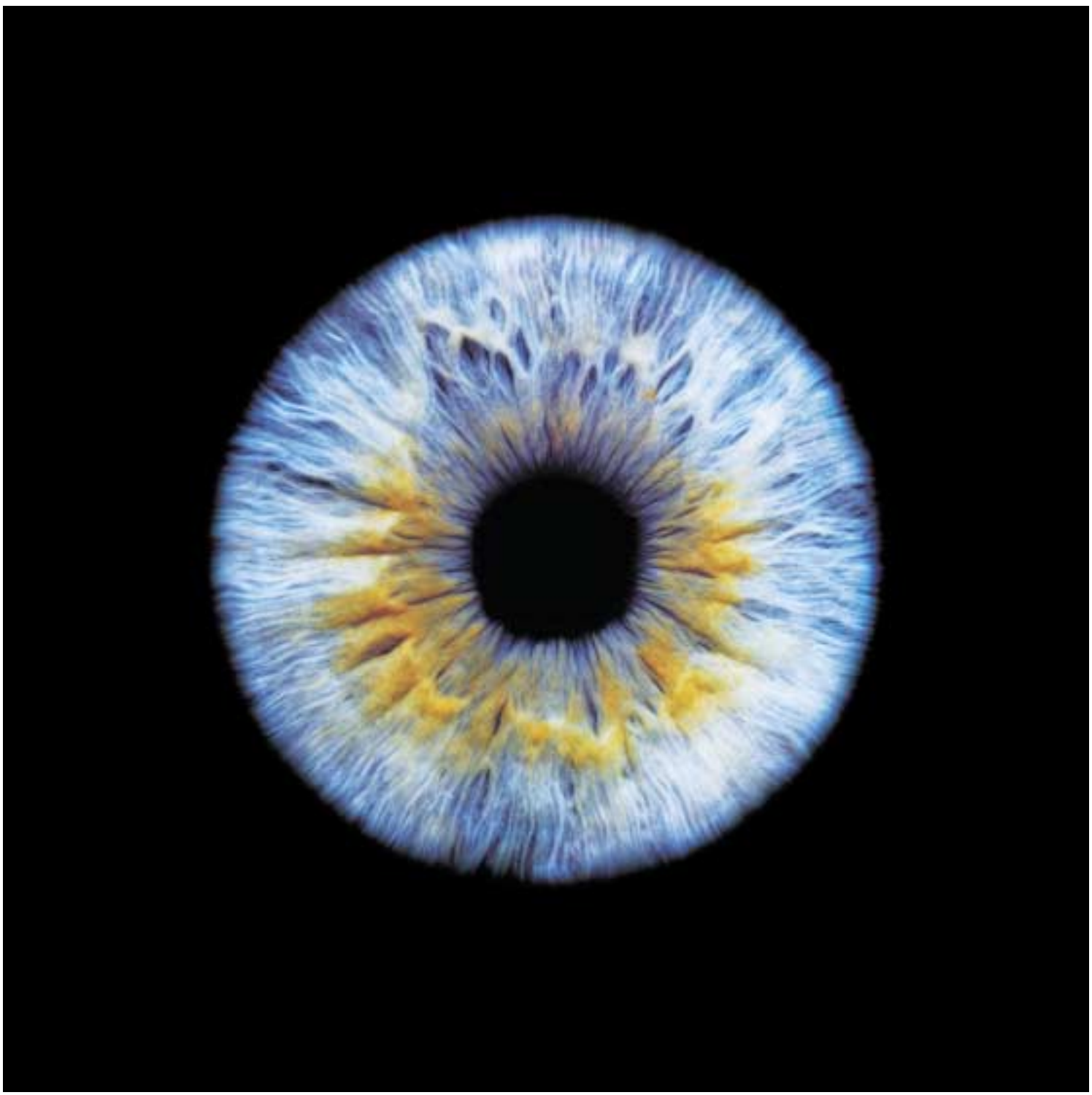
EVERY LIVING THING



Front Cover: *Human eye*

Affymetrix provides tools that enable researchers to see entire genomes in a single experiment, in unprecedented depth and detail.

Corporate Profile

Affymetrix is a leader in developing and commercializing systems to acquire, analyze and manage complex genetic information in order to improve the quality of life. The Company's GeneChip® system consists of disposable DNA probe arrays containing gene sequences on a chip, reagents for use with the probe arrays, a scanner, and other instruments to process the probe arrays and software to analyze and manage genetic information. The Company's spotted array system enables individual researchers to create and analyze custom microarrays on an easy-to-use platform.

EVERY HUMAN

EVERY PLANT

EVERY ANIMAL

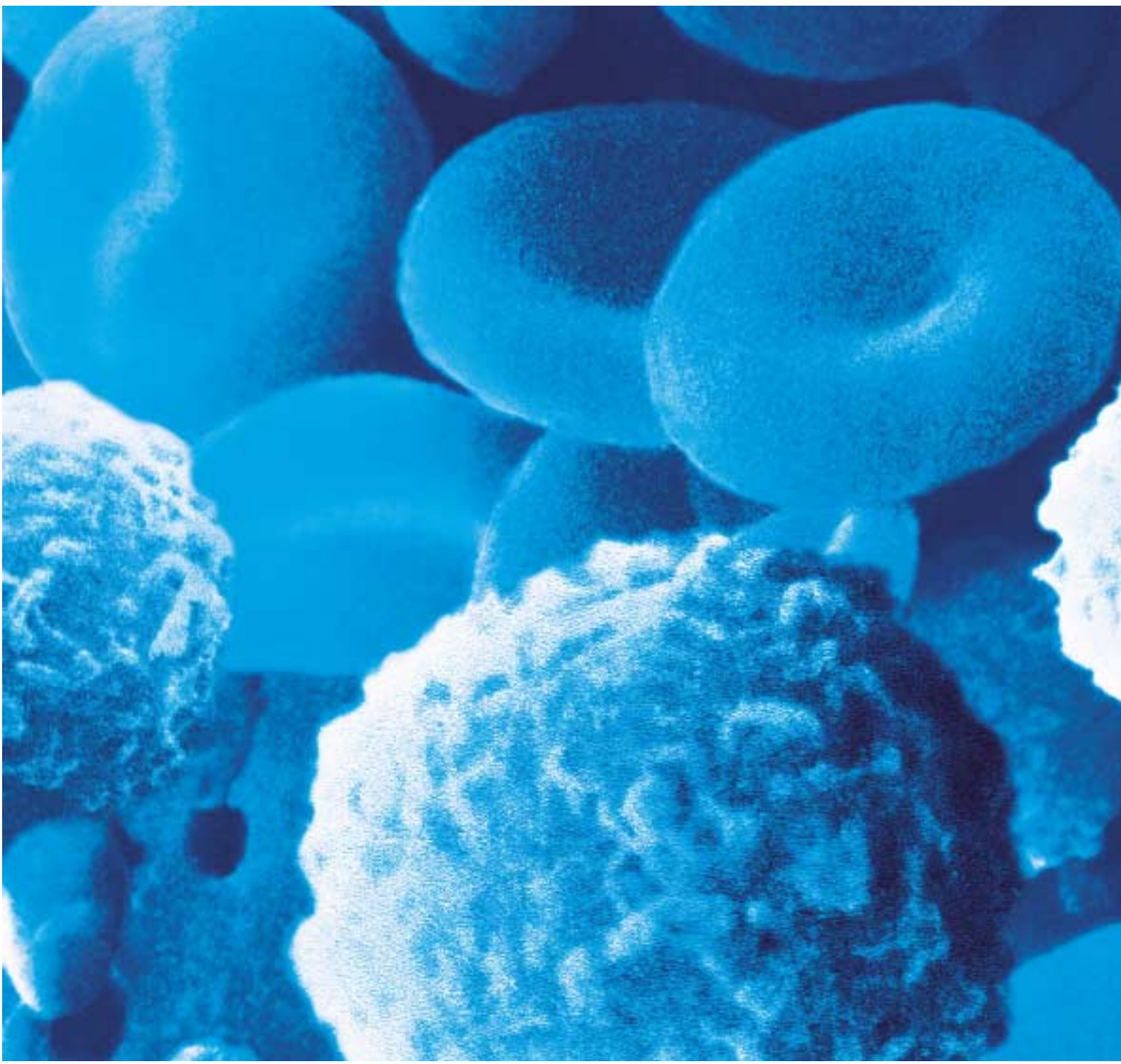
WHOLE

GENOME

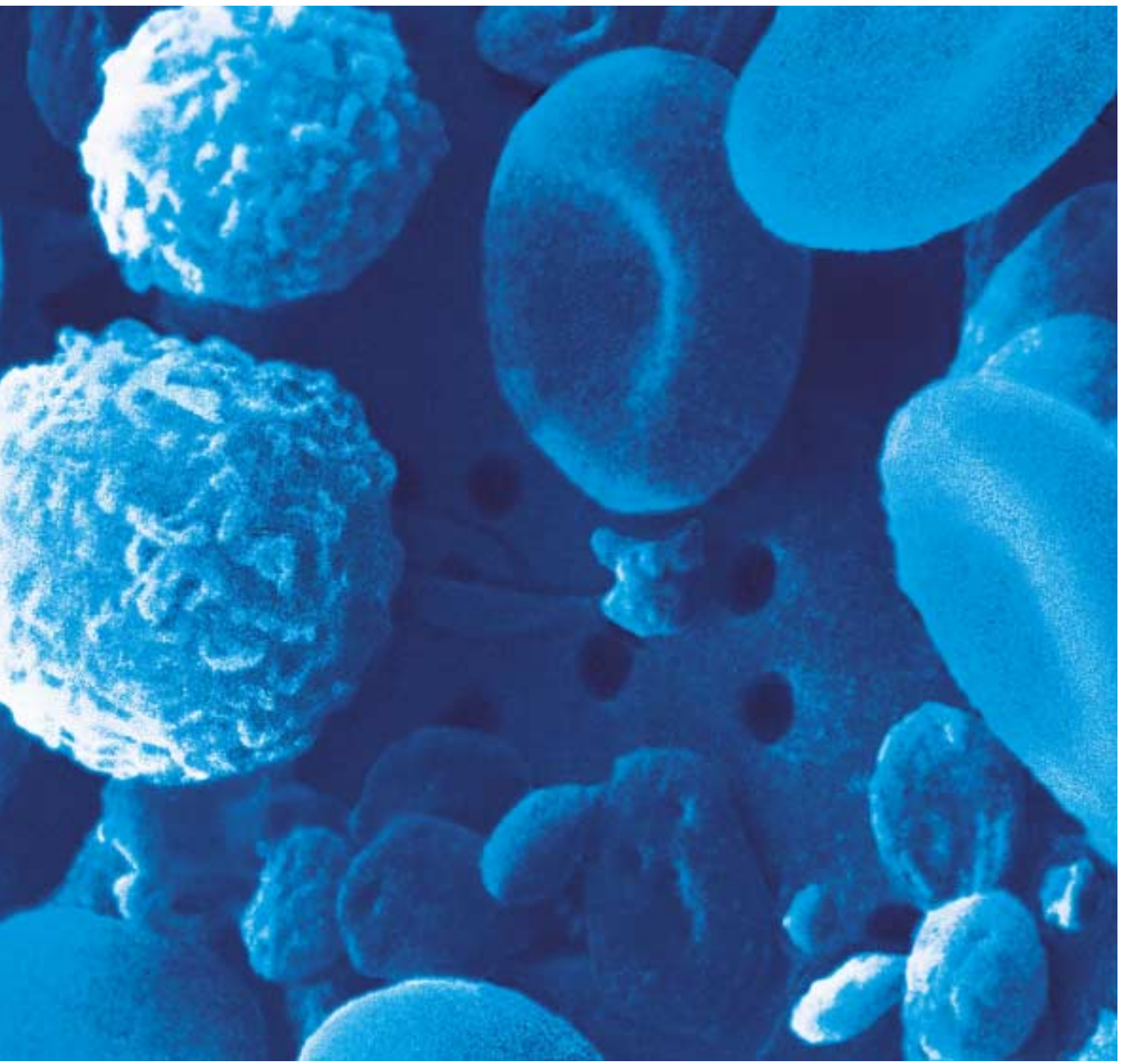
Opportunities to Explore Life in All Its Complexity

Now that the complete genome sequences of many organisms, including human, are available, scientists will use this information to conduct comprehensive studies of entire genomes. Affymetrix' GeneChip® technology is uniquely suited for whole genome analysis, a new research paradigm that should lead to breakthroughs in our understanding of the human genome, new therapeutics, improved disease management strategies and innovative products to enhance our quality of life.

1 HUMAN BODY =



100,000,000,000,000 CELLS



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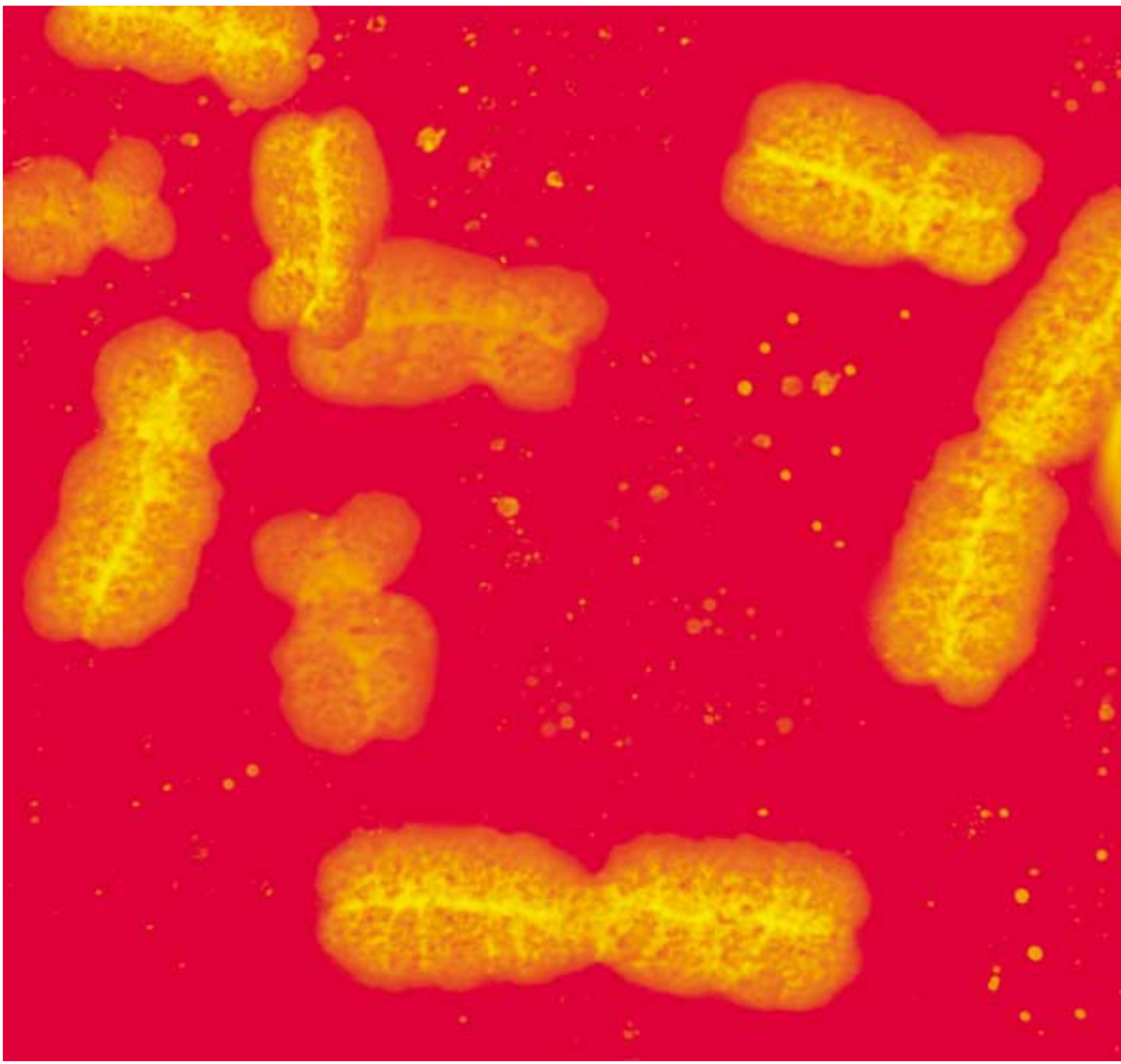
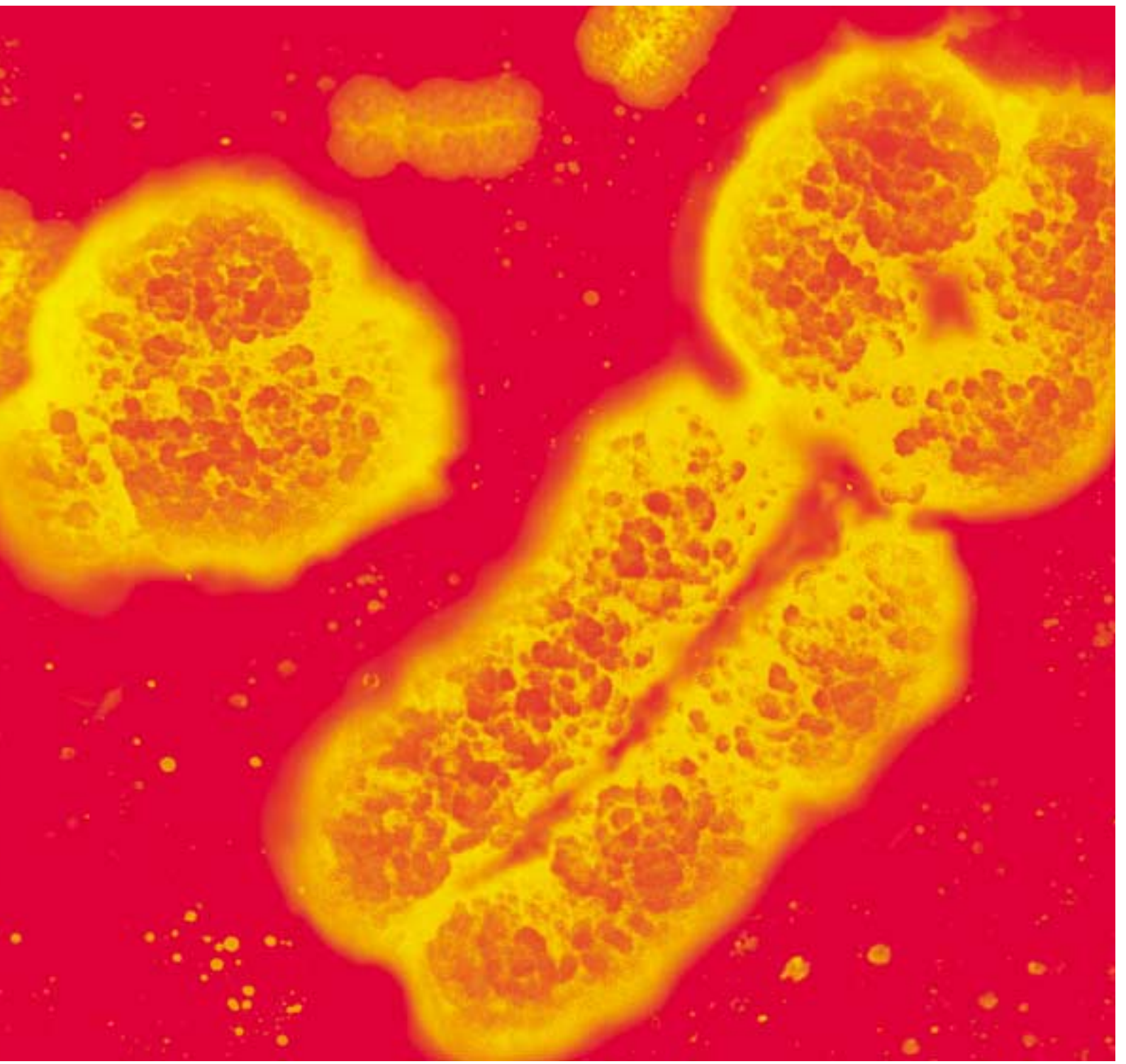
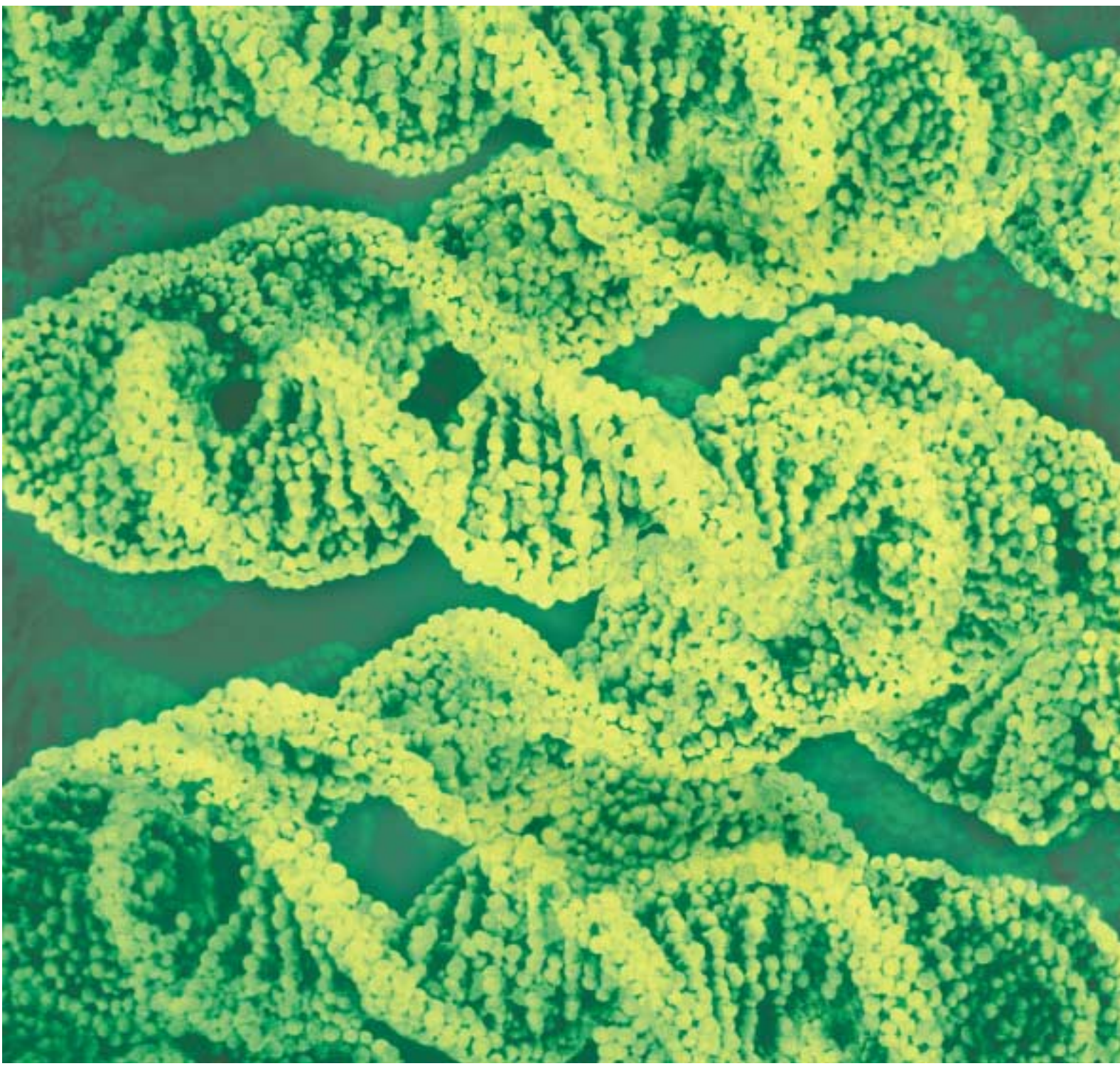


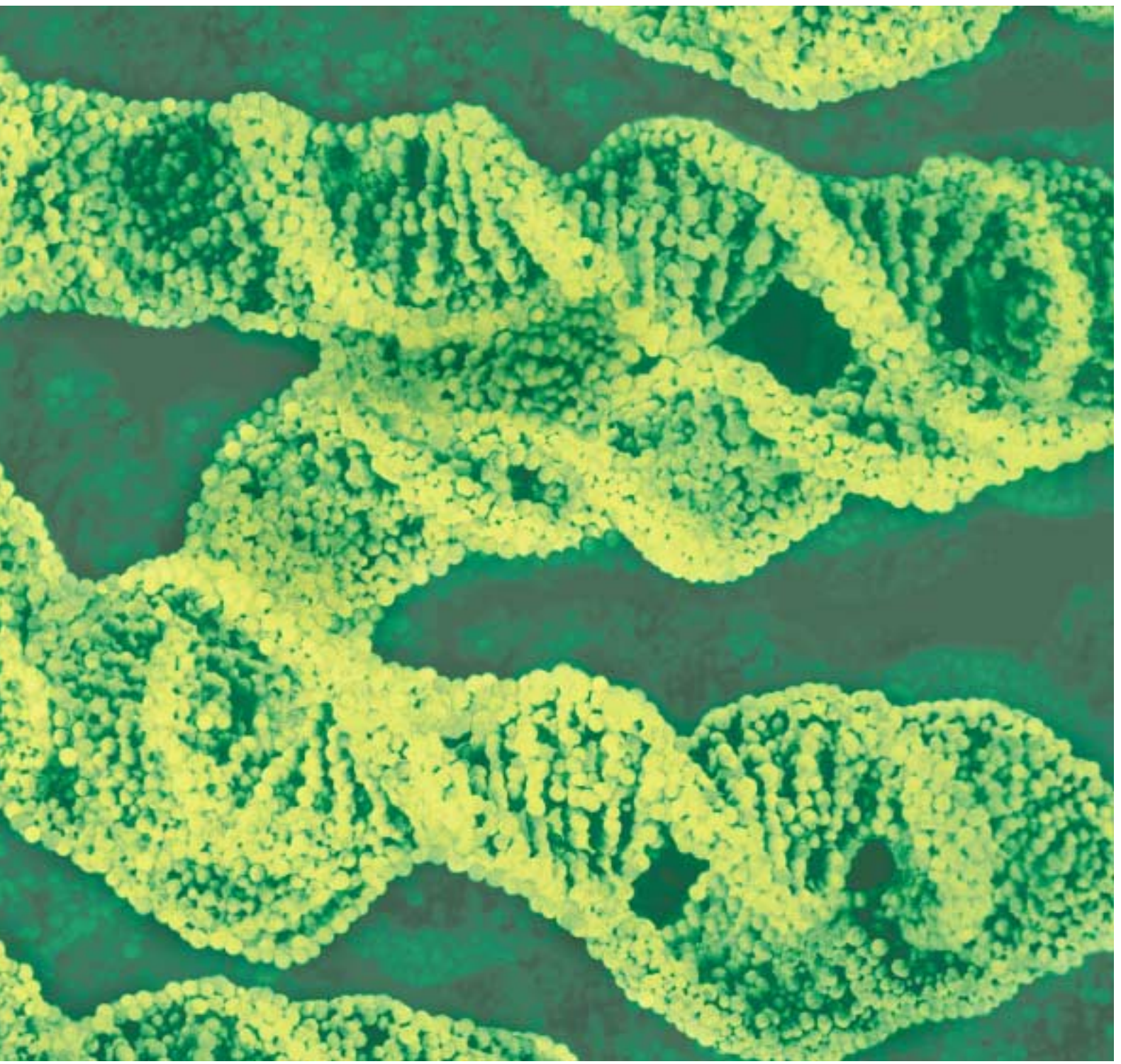
23 PAIRS OF CHROMOSOMES



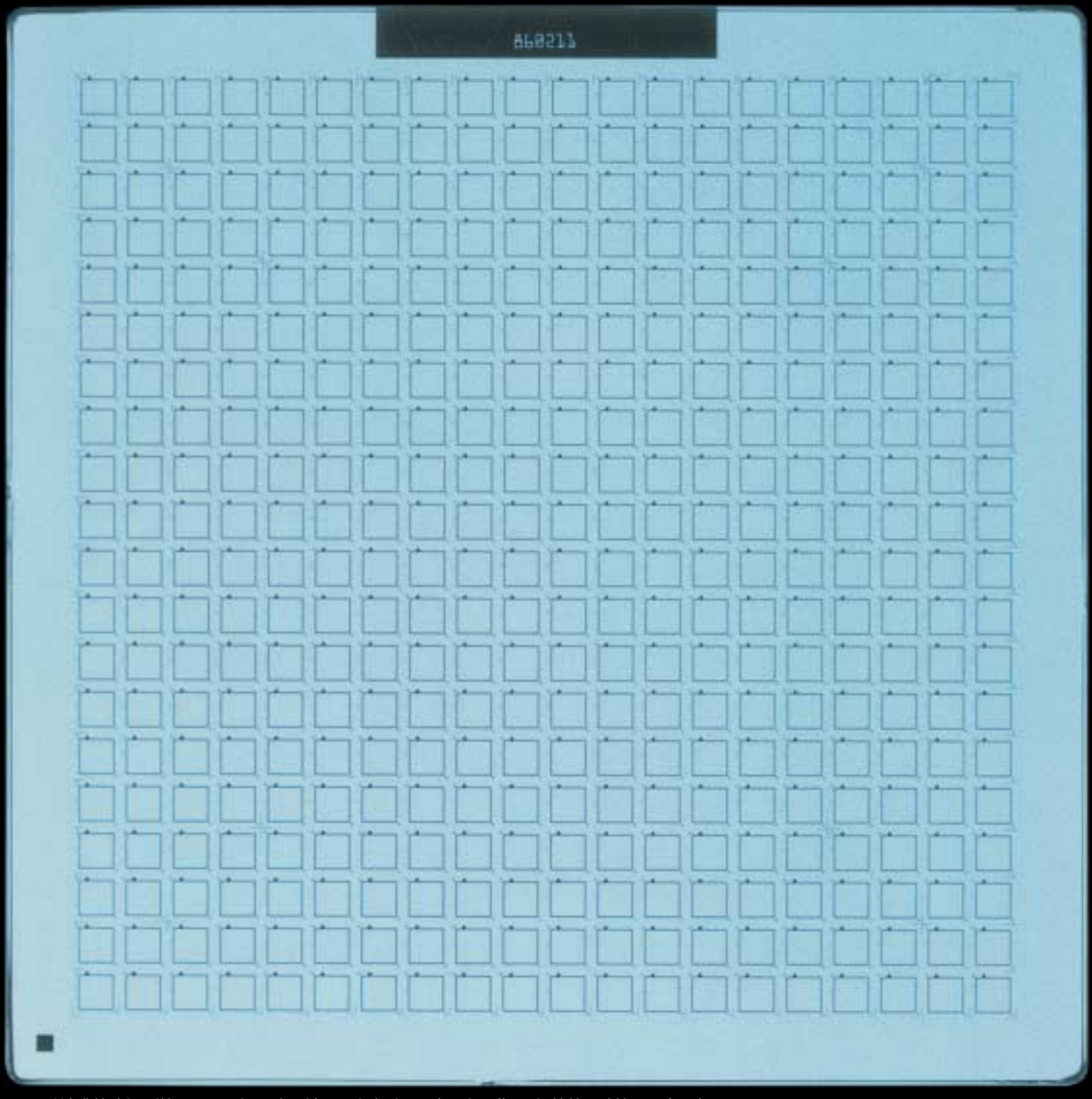
23 PAIRS OF CHROMOSOMES =



~ 3,200,000,000 BASES



ONE
REVOLUTIONARY TOOL
TO ANALYZE WHOLE GENOMES



Up to 400 individual GeneChip arrays can be produced from a single glass wafer using Affymetrix' highly scalable manufacturing process.

LEADING THE WAY

HOW ARE GENES ACTIVATED?
WHICH GENES ARE INVOLVED IN DISEASE?
HOW DO GENETIC VARIATIONS IMPACT WHO WE ARE?

The completion of the sequencing of the human genome in 2000 was a landmark event, opening up new opportunities to derive meaning from the three billion letters in this "Instruction Book of Life." Affymetrix stands at the gateway of functional genomics by providing tools that help decipher sequence information through the understanding of gene expression and genetic variability. Using our unique GeneChip® technology, researchers can download massive amounts of DNA information and use it to study a large percentage of the human genome in a single experiment.

Since its founding in 1991, Affymetrix has been driven by a vision of providing powerful and versatile tools for large-scale biological research. Numerous scientific studies and thousands of GeneChip array users have since validated this vision and established GeneChip technology as the gold standard in the DNA array field. With as many as 400,000 unique probes corresponding to thousands of genes of interest, these commercially-available GeneChip arrays offer unprecedented speed, efficiency and cost-effectiveness for conducting gene function studies that can provide answers to complex biological questions.

These technological achievements position Affymetrix to capitalize on current trends in genomics. The only company with a commercially successful high-density array platform, Affymetrix is unique in its ability to deliver products for whole genome analysis – the key to understanding and interpreting the vast amount of new human and other genome sequence data that are now becoming available. Going forward, the Company will leverage these powerful capabilities through a strong focus on whole genome products. Combined with a commitment to providing researchers with a total system solution, this strategy should enable Affymetrix to maintain its technological, scientific and commercial leadership in the DNA array field.

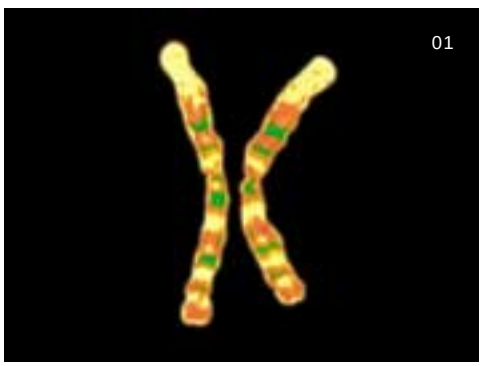








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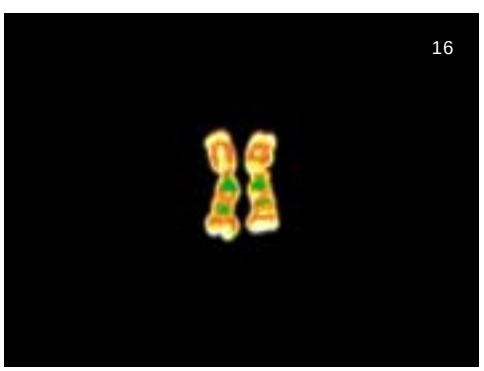
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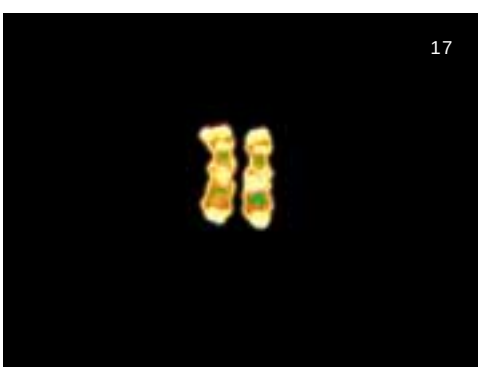
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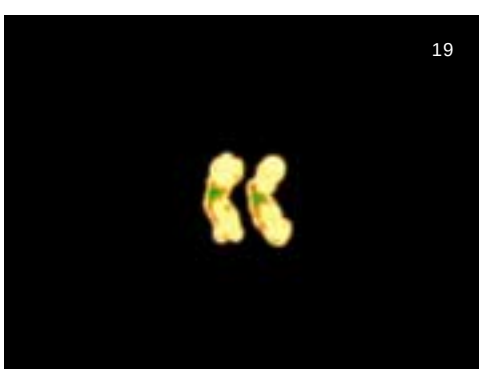
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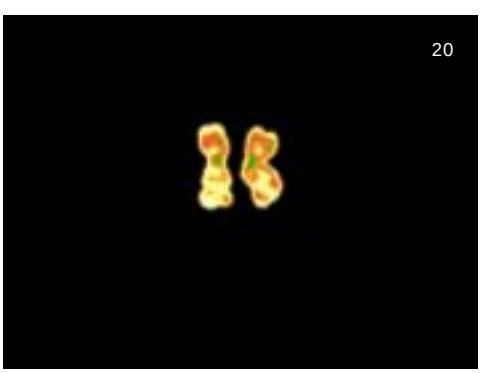
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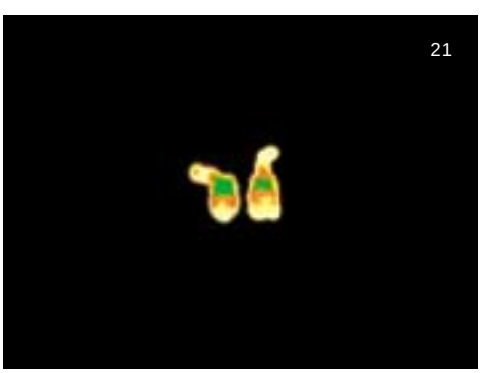
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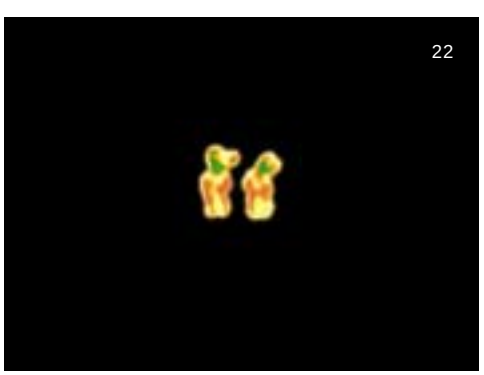
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X


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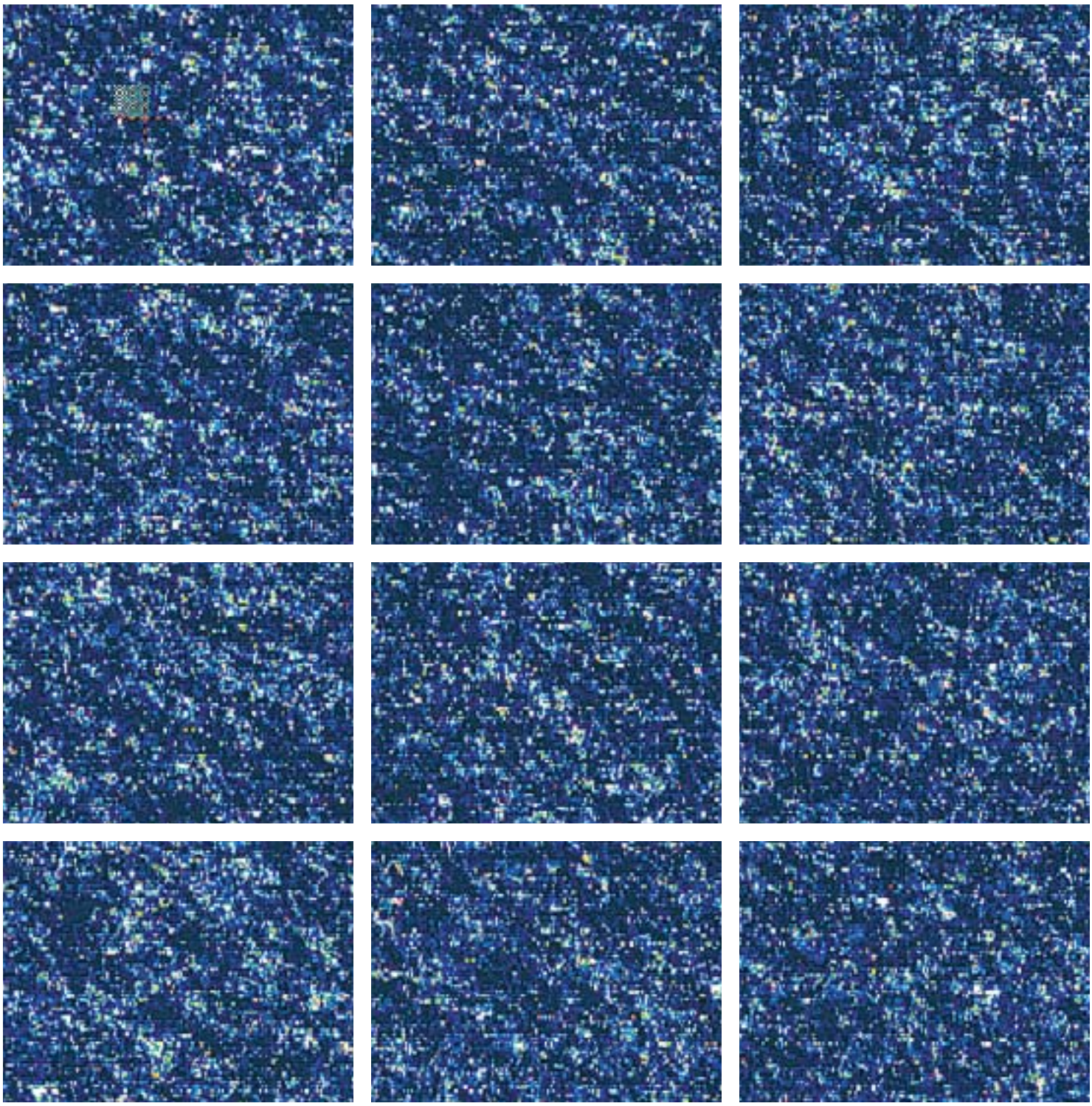
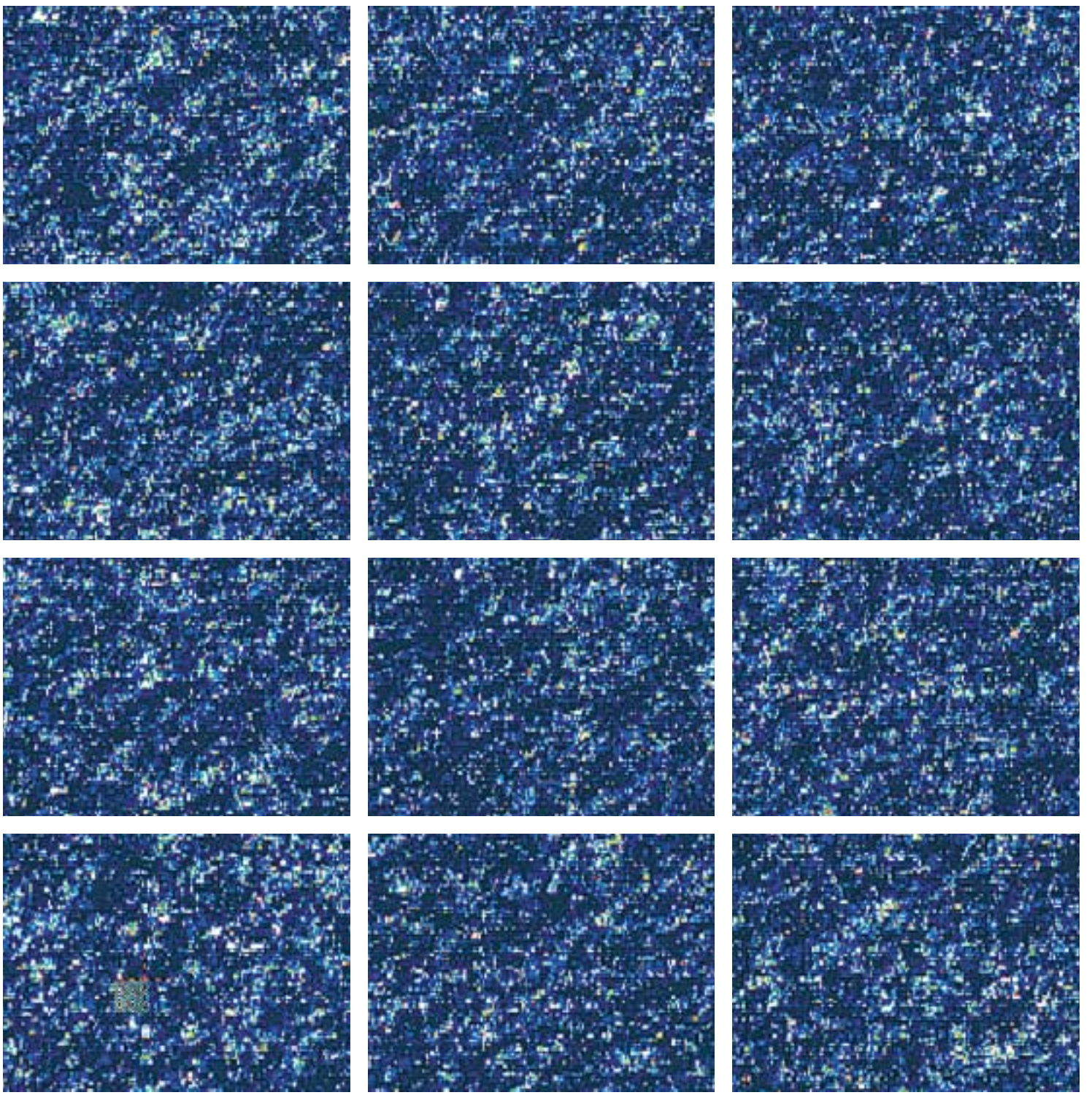




Leading the Way >

TECHNOLOGICAL LEADERSHIP

The Power of GeneChip Technology

The key to Affymetrix' GeneChip technology is a manufacturing process that uses photolithography to build hundreds of thousands of DNA sequences on small glass chips. This process borrows from semiconductor industry technology, and thus, also benefits from the principles of Moore's Law, which states that the computing power of semiconductor chips doubles every 12 to 18 months. In a similar fashion, Affymetrix has been able to increase the genetic information on its DNA probe arrays from 250 genes per chip in 1994 to over 12,000 genes per chip today by shrinking the feature size on its chips. In the same timeframe, the price per data point has decreased by a factor of more than ten. Consequently, GeneChip technology is uniquely suited for facilitating the high information content studies that are becoming the standard in genomics research.

Expanding Informatics Capabilities

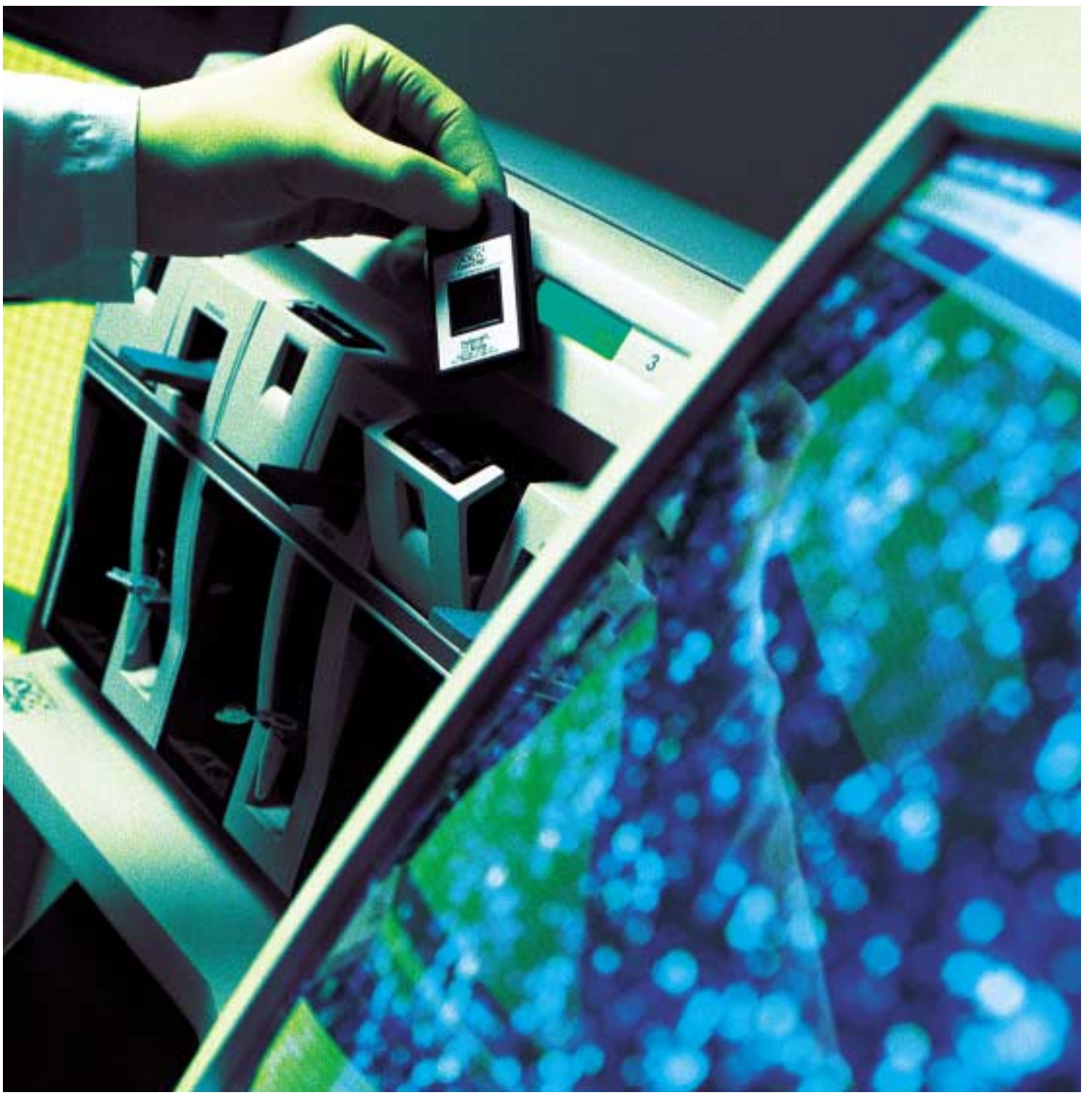
Through the acquisition of Neomorphic, Inc., in October 2000, Affymetrix gained important informatics capabilities, including powerful new technologies for combining, visualizing and interpreting sequence information. Affymetrix researchers will leverage these capabilities, integrating genomic sequence information with EST (expressed sequence tag) information, to deliver a comprehensive view of key genomes on GeneChip arrays. Finally, Affymetrix will provide "click-through" Internet access that enables researchers to seamlessly connect their array-based results to underlying genomic databases and annotations.

Scanning Entire Genomes

To leverage its robust technological capabilities and capitalize on the availability of the human genome sequence, Affymetrix formed Perlegen Sciences, Inc., a new genomics company, in 2000. Perlegen was founded with the objective of scanning 50 human genomes. With initial exclusive access to whole wafer technology developed by Affymetrix, Perlegen will focus on identifying the millions of genetic variations among individuals and finding patterns in those variations. Affymetrix intends to maintain a substantial equity position in Perlegen and will have access to certain of its discoveries for the development of new genotyping arrays.

Highest-Density Arrays Available

By using photolithography to manufacture its DNA probe arrays, Affymetrix is able to produce the highest-density chips available for large-scale genetic studies. The Company currently offers GeneChip products that contain up to 400,000 unique probes corresponding to 12,000 genes on a single array. These numbers are expected to increase as Affymetrix continues to leverage the power of its technology.



COMMERCIAL LEADERSHIP

Gold Standard

Affymetrix' GeneChip technology sets the gold standard for gene expression profiling, which focuses on understanding gene function in applications such as drug discovery and development. In this large and growing market, the Company serves researchers in the pharmaceutical, biotechnology, academic, agriculture, consumer products and diagnostic industries, which currently spend in excess of $60 billion on R&D annually. To facilitate their efforts and ensure optimal results, Affymetrix provides scientists with a total system solution consisting of GeneChip arrays, reagents, instruments and software. This integrated system solution also provides a common platform for researchers conducting genotyping studies utilizing the HuSNP™ Mapping Assay, a powerful and cost-effective tool for conducting genetic linkage studies.

New Levels of Information Content and Value

To meet a wider range of customer needs, Affymetrix expanded its gene expression product portfolio in 2000, adding new whole genome GeneChip arrays for *E.coli* and *Drosophila* as well as next generation human, mouse, rat and yeast arrays. Also notable was the launch of a powerful new product for human genome analysis. This offering includes a single array representing 12,000 full-length human sequences and four additional arrays representing about 50,000 ESTs. In addition, the Company introduced the Arabidopsis Genome Array for the agricultural research market. *Arabidopsis* is one of the most important model systems used in plant science today. In all, Affymetrix introduced 18 new array, instrument and software products in the past year.

Organizational Growth

In 2000, Affymetrix made major strides in building a world-class commercial infrastructure. The Company increased its manufacturing capacity to meet the growing demand for its products well into the future. To support the adoption of GeneChip technology by researchers worldwide, Affymetrix also strengthened its sales, marketing and support capabilities by extending its worldwide operations to the Americas, Asia-Pacific and Europe.

Meeting Fast-Growing Demand

Affymetrix shipped more than 200,000 GeneChip arrays in 2000, doubling 1999 levels. In addition, the Company more than tripled its customer base, sold over 150 new GeneChip systems, and launched 18 new products, including arrays, instruments and software. In response to rising demand, Affymetrix also increased manufacturing capacity to be able to produce over one million chips per year, depending on individual chip size.

Leading the Way >

SCIENTIFIC LEADERSHIP

Classifying Cancer

Widespread acceptance of Affymetrix' expression monitoring technology by the academic community is evidenced by the numerous peer-reviewed research papers that have been published featuring the use of GeneChip technology. One powerful example shows how the Company's expression arrays may be used to improve cancer treatment choices. For instance, current classification methods for subtyping leukemia are expensive, time-consuming, and subject to error. Since AML (acute myeloid leukemia) requires chemotherapy and possibly a bone marrow transplant, while ALL (acute lymphoblastic leukemia) is treated with long-term radiation therapy and chemotherapy, correct diagnosis could improve the outcome and reduce complications for patients. Drs. Eric Lander and Todd Golub of the Whitehead Center for Genome Research at MIT showed, in a proof-of-principle experiment, that GeneChip technology can be used to distinguish between these two subtypes of leukemia.

Support for Mouse Genome Consortium

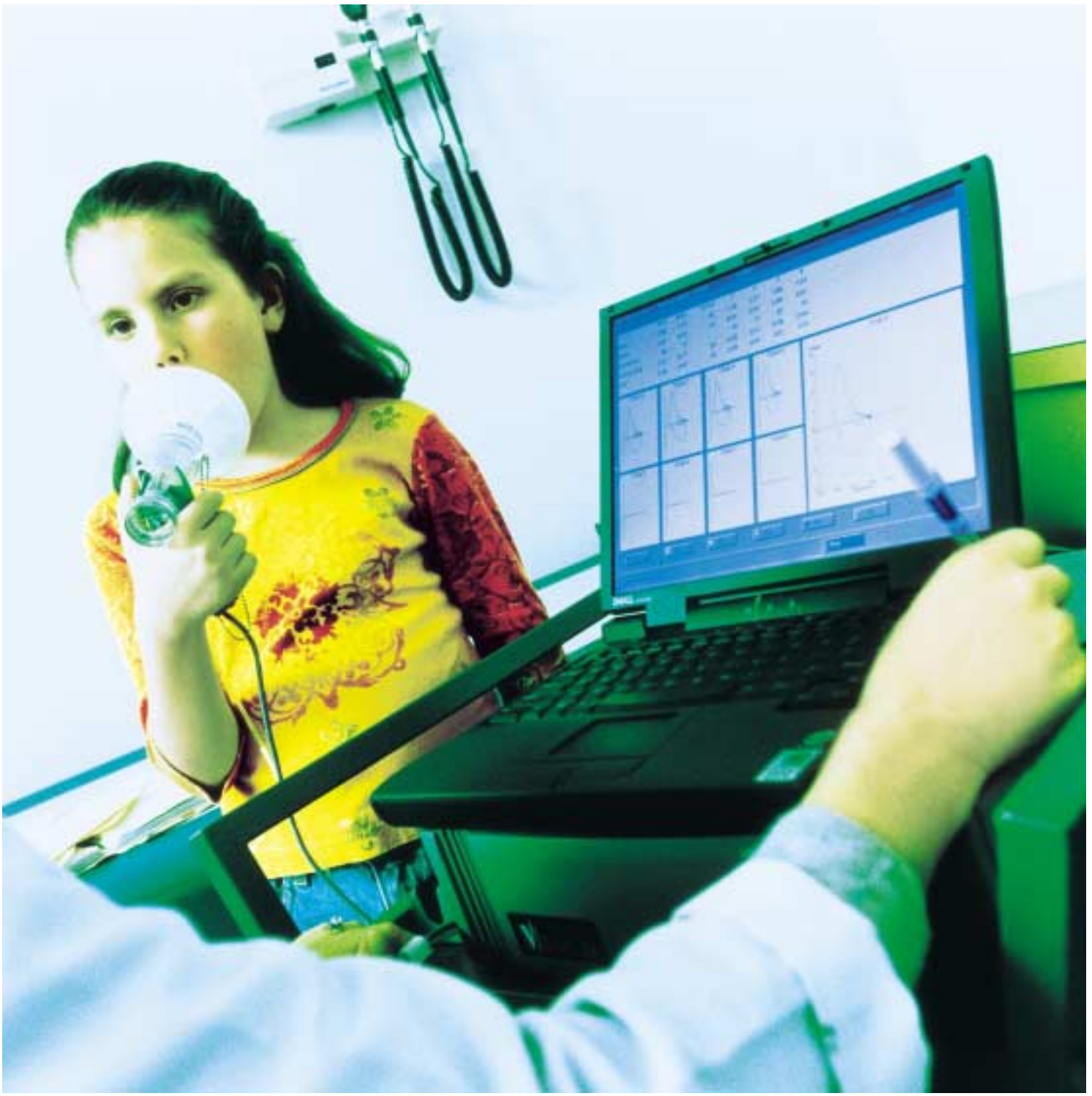
In October, Affymetrix joined a $58 million public-private initiative to accelerate the sequencing of the mouse genome to ensure that the resulting data is broadly available to the scientific community. The Mouse Sequencing Consortium is also supported by the National Institutes of Health, GlaxoSmithKline, Merck & Co., and the Wellcome Trust. The mouse genome is considered a vital guide to understanding the human genome because of shared mammalian functions. Affymetrix intends to fully annotate the mouse genome for use with GeneChip arrays to help researchers leverage important model systems to understand the human condition.

Collaboration with Cystic Fibrosis Foundation

Affymetrix is collaborating with the Cystic Fibrosis Foundation to create a GeneChip whole genome array based on the sequence of *Pseudomonas aeruginosa* – the most common cause of respiratory infections in cystic fibrosis (CF) patients. CF is a life-threatening genetic disease that affects over 30,000 children and adults in the U.S. alone. Nearly all CF patients acquire life-long *Pseudomonas* lung infections that eventually prove fatal. By making this genetic tool available, the Cystic Fibrosis Foundation aims to facilitate the study of this bacterial genome with the goal of discovering better treatment options.

Targeting Infections in Cystic Fibrosis

Affymetrix is working with the Cystic Fibrosis Foundation to develop a GeneChip whole genome array that will facilitate study of the *Pseudomonas aeruginosa* bacterium – the cause of serious lung infections in cystic fibrosis patients. The discovery of new treatments for these infections could significantly improve the quality of life for patients like 11-year-old Katie, shown here during a therapy session at the Pediatric Pulmonary Clinic at John Muir Hospital in Walnut Creek, California.



TO OUR STOCKHOLDERS

Stephen P.A. Fodor, Ph.D.

Founder, Chairman
and Chief Executive Officer

Susan E. Siegel

President

March 23, 2001

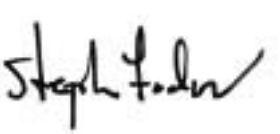
Dear Stockholders,

With the first draft of the human genome sequence in hand, we have entered a new era – the Genetic Age – in which we will discover the causes and cures of disease and answer some of humankind's most profound questions. The tremendous task that now confronts us is analyzing and understanding the genome in its almost unimaginable size and complexity. The genome contains over three billion bases, or letters – only a small fraction of which have been previously studied as expressed genes, or ESTs. By its very nature, this EST information has been able to provide us with only a partial picture of the myriad and intricate mechanisms of the genome.

Now that we have the full human genome sequence, we need to unravel its mysteries. We must study the many ways in which genes and their splice variants are activated and regulated, and how these complex patterns define different cells, tissues, and organs, in their healthy and diseased states. Only then will mankind begin to learn how to address our most challenging medical problems and develop better ways to prevent, diagnose, treat and ultimately cure human disease. To accelerate this research, Affymetrix is integrating the computational genomics expertise gained through our acquisition of Neomorphic, Inc. into information-rich, whole genome GeneChip® products based on both expressed and genomic sequence data.

Even more value will be gained by studying the variation among many individual genomes. Although all human genomes are roughly 99.9 percent the same, there are estimated to be about two million differences between any two individuals. These variations influence predisposition to certain diseases, variation in drug responses from person to person, and our individual physical characteristics, preferences and personalities. We formed Perlegen Sciences, a new genomics company, to play a major role in this effort by using our unique whole wafer technology to rapidly scan 50 different human genomes to identify individual genetic variations and patterns of variation throughout the genome.

In order to mine the genome for its secrets, an enormous amount of large-scale experimentation must be done. This is an extraordinary opportunity for Affymetrix and its customers to use this unique technology to conduct whole genome-based experiments. These studies are key to deciphering the immense complexity of human and other genomes, leading to the development of products that will ultimately revolutionize our quality of life.



Stephen P.A. Fodor, Ph.D.
Founder, Chairman and Chief Executive Officer

Dear Stockholders,

March 23, 2001

Over the past year, Affymetrix achieved tremendous growth and progress. We launched innovative new genomics products, expanded our customer base more than three-fold, sold over 150 GeneChip systems, and shipped more than 200,000 GeneChip arrays, doubling 1999 levels. As a result, revenues rose to $200.8 million from $109.1 million in the previous year. We also strengthened our R&D, manufacturing and commercial capabilities, and executed several major strategic initiatives to capitalize on our powerful technology and position us for continued leadership in the Genetic Age.

Our most immediate business opportunity is the large and rapidly growing expression profiling market, where our products are the technology of choice for comprehensive functional genomic studies. We offer customers an integrated total system solution consisting of our GeneChip DNA probe arrays, instruments, reagents and software. In 2000 we introduced 18 new products, three of which are whole genome high-density arrays. Demonstrating the flexibility and scalability of our manufacturing process, our next-generation human array set, for example, analyzes twice as much genetic information per chip at essentially the same cost to our customers.

We completed our acquisition of Genetic MicroSystems, Inc. in early 2000, immediately establishing a leading presence in the marketplace for lower-density, customer-defined arrays, which complement our GeneChip high-density products. These two product lines facilitate a wide range of research activities while accelerating the adoption of DNA array technology. Sales of these products have been strong with over 650 Affymetrix Arrayers and Scanners sold worldwide.

Demand for our technology increased significantly last year, as more commercial and academic customers entered into new GeneChip array supply agreements. We signed numerous new EasyAccess™ Silver agreements with pharmaceutical firms such as Novartis Pharmaceuticals Corporation, the R.W. Johnson Pharmaceutical Research Institute, Procter & Gamble Company, and Schering AG of Germany. We also entered into BiotechAccess™ agreements with over a dozen companies, including Lexicon Genetics Incorporated; PPD Discovery, the drug discovery subsidiary of PPD, Inc.; Isis Pharmaceuticals, Inc., Iceland Genomics Corporation, and Sangamo BioSciences, Inc., among others. In addition, our AcademicAccess™ program has been highly successful, attracting well over one hundred academic centers of excellence worldwide since its initiation in late 1999.

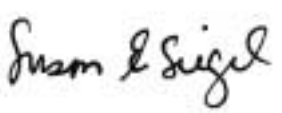
We continued to build our intellectual property position in 2000, and now have more than 100 issued and 300 pending patents in the United States, with extensive foreign filings. We also accelerated our licensing program, which generates additional revenues while expanding the DNA array market. To date, we have provided over 30 internal and commercial-use licenses covering low- and medium-density DNA array

products that complement our GeneChip offering. To protect this significant investment in core technology, we have sometimes found ourselves engaged in litigation. In the past year, we received several favorable decisions in ongoing cases involving Hyseq, Inc. and Incyte Genomics, Inc. I am also pleased to report that we recently settled our litigation with Oxford Gene Technology Limited.

We significantly strengthened our operations during the past year. In response to rapidly growing demand for our products, we increased manufacturing capacity at our West Sacramento and Sunnyvale, California plants, which together are capable of producing well over one million chips per year, depending on individual chip size. We can rapidly expand this capacity three-fold to meet demand. We also established three sales regions covering the major worldwide markets as we continue to build our global infrastructure. Overall, the Affymetrix workforce has grown from 500 to over 700 employees. To support our ongoing expansion efforts, we have a strong balance sheet that at year end included over $436 million in cash and available-for-sale securities.

In late 2000 we took three aggressive strategic steps to ensure our continued leadership and growth. These initiatives propel Affymetrix into the heart of whole genome analysis and position the Company to take full advantage of new information from the human and other genomes as it becomes available. First, we acquired Neomorphic, whose industry-leading genome annotation tools will accelerate the introduction of additional whole genome GeneChip arrays and related software products designed to simplify data management and analysis. Second, we formed Perlegen Sciences to scan 50 human genomes with unprecedented speed and uncover the fundamental patterns of human variation. These patterns will be available to Affymetrix to incorporate into future generations of genotyping arrays. Finally, we are participating in a public-private consortium to sequence the mouse genome to accelerate the availability of this information to all researchers. As part of this effort, we will develop new mouse whole genome GeneChip products.

Looking forward, we are confident that our current plans and ongoing investments will keep us at the forefront of the genomics field. By placing the power of whole genome analysis in the hands of scientists worldwide, we expect to be a driving force in the Genetic Age. In this way, we believe we can create significant value for our customers, employees, stockholders and society as a whole.



Susan E. Siegel
President

CORPORATE INFORMATION

Directors

Paul Berg, Ph.D. [2]
Cahill Professor in Cancer
Research and Biochemistry, Emeritus
Director, Beckman Center, Emeritus
Stanford University Medical Center

John D. Diekman, Ph.D. [1] [3]
Managing Director
Bay City Capital

Stephen P.A. Fodor, Ph.D. [1]
Chairman and
Chief Executive Officer
Affymetrix, Inc.

Vernon R. Loucks, Jr. [3]
Chairman InLight, Inc.
Former Chairman and
Chief Executive Officer
Baxter International Inc.

David B. Singer [3]
Chairman and
Chief Executive Officer
GeneSoft, Inc.

Lubert Stryer, M.D.
Winzer Professor in the
School of Medicine
Stanford University

John A. Young [1] [2]
President and
Chief Executive Officer (Retired)
Hewlett-Packard Company

[1] Nominating Committee
[2] Compensation Committee
[3] Audit Committee

Founding Director Emeritus

Alejandro C. Zaffaroni, Ph.D.

Executive Officers

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

Edward M. Hurwitz
Senior Vice President and
Chief Financial Officer

Vern Norviel
Senior Vice President,
General Counsel and
Corporate Secretary

Susan E. Siegel
President

Ronald D. Verdoorn
Executive Vice President of
Global Operations

Stock Market Information

The Company's Common Stock trades on The Nasdaq Stock Market® under the symbol AFFX. As of December 31, 2000 there were approximately 415 holders of record of the Company's Common Stock. The table listed below reflects the high and low bid prices for 2000 and 1999. Per share prices have been adjusted to reflect the August 21, 2000 stock split.

2000	Low	High
First Quarter	$ 61.25	$ 162.06
Second Quarter	$ 42.31	$ 103.75
Third Quarter	$ 49.00	$ 102.50
Fourth Quarter	$ 44.89	$ 92.00

1999	Low	High
First Quarter	$ 11.81	$ 21.60
Second Quarter	$ 16.25	$ 26.10
Third Quarter	$ 24.63	$ 63.50
Fourth Quarter	$ 36.31	$ 97.56

Corporate Headquarters

3380 Central Expressway
Santa Clara, California 95051

Independent Auditors

Ernst & Young LLP
Palo Alto, California

Transfer Agent/Registrar

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

SEC Form 10-K

A copy of the Company's Annual Report to the Securities and Exchange Commission on Form 10-K is available without charge upon request to:
Investor Relations
Affymetrix, Inc.
3380 Central Expressway
Santa Clara, California 95051

Additional Company information can be obtained at www.affymetrix.com.

All statements in this annual report that are not historical are "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act as amended, including statements regarding Affymetrix' "expectations," "beliefs," "hopes," "intentions," "strategies" or the like. Such statements are subject to risks and uncertainties that could cause actual results to differ materially for Affymetrix from those projected, including, but not limited to, uncertainties relating to technological approaches, product development, manufacturing, market acceptance, personnel retention, equity dilution, uncertainties related to the ability to realize benefits from acquisitions, uncertainties related to cost and pricing of Affymetrix products, dependence on collaborative partners, uncertainties relating to sole source suppliers, uncertainties relating to FDA and other regulatory approvals, competition, risks relating to intellectual property of others and the uncertainties of patent protection and litigation. These and other risk factors are discussed in Affymetrix' Form 10-K for the year ended December 31, 2000 and other SEC reports, including its Quarterly Reports on Form 10-Q for subsequent quarterly periods. Affymetrix expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in Affymetrix' expectations with regard thereto or any change in events, conditions, or circumstances on which any such statements are based. Affymetrix, GeneChip® and the Affymetrix logo are registered trademarks used by Affymetrix, Inc.

Design: Howry Design Associates, SF/CA

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