |
| Options available for future grants | 1,638,388 |
| Convertible subordinated notes | 6,559,159 |
| Warrants | 66,117 |
| | 18,338,907 |

## NOTE 16—INCOME TAXES

The Company recorded an income tax provision of $2.6 million, $0.7 million and $0.3 million for the years ended December 31, 2003, 2002 and 2001, respectively. Pretax income (losses) from foreign operations were approximately $2.0 million, $(0.8) million, and $0.4 million for the years ended December 31, 2003, 2002 and 2001, respectively.

**NOTE 16—INCOME TAXES (Continued)**

The difference between the provision for income taxes and the amount computed by applying the Federal statutory income tax rate (35%) to loss before taxes is explained as follows (in thousands):

| | Year Ended December 31, | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| Tax at federal statutory rate | $5,896 | $ (818) | $(11,592) |
| Loss for which no tax benefit is currently recognizable | — | — | 5,521 |
| Previously unbenefitted losses | (6,506) | (2,609) | — |
| State credits | (2,846) | — | — |
| State taxes, net | 2,971 | 65 | — |
| Non-deductible stock compensation | 783 | 3,362 | 4,432 |
| Non-deductible goodwill amortization | — | — | 1,639 |
| Foreign taxes | 748 | 602 | 300 |
| Alternative minimum taxes | 1,500 | — | — |
| Other | 17 | 99 | — |
| | $2,563 | $ 701 | $ 300 |

Significant components of the Company's deferred tax assets as of December 31, 2003 and 2002 are as follows (in thousands):

| | 2003 | 2002 |
|---|---|---|
| Deferred tax assets: | | |
| Net operating loss carryforwards | $ 57,500 | $ 84,800 |
| Tax credit carryforwards | 13,600 | 11,700 |
| Accrued legal | 1,300 | 1,100 |
| Deferred revenue | 25,500 | 4,700 |
| Capitalized research and development costs | 5,100 | 9,100 |
| Property and equipment | 2,000 | 3,100 |
| Other-net | 15,800 | 9,800 |
| Total deferred tax assets | 120,800 | 124,300 |
| Valuation allowance for deferred tax assets | (120,800) | (124,300) |
| Net deferred tax assets | $ — | $ — |

Realization of deferred tax assets is dependant upon future earnings, if any, the timing and amount of which are uncertain. Accordingly, the net deferred tax assets have been fully offset by a valuation allowance. The valuation allowance (decreased)/increased by $(3.5) million, $18.0 million, and $24.0 million during 2003, 2002, and 2001 respectively. Included in the valuation allowance balance is $64.0 million related to the exercise of stock options which are not reflected as an expense for financial reporting purposes. Accordingly, any future reduction in the valuation allowance relating to this amount will be credited directly to equity and not reflected as an income tax benefit in the statement of operations.

As of December 31, 2003, the Company had net operating loss carryforwards for federal income tax purposes of approximately $162.0 million, which expire in the years 2008 through 2021, and federal research and development tax credits of approximately $7.1 million, which expire in the years 2008

**NOTE 16—INCOME TAXES (Continued)**

through 2023, if not utilized. Because of the change in ownership provisions of the Internal Revenue Code, a portion of the Company's net operating loss and tax credit carryforwards may be subject to annual limitation. The annual limitation may result in the expiration of net operating loss and tax credit carryforwards before utilization.

**NOTE 17—PRODUCT SALES, GEOGRAPHIC SALES, AND SIGNIFICANT CUSTOMERS**

The Company has determined that, in accordance with Statement of Financial Accounting Standards No. 131, "Disclosures about Segments of an Enterprise and Related Information" it operates in one segment as it only reports operating results on an aggregate basis to chief operating decision makers of the Company. The Company had product sales by type and by region as follows for the years ended December 31, 2003, 2002 and 2001 (in thousands):

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Total product and product related revenue: | | | |
| Probe arrays and related supplies | $160,010 | $155,380 | $101,520 |
| Instruments | 62,738 | 46,213 | 45,759 |
| Subscription fees | 26,208 | 32,125 | 34,987 |
| Service and other | 18,451 | 14,820 | 12,670 |
| License fee and milestone revenue | 13,373 | — | — |
| Total product and product related revenue | $280,780 | $248,538 | $194,936 |
| Customer location: | | | |
| United States | $152,937 | $160,573 | $132,032 |
| Europe(1) | 82,850 | 58,802 | 37,531 |
| Japan(2) | 35,409 | — | — |
| Other | 9,584 | 29,163 | 25,373 |
| Total | $280,780 | $248,538 | $194,936 |

(1) In 2003, sales to Europe include license fees earned in connection with the Roche agreement.

(2) Prior to fiscal year 2003 sales to Japan are included in "Other" as sales were made through a Japanese distributor. Beginning in January 2003, sales to Japan were made through the Company's wholly owned Japanese subsidiary.

There were no customers representing 10% or more of total revenue in 2003, 2002 and 2001.

**NOTE 18—401(K) PLAN**

The Company maintains a defined-contribution savings plan under Section 401(k) of the Internal Revenue Code. The plan covers substantially all full-time U.S. employees. Participating employees may defer a portion of their pretax earnings, up to the Internal Revenue Service annual contribution limit. The Company's expense for matching contributions totaled $1.7 million in 2003, $2.5 million in 2002 and $1.9 million in 2001. Company contributions vest to employees ratably over four years.

## NOTE 19—SUBSEQUENT EVENTS

On January 9, 2004, the Company completed the redemption of its 5.0% notes ($102.0 million face value) due October 1, 2006. In connection with the redemption, the Company recorded a charge of $3.1 million to interest expense in the first quarter of 2004, related to the unamortized issuance costs and redemption fee associated with the repurchased notes. On February 19, 2004, the Company also completed the redemption of its 4.75% notes ($165.5 million face value) due February 15, 2007. In connection with the redemption, the Company recorded a charge of $4.9 million to interest expense related to the unamortized issuance costs and redemption fee associated with the repurchased notes.

## NOTE 20—UNAUDITED QUARTERLY FINANCIAL INFORMATION

| | 2003 | | | | 2002 | | | |
|---|---|---|---|---|---|---|---|---|
| | Fourth Quarter | Third Quarter | Second Quarter(1) | First Quarter(2) | Fourth Quarter(1) | Third Quarter | Second Quarter | First Quarter |
| | (in thousands, except per share amounts) | | | | | | | |
| Total revenue (excluding Perlegen) | $87,709 | $73,441 | $65,883 | $ 64,302 | $73,194 | $67,905 | $65,051 | $62,165 |
| Perlegen revenue | $ 1,455 | $ 2,744 | $ 2,751 | $ 2,509 | $ 5,105 | $ 4,868 | $ 5,615 | $ 5,971 |
| Total cost of goods sold (excluding Perlegen) | $26,800 | $24,697 | $19,305 | $ 19,013 | $24,360 | $22,229 | $21,032 | $20,694 |
| Perlegen cost of goods sold | $ 1,455 | $ 2,744 | $ 2,751 | $ 2,509 | $ 4,546 | $ 4,868 | $ 5,615 | $ 5,971 |
| Net income (loss) | $16,010 | $ 5,802 | $ 5,195 | $(12,722) | $ 2,916 | $ 619 | $(1,584) | $(3,581) |
| Basic net income (loss) per share | $ 0.27 | $ 0.10 | $ 0.09 | $ (0.22) | $ 0.05 | $ 0.01 | $ (0.03) | $ (0.06) |
| Diluted net income (loss) per share | $ 0.26 | $ 0.10 | $ 0.09 | $ (0.22) | $ 0.05 | $ 0.01 | $ (0.03) | $ (0.06) |

(1) In December 2002, the Company repurchased $1.1 million principal amount of the 4.75% notes for total consideration of approximately $0.9 million. In connection with the transaction a gain of $0.2 million was recorded. In the second quarter of 2003, the Company repurchased $53.4 million principal amount of its 4.75% convertible subordinated notes due in 2007 and $48.0 million principal amount of its 5.0% convertible subordinated notes due in 2006. In connection with these transactions, the Company recognized a net loss of approximately $1.0 million.

(2) On January 9, 2003, the Company entered into an agreement with Perlegen to license certain Perlegen technologies. Under the terms of the licensing agreement, the Company paid Perlegen a total of $15.0 million in cash. The Company engaged an independent third party to conduct a valuation analysis of the intangible assets acquired. Based upon that independent valuation a charge of approximately $10.1 million related to acquired in-process research and development was recorded in the first quarter of 2003. The remaining $4.9 million was recorded as an intangible asset and is being amortized over the useful lives of the various components of the asset from six to ten years.

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

Not applicable.

## ITEM 9A. CONTROLS AND PROCEDURES

As required by paragraph (b) of Exchange Act Rules 13a-15 or 15d-15, Affymetrix' management, including our Chief Executive Officer and Chief Financial Officer, conducted an evaluation as of the end of the period covered by this report, of the effectiveness of Affymetrix' disclosure controls and procedures as defined in Exchange Act Rule 13a-15(e). Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that Affymetrix' disclosure controls and procedures were effective as of the end of the period covered by this report.

As required by paragraph (d) of Exchange Act Rules 13a-15 or 15d-15, Affymetrix management, including the Chief Executive Officer and Chief Financial Officer, also conducted an evaluation of Affymetrix' internal control over financial reporting to determine whether any changes occurred during the fourth fiscal quarter that have materially affected, or are reasonably likely to materially affect, Affymetrix' internal control over financial reporting. Based on that evaluation, there were no changes in our internal control over financial reporting that occurred during Affymetrix' last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. However, 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. Management necessarily applied its judgment in assessing the benefits of controls 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 the company have been detected. The design of any system of controls 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 its stated goals under all potential future conditions, regardless of how remote. Because of the inherent limitations in a control system, misstatements due to error or fraud may occur and may not be detected.

# PART III

## ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT

Incorporated by reference to the sections of the Company's proxy statement for the 2003 Annual Meeting of Stockholders entitled "Election of Directors."

## CODE OF ETHICS

Affymetrix has adopted a code of business conduct and ethics for directors, officers (including Affymetrix' Chief Executive Officer, Chief Financial Officer and Corporate Controller) and employees, known as the Code of Business Conduct and Ethics. The Code of Business Conduct and Ethics is available on Affymetrix' website at *http://www.affymetrix.com* in the Corporate Governance Section under the "Investors" link. Stockholders may request a free copy of the Code of Business Conduct and Ethics by sending an email request to investor@affymetrix.com.

## ITEM 11. EXECUTIVE COMPENSATION

Incorporated by reference to the sections of the Company's proxy statement for the 2004 Annual Meeting of Stockholders entitled "Executive Compensation," "Compensation Committee Report," "Certain Transactions" and "Compensation of Directors."

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

Incorporated by reference to the section of the Company's proxy statement for the 2004 Annual Meeting of Stockholders entitled "Stock Ownership of Principal Shareholders and Management."

## ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Incorporated by reference to the section of the Company's proxy statement for the 2004 Annual Meeting of Shareholders entitled "Certain Transactions."

## ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information about principal accountant fees and services as well as related pre-approval policies appears under "Fees Paid to Ernst and Young LLP" and "Audit and Finance Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Auditors" in the Proxy Statement. Those portions of the Proxy Statement are incorporated by reference into this report.

## PART IV

## ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULE, AND REPORTS ON FORM 8-K

(a)(1) Financial Statements. The financial statements as set forth under Item 8 of this report on Form 10-K are incorporated herein by reference.

(a)(2) Financial Statement Schedule—Schedule II—Valuation and Qualifying Accounts. All other schedules have been omitted as they are not required, not applicable or the information is otherwise included.

(a)(3) Exhibits:

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 3.1(1) | Restated Certificate of Incorporation |
| 3.2(2) | Bylaws |
| 3.3(3) | Amendment No. 1 to the Bylaws dated as of April 25, 2001. |
| 3.5(4) | Summary of Rights to Purchase Shares of Preferred Stock pursuant to the Rights Agreement dated as of October 15, 1998 |
| 4.1(5) | Rights Agreement, dated October 15, 1998, between Affymetrix, Inc. and American Stock Transfer & Trust Company, as Rights Agent |
| 4.2(6) | Indenture dated as of September 22, 1999, between Affymetrix, Inc. and The Bank of New York, as Trustee |
| 4.3(7) | Amendment No. 1 to Rights Agreement, dated as of February 7, 2000, between Affymetrix, Inc. and American Stock Transfer & Trust Company, as Rights Agent |
| 4.4(8) | Indenture, dated as of February 14, 2000, between Affymetrix, Inc. and The Bank of New York, as Trustee |
| 4.6(26) | Indenture dated as of December 15, 2003, between Affymetrix, Inc. and The Bank of New York, as Trustee |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 4.7(26) | Affymetrix, Inc. 0.75% Senior Convertible Notes due 2033 Registration Rights Agreement dated December 15, 2003 |
| 10.1(9)† | 1993 Stock Plan, as amended |
| 10.2(9)† | 1996 Nonemployee Directors Stock Option Plan |
| 10.20(9)†* | Form of Director and Officer Indemnification Agreement |
| 10.22(9) | Lease between Harry Locklin and Affymetrix, Inc. dated December 5, 1994 |
| 10.23(10) | Lease between Sobrato Interests and Affymetrix, Inc. dated May 31, 1996 (3380 Central Expressway, Santa Clara, CA) |
| 10.24(10) | Lease between Sobrato Interests and Affymetrix, Inc. dated May 31, 1996 (3450 Central Expressway, Santa Clara, CA) |
| 10.25(11)* | Collaboration Agreement between bioMérieux Vitek, Inc. and Affymetrix, Inc. effective as of September 1, 1996 |
| 10.26(11)* | Manufacturing Agreement between bioMérieux Vitek, Inc. and Affymetrix, Inc. effective as of September 1, 1996 |
| 10.30(12)* | License Agreement between Affymetrix, Inc. and Molecular Dynamics, Inc. dated November 28, 1997 |
| 10.32(13)* | Agreement between Affymetrix, Inc. and Roche Molecular Systems, Inc. effective as of April 23, 1998 |
| 10.33(13)* | Agreement between Affymetrix, Inc. and Enzo Diagnostics, Inc. effective as of April 24, 1998. |
| 10.34(14)* | Consortium Agreement between Beckman Coulter, Inc. and the Company dated July 31, 1998. |
| 10.35(14)* | Letter Agreement between Beckman Coulter, Inc. and the Company dated July 29, 1998 |
| 10.36(15)† | 1998 Stock Incentive Plan |
| 10.37(15)† | Form of Officer and Director Indemnification Agreement |
| 10.42(16) | Lease Agreement by and between the Company and Aetna Life Insurance Company dated as of July 30, 1999 |
| 10.44(17) | Amendment to Lease by and between Affymetrix, Inc. and Harry Locklin dated as of May 12, 1999 |
| 10.46(18) | First Addendum to Lease by and between Solar Oakmead Joint Venture and Affymetrix, Inc. |
| 10.47(19) | Amendment No. 1 to the 1996 Nonemployee Directors Stock Option Plan of Affymetrix, Inc. |
| 10.48(20) | Affymetrix, Inc. 2000 Equity Incentive Plan |
| 10.50(21) | Amended and Restated 1996 Non-Employee Directors Stock Plan. |
| 10.51(22) | Amended and Restated 2000 Equity Incentive Plan. |
| 10.52(23)† | Employment Agreement between Edward M. Hurwitz and the Company dated October 30, 2001 |
| 10.53(24)† | Letter Agreement dated March 27, 2002 between Ronald D. Verdoorn and Affymetrix, Inc. |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 10.55(25)† | Secured Promissory Note in the principal amount of $400,000 executed by Trevor J. Nicholls, Ph.D. dated January 8, 2003 pursuant to an extension of credit made to Dr. Nicholls by the Company on June 21, 2002. |
| 10.56(25)† | Secured Promissory Note in the principal amount of $600,000 executed by Trevor J. Nicholls, Ph.D. dated January 8, 2003 pursuant to an extension of credit made to Dr. Nicholls by the Company on June 21, 2002. |
| 10.57(25)* | Common Terms Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.58(25)* | License Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003 |
| 10.59(25)* | Affymetrix Instrument and Chip Supply Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.60(25)* | Research & Development Collaboration Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.61(25)* | Diagnostic Product and Instrument Agency Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.62(25)* | Affymetrix Instrument Agency Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.63 | Lease between Sobrato Interests and Affymetrix dated July 3, 2002 (3420 Central Expressway, Santa Clara, CA) |
| 10.64 | First Amendment to Lease between Sobrato Interests and Affymetrix dated September 30, 2003 (3420 Central Expressway, Santa Clara, CA) |
| 10.65† | Loan Agreement in principal amount of $1.2 million executed by Barbara A. Caulfield dated January 7, 2004 pursuant to an extension of credit made to Ms. Caulfield by the Company on July 16, 2001. |
| 12.1(26) | Ratio of Earnings to Fixed Charges |
| 21 | List of Subsidiaries |
| 23 | Consent of Ernst & Young LLP, Independent Auditors |
| 31.1 | Certification of Chief Executive Officer Pursuant to Section 302 of Sarbanes-Oxley Act of 2002 |
| 31.2 | Certification of Chief Financial Officer Pursuant to Section 302 of Sarbanes-Oxley Act of 2002 |
| 32.1 | Certification of Chief Executive Officer Pursuant to Section 906 of Sarbanes-Oxley Act of 2002 |
| 32.2 | Certification of Chief Financial Officer Pursuant to Section 906 of Sarbanes-Oxley Act of 2002 |

(1) Incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K as filed on June 13, 2000 (File No. 000-28218).

(2) Incorporated by reference to Appendix C of the Registrant's Definitive Proxy Statement on Schedule 14A as filed on April 29, 1998 (File No. 000-28218).

(3) Incorporated by reference to Exhibit 3.3 to the Registrant's Form 10-Q as filed on May 15, 2001 (File No. 000-28218).

(4) Incorporated by reference to Exhibit 3.3 filed with Registrant's Form 8-K as filed on October 16, 1998 (File No. 000-28218).

(5) Incorporated by reference to Exhibit 1 of the Registrant's Form 8-A as filed on October 16, 1998 (File No. 000-28218).

(6) Incorporated by reference to Exhibit 4.2 of the Registrant's Registration Statement on Form S-4 as filed on October 14, 1999 (File No. 333-88987).

(7) Incorporated by reference to Exhibit 4.1 of the Registrant's Form 8-A/A as filed on March 29, 2000 (File No. 000-28218).

(8) Incorporated by reference to Exhibit 4.4 of the Registrant's Registration Statement on Form S-3 as filed on May 11, 2000 (File No. 333-36790).

(9) Incorporated by reference to the same number exhibit filed with Registrant's Registration Statement on Form S-1 (File No. 333-3648), as amended.

(10) Incorporated by reference to the same number exhibit filed with the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1996 (File No. 000-28218).

(11) Incorporated by reference to the same number exhibit filed with the Company's Report on Form 10-K for the year ended December 31, 1996 (File No. 000-28218).

(12) Incorporated by reference to the same number exhibit filed with the Registrant's Report on Form 10-K for the year ended December 31, 1997 as filed on March 31, 1998 (File No. 000-28218).

(13) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on August 14, 1998 (File No. 000-28218).

(14) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on November 16, 1998 (File No. 000-28218).

(15) Incorporated by reference to the same number exhibit filed with the Registrant's Report on Form 10-K for the year ended December 31, 1998 as filed on March 31, 1999 (File No. 000-28218).

(16) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on August 16, 1999 (File No. 000-28218).

(17) Incorporated by reference to Exhibit 10.11 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(18) Incorporated by reference to Exhibit 10.12 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(19) Incorporated by reference to Exhibit 10.13 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(20) Incorporated by reference to Appendix B of the Registrant's Definitive Proxy Statement on Schedule 14A as filed on May 2, 2000 (File No. 000-28218).

(21) Incorporated by reference to Exhibit 10.50 of the Registrant's Form 10-Q as filed on May 15, 2001 (File No. 000-28218).

(22) Incorporated by reference to Exhibit 10.51 of the Registrant's Form 10-Q as filed on August 13, 2001 (File No. 000-28218).

(23) Incorporated by reference to Exhibit 10.52 of the Registrant's Form 10-K as filed on March 29, 2002 (File No. 000-28218).

(24) Incorporated by reference to the same number exhibit filed with the Registrant's Form 10-Q as filed on May 15, 2002 (File No. 000-28218).

(25) Incorporated by reference to the same number exhibit filed with the Registrant's Form 10-Q as filed on May 15, 2003 (File No. 000- 0-28218).

(26) Incorporated by reference to the same number exhibit filed with the Registrant's Form S-3 as filed on January 29, 2004 (File No. 333-112311).

* Confidential treatment granted

† Management contract, compensatory plan or arrangement

(b) Reports on Form 8-K.

On October 22, 2003, the Company filed a Report on Form 8-K to report under Item 9 (Regulation FD Disclosure) as Information Furnished under Item 12 (Results of Operations and Financial Condition) that the Company issued a press release announcing the Company's operating results for the quarter ended September 30, 2003.

On December 10, 2003, the Company filed a Report on Form 8-K to report under Item 5 (Other Events) and Item 7 (Financial Statements, Pro Forma Financial Information and Exhibits) that the Company issued a press release announcing the Company's intention to commence, and on December 10, 2003 announced the pricing of, an offering of $100 million in aggregate principal amount of 0.75% senior convertible notes due 2033 to be issued pursuant to Rule 144A. The Company also granted the initial purchasers an option to purchase an additional $20 million of 0.75% senior convertible notes. In addition, on December 10, 2003, Affymetrix, Inc. announced that it will redeem its 5% convertible subordinated notes due 2006. For additional information concerning the 0.75% senior convertible notes offering and the repurchase of the 5% convertible subordinated notes, refer to the exhibit index contained in this report.

On January 15, 2004, the Company filed a Report on Form 8-K pursuant to Item 9 (Regulation FD Disclosure) as Information Furnished under Item 12 (Results of Operations and Financial Condition). Under the Form 8-K, Affymetrix furnished that it reaffirmed its previous revenue guidance for fiscal year 2003 which was issued in its October 23, 2003 earnings press release.

On January 28, 2004, the Company filed a Report on Form 8-K to report under Item 9 (Regulation FD Disclosure) as Information Furnished under Item 12 (Results of Operations and Financial Condition) that the Company issued a press release announcing the Company's operating results for the year ended December 31, 2003.

**AFFYMETRIX, INC.**

**Schedule II—Valuation and Qualifying Accounts**
**(in thousands)**

| | Balance at Beginning of Period | Charged to Costs and Expenses | Charged to Other Accounts | Deductions | Balance at End of Period |
|---|---|---|---|---|---|
| Year Ended December 31, 2003: | | | | | |
| Allowance for doubtful accounts . . . . . | $2,835 | $ 161 | $1,385(1) | $850 | $ 761 |
| Year Ended December 31, 2002: | | | | | |
| Allowance for doubtful accounts . . . . . | $1,847 | $1,351 | $ — | $363 | $2,835 |
| Year Ended December 31, 2001: | | | | | |
| Allowance for doubtful accounts . . . . . | $1,584 | $ 320 | $ — | $ 57 | $1,847 |

(1) Specific account receivable balances written off against existing allowance.

**SIGNATURES**

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

AFFYMETRIX, INC.
(Registrant)

March 15, 2004 By: /s/ STEPHEN P.A. FODOR, PH.D.

Stephen P.A. Fodor, Ph.D.
*CHAIRMAN OF THE BOARD AND CHIEF 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 and on the dates indicated.

| Name | Title | Date |
|---|---|---|
| By: /s/ STEPHEN P.A. FODOR, PH.D.<br>Stephen P.A. Fodor, Ph.D. | Chairman of the Board and Chief Executive Officer (Principal Executive Officer) | March 15, 2004 |
| By: /s/ GREGORY T. SCHIFFMAN<br>Gregory T. Schiffman | Senior Vice President and Chief Financial Officer (Principal Financial Officer) | March 15, 2004 |
| By: /s/ JOHN D. DIEKMAN, PH.D.<br>John D. Diekman, Ph.D. | Director | March 15, 2004 |
| By: /s/ PAUL BERG, PH.D.<br>Paul Berg, Ph.D. | Director | March 15, 2004 |
| By: /s/ VERNON R. LOUCKS, JR.<br>Vernon R. Loucks, Jr. | Director | March 15, 2004 |
| By: /s/ SUSAN E. SIEGEL<br>Susan E. Siegel | Director | March 15, 2004 |
| By: /s/ DAVID B. SINGER<br>David B. Singer | Director | March 15, 2004 |
| By: /s/ JOHN A. YOUNG<br>John A. Young | Director | March 15, 2004 |

## INDEX TO EXHIBITS

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| 10.47(19) | Amendment No. 1 to the 1996 Nonemployee Directors Stock Option Plan of Affymetrix, Inc. |
| 10.48(20) | Affymetrix, Inc. 2000 Equity Incentive Plan |
| 10.50(21) | Amended and Restated 1996 Non-Employee Directors Stock Plan. |
| 10.51(22) | Amended and Restated 2000 Equity Incentive Plan. |
| 10.52(23)† | Employment Agreement between Edward M. Hurwitz and the Company dated October 30, 2001 |
| 10.53(24)† | Letter Agreement dated March 27, 2002 between Ronald D. Verdoorn and Affymetrix, Inc. |
| 10.55(25)† | Secured Promissory Note in the principal amount of $400,000 executed by Trevor J. Nicholls, Ph.D. dated January 8, 2003 pursuant to an extension of credit made to Dr. Nicholls by the Company on June 21, 2002. |
| 10.56(25)† | Secured Promissory Note in the principal amount of $600,000 executed by Trevor J. Nicholls, Ph.D. dated January 8, 2003 pursuant to an extension of credit made to Dr. Nicholls by the Company on June 21, 2002. |
| 10.57(25)* | Common Terms Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.58(25)* | License Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003 |
| 10.59(25)* | Affymetrix Instrument and Chip Supply Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.60(25)* | Research & Development Collaboration Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.61(25)* | Diagnostic Product and Instrument Agency Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.62(25)* | Affymetrix Instrument Agency Agreement between F. Hoffmann-La Roche Ltd. and Affymetrix, Inc. dated January 29, 2003. |
| 10.63 | Lease between Sobrato Interests and Affymetrix dated July 3, 2002 (3420 Central Expressway, Santa Clara, CA) |
| 10.64 | First Amendment to Lease between Sobrato Interests and Affymetrix dated September 30, 2003 (3420 Central Expressway, Santa Clara, CA) |
| 10.65† | Loan Agreement in principal amount of $1.2 million executed by Barbara A. Caulfield dated January 7, 2004 pursuant to an extension of credit made to Ms. Caulfield by the Company on July 16, 2001. |

| EXHIBIT NUMBER | DESCRIPTION OF DOCUMENT |
|---|---|
| 12.1(26) | Ratio of Earnings to Fixed Charges |
| 21 | List of Subsidiaries |
| 23 | Consent of Ernst & Young LLP, Independent Auditors |
| 31.1 | Certification of Chief Executive Officer Pursuant to Section 302 of Sarbanes-Oxley Act of 2002 |
| 31.2 | Certification of Chief Financial Officer Pursuant to Section 302 of Sarbanes-Oxley Act of 2002 |
| 32.1 | Certification of Chief Executive Officer Pursuant to Section 906 of Sarbanes-Oxley Act of 2002 |
| 32.2 | Certification of Chief Financial Officer Pursuant to Section 906 of Sarbanes-Oxley Act of 2002 |

(1) Incorporated by reference to Exhibit 3.1 of the Registrant's Form 8-K as filed on June 13, 2000 (File No. 000-28218).

(2) Incorporated by reference to Appendix C of the Registrant's Definitive Proxy Statement on Schedule 14A as filed on April 29, 1998 (File No. 000-28218).

(3) Incorporated by reference to Exhibit 3.3 to the Registrant's Form 10-Q as filed on May 15, 2001 (File No. 000-28218).

(4) Incorporated by reference to Exhibit 3.3 filed with Registrant's Form 8-K as filed on October 16, 1998 (File No. 000-28218).

(5) Incorporated by reference to Exhibit 1 of the Registrant's Form 8-A as filed on October 16, 1998 (File No. 000-28218).

(6) Incorporated by reference to Exhibit 4.2 of the Registrant's Registration Statement on Form S-4 as filed on October 14, 1999 (File No. 333-88987).

(7) Incorporated by reference to Exhibit 4.1 of the Registrant's Form 8-A/A as filed on March 29, 2000 (File No. 000-28218).

(8) Incorporated by reference to Exhibit 4.4 of the Registrant's Registration Statement on Form S-3 as filed on May 11, 2000 (File No. 333-36790).

(9) Incorporated by reference to the same number exhibit filed with Registrant's Registration Statement on Form S-1 (File No. 333-3648), as amended.

(10) Incorporated by reference to the same number exhibit filed with the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1996 (File No. 000-28218).

(11) Incorporated by reference to the same number exhibit filed with the Company's Report on Form 10-K for the year ended December 31, 1996 (File No. 000-28218).

(12) Incorporated by reference to the same number exhibit filed with the Registrant's Report on Form 10-K for the year ended December 31, 1997 as filed on March 31, 1998 (File No. 000-28218).

(13) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on August 14, 1998 (File No. 000-28218).

(14) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on November 16, 1998 (File No. 000-28218).

(15) Incorporated by reference to the same number exhibit filed with the Registrant's Report on Form 10-K for the year ended December 31, 1998 as filed on March 31, 1999 (File No. 000-28218).

(16) Incorporated by reference to the same number exhibit filed with Registrant's Form 10-Q as filed on August 16, 1999 (File No. 000-28218).

(17) Incorporated by reference to Exhibit 10.11 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(18) Incorporated by reference to Exhibit 10.12 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(19) Incorporated by reference to Exhibit 10.13 filed with Registrant's Registration Statement on Form S-3 (File No. 333-82685).

(20) Incorporated by reference to Appendix B of the Registrant's Definitive Proxy Statement on Schedule 14A as filed on May 2, 2000 (File No. 000-28218).

(21) Incorporated by reference to Exhibit 10.50 of the Registrant's Form 10-Q as filed on May 15, 2001 (File No. 000-28218).

(22) Incorporated by reference to Exhibit 10.51 of the Registrant's Form 10-Q as filed on August 13, 2001 (File No. 000-28218).

(23) Incorporated by reference to Exhibit 10.52 of the Registrant's Form 10-K as filed on March 29, 2002 (File No. 000-28218).

(24) Incorporated by reference to the same number exhibit filed with the Registrant's Form 10-Q as filed on May 15, 2002 (File No. 000-28218).

(25) Incorporated by reference to the same number exhibit filed with the Registrant's Form 10-Q as filed on May 15, 2003 (File No. 000-0-28218).

(26) Incorporated by reference to the same number exhibit filed with the Registrant's Form S-3 as filed on January 29, 2004 (File No. 333-112311).

* Confidential treatment granted

† Management contract, compensatory plan or arrangement

**EXHIBIT 21**

**AFFYMETRIX, INC.**
**LIST OF SUBSIDIARIES**

Affymetrix, UK Ltd, wholly-owned subsidiary incorporated in the United Kingdom and doing business under such name.

Affymetrix France S.A.S., wholly-owned subsidiary incorporated in France and doing business under such name.

Affymetrix GmbH, wholly-owned subsidiary incorporated in Germany and doing business under such name.

Affymetrix Japan K.K., a wholly-owned subsidiary incorporated in Japan and doing business under such name.

Affymetrix Pte Ltd, wholly-owned subsidiary incorporated in Singapore and doing business under such name.

Genetic MicroSystems, Inc., wholly-owned subsidiary incorporated in Massachusetts and doing business under such name.

Neomorphic, Inc., wholly-owned subsidiary incorporated in California and doing business under such name.

**EXHIBIT 23**

**CONSENT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS**

We consent to the incorporation by reference in the Registration Statements (Forms S-3 No. 333-112311, No. 333-38167, No. 333-82685, No. 333-92577, No. 333-36790 and No. 333-51914) and in the related prospectuses, and to the incorporation by reference in the Registration Statements (Forms S-8 Nos. 333-11299, No. 333-35287, No. 333-85575 and 333-59158, No. 333-34320, No. 333-52804 and No. 333-59160) pertaining to the 1993 Stock Plan, the 1996 Nonemployee Directors Stock Option Plan, the 1998 Stock Incentive Plan, the GMS/Affymetrix 1998 Stock Plan, the Affymetrix/Neomorphic, Inc. 1998 Stock Option Plan and the Affymetrix, Inc. 2000 Equity Incentive Plan of Affymetrix, Inc. of our report dated January 23, 2004, except Note 19, as to which date is March 8, 2004, with respect to the consolidated financial statements and schedule of Affymetrix, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2003.

/s/ ERNST & YOUNG LLP

Palo Alto, California
March 12, 2004

**Exhibit 31.1**

***Certification***

I, Stephen P.A. Fodor, Ph.D., Chairman and Chief Executive Officer, certify that:

1. I have reviewed this annual report on Form 10-K for the period ended December 31, 2003 of Affymetrix, Inc.;

2. Based on my knowledge, this annual 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 annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual 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 annual report;

4. The registrant's other certifying officer 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)) 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 annual report is being prepared;

   b. evaluated the effectiveness of the registrant's disclosure controls and procedures presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on such evaluation; and

   c. disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal controls 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 controls 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 controls over financial reporting.

Date: March 15, 2004

/s/ STEPHEN P.A. FODOR, PH.D.

Name: Stephen P.A. Fodor, Ph.D.
Title: Chairman and Chief Executive Officer

**Exhibit 31.2**

**Certification**

I, Gregory T. Schiffman, Senior Vice President and Chief Financial Officer, certify that:

1. I have reviewed this annual report on Form 10-K for the period ended December 31, 2003 of Affymetrix, Inc.;
2. Based on my knowledge, this annual 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 annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual 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 annual report;
4. The registrant's other certifying officer 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)) 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 annual report is being prepared;
   b. evaluated the effectiveness of the registrant's disclosure controls and procedures presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on such evaluation; and
   c. disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal controls 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 controls 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 controls over financial reporting.

Date: March 15, 2004

/s/ GREGORY T. SCHIFFMAN

Name: Gregory T. Schiffman
Title: Senior Vice President and Chief Financial Officer

**EXHIBIT 32.1**

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER**
**PURSUANT TO SECTION 906 OF SARBANES-OXLEY ACT OF 2002**

The certification set forth below is being submitted in connection with this Annual Report on Form 10-K for the year ended December 31, 2003 (the "Report") for the purpose of complying with Rule 13a-14(b) of the Securities Exchange Act of 1934 (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code.

Stephen P.A. Fodor, Ph.D., the Chief Executive Officer of Affymetrix, Inc. certifies that, to the best of such officer's knowledge:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and
2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Affymetrix, Inc.

March 15, 2004

/s/ STEPHEN P.A. FODOR

Name: Stephen P.A. Fodor, Ph.D.
Title: Chairman and Chief Executive Officer

**EXHIBIT 32.2**

**CERTIFICATION OF CHIEF FINANCIAL OFFICER**
**PURSUANT TO SECTION 906 OF SARBANES-OXLEY ACT OF 2002**

The certification set forth below is being submitted in connection with this Annual Report on Form 10-K for the period ended December 31, 2003 (the "Report") for the purpose of complying with Rule 13a-14(b) of the Securities Exchange Act of 1934 (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code.

Gregory T. Schiffman, the Chief Financial Officer of Affymetrix, Inc. certifies that, to the best of such officer's knowledge:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Exchange Act; and
2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Affymetrix, Inc.

March 15, 2004

/s/ GREGORY T. SCHIFFMAN

Name: Gregory T. Schiffman
Title: Senior Vice President and Chief Financial Officer