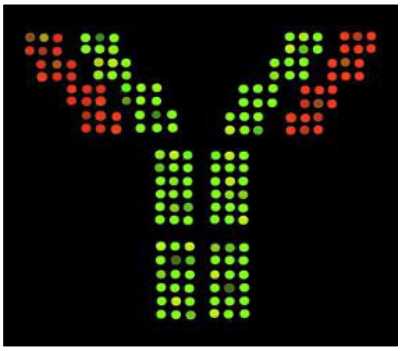
Global Microarrays Market Analysis

August 2018

Strategic assessment of a high growth market

Rapid technological developments and growing investments in research and development will drive the future market growth.

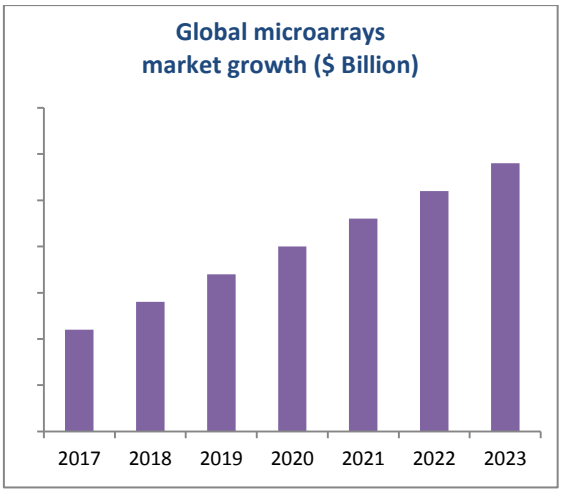


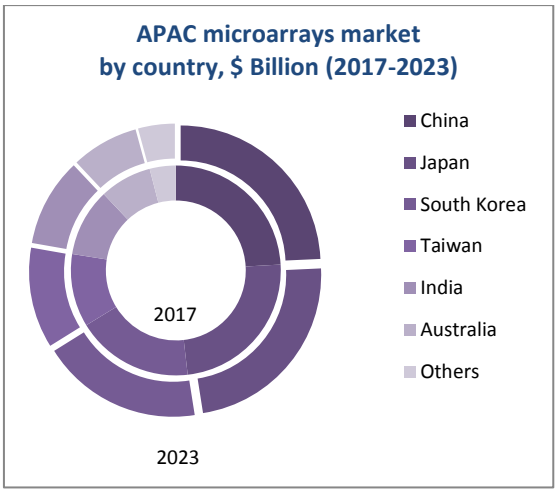


Executive Summary

Global microarrays market has shown strong growth and is expected to exceed $6 billion by 2023

- Global market for Microarrays is projected to reach $6.3 billion by 2023, driven by widening scope of applications, development of new technologies and growing investments in research and development.
- The microarray format allows many tests or experiments to be performed simultaneously, in parallel, leading to the generation of huge amounts of biological information with the application of only a tiny amount of sample. This large-scale quantitative approach has changed biological research by allowing the analysis of whole genomes. Microarray technology enables scientists to attain ambitious goals by identifying genetic variations associated with disease to discovering new drug targets. This technology also simplifies, accelerates and reduces the cost of understanding this genetic information. Microarrays are now being used in more applications to validate results from sequencing or to take the outputs from sequencing SNPs, and apply them on a more cost-effective and higher-throughput platform, such as genotyping in humans and agricultural biotechnology applications.
- New technology platforms, such as aptamer nanpores, are driving breakthrough innovations in microarrays. The technology has moved downstream to direct clinical and diagnostic applications. Another high-growth driver in microarray markets is the lab-on-a-chip (LOAC), which is based on the principle that a complete chemical or biochemical assay, from sample to result, can be engineered into a single, miniaturized device. Microarray and LOAC technologies leverage semiconductor-based photolithographic fabrication and microfluidic techniques, which enables the manufacturer to synthesize a large variety of analytical features simultaneously in predetermined locations on an independent, miniaturized, assay device.

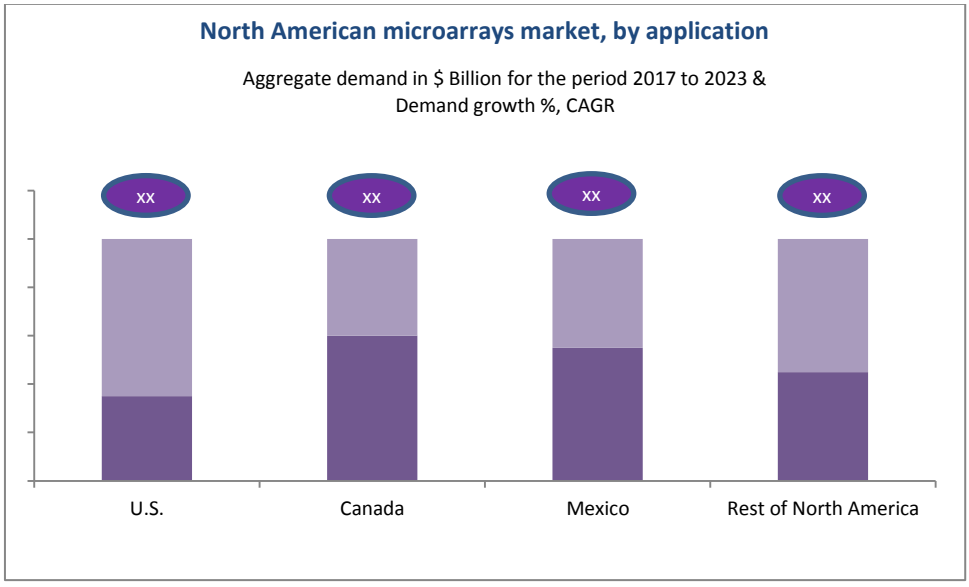




Executive Summary

Strong growth curves for the emerging technology markets

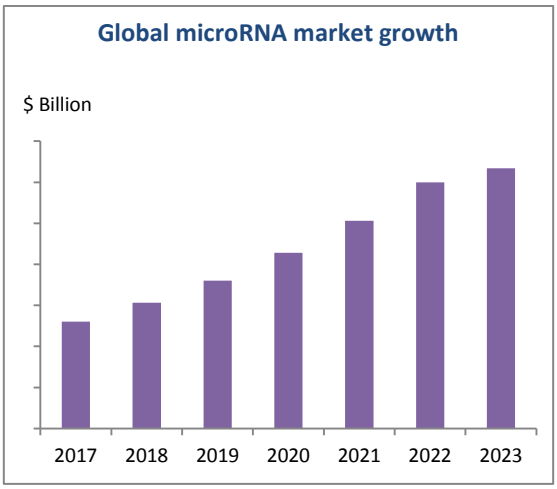
- Lab-on-a-chip technology is poised for growth as a new tool for diagnostics. One promising area of growth features the combination of the multiplexing capabilities of microarrays with the efficiency of LOAC. The rapid growth of the clinical research and the diagnostic devices markets holds the potential for microarray technology applications ranging from basic research to clinical trials and, ultimately, diagnostic devices. As a result, microarray companies are working with leaders in molecular diagnostics to provide custom made probe arrays to their specifications. Their partners subsequently package the chips into kits, seek regulatory approval for their diagnostic use, and sell them into the diagnostic markets using their sales channels.
- The microarray companies are leveraging their partners' strengths in research, development, regulatory practices and distribution while leveraging their strengths in array technology. In point of care diagnostics, microarray-based tests and screens provide an attractive way of obtaining rapid results for panels of genes and proteins involved in cancer, heart disease and other chronic diseases. The prospect of obtaining maximum data from minimal sample is also important in the clinical context.
- Technology displacement—the next generation sequencing platform RNAseq—is widely considered to be replacing arrays as the platform of choice for many gene expression-based studies. While dropping prices and maturing technology are causing NGS to make headway in becoming the technology of choice for a wide range of applications, the transition away from microarrays is a long and varied one. Investigators continue to use arrays for a number of reasons, including ease of use, installed instruments, and legacy data. Different applications have different requirements, so researchers need to carefully weigh their options when making the choice to switch to a new technology or platform.

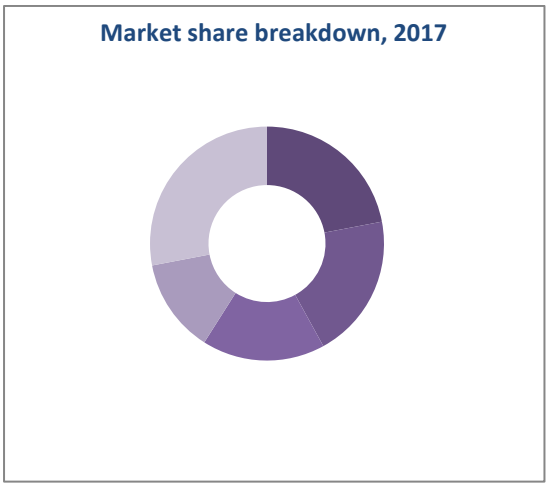


Market Analysis

Growing investments in microRNA research to drive the microRNA market growth

- A number of large pharmaceutical and biotech companies are keen to invest in life science research. Advances in genomic technologies and molecular biology segments will also boost the microRNA (miRNA) arrays market growth in the future. MicroRNA is set to unveil a new era in molecular diagnostics and in the development of effective therapeutics.
- The adoption of miRNA research in different fields is, in turn, widening the use of related miRNA arrays across an ever-expanding spectrum of applications. MicroRNA profiling has already been adopted in cancer research, stem cell research, developmental biology and neuroscience. This has caused many other fields to develop an interest in auditing their gene expression analyses or epigenetic research by profiling miRNAs. In recent years, more research and development has been promoted in finding the utility and role of miRNAs in the field of cardiovascular research, plant science, virology, endocrinology and genetic disease. As researchers discover new miRNAs and study functions, additional research fields may realize that miRNAs can play a role in their disciplines too.
- A key challenge in the market relates to the widespread availability of miRNA research tools, which has resulted in reduced opportunities for the services sector. The surge in miRNA research caused many life sciences vendors to enter the miRNA research tools market over the past four years. Many of them offer miRNA arrays, qRT-PCR and functional analysis tools. As competition intensifies, market participants will need to expand their product options and capabilities, while focusing on achieving differentiation. Service providers that do not offer in-house technologies need to differentiate themselves by expanding tool options or adding more capabilities. Companies may opt to provide multiple microarrays from various vendors, develop their own tools or offer specialized products, such as multiplex panels aimed at specific diseases.

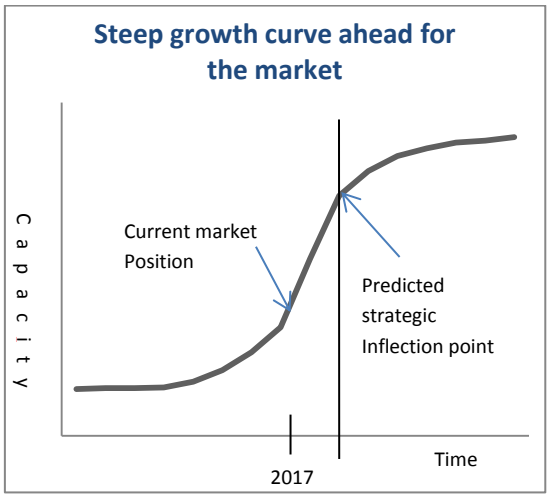


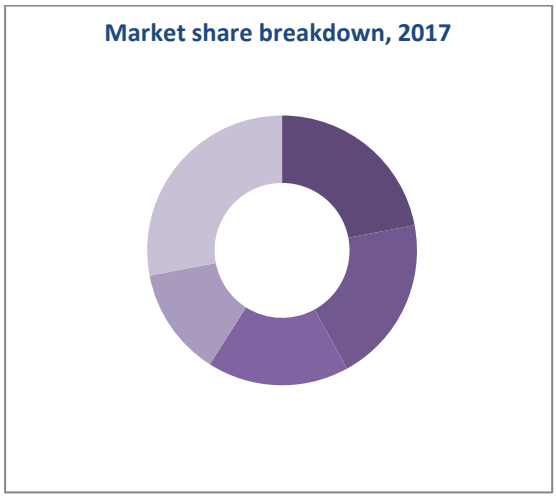


Market Analysis

Biochips market poised for very strong growth

- The main biochips platforms in the biochips industry are undergoing a transition. The growing demand for accurate, affordable and automated diagnostics is driving big growth in a market anticipated to achieve impressive growth during the forecast period.
- Every biochip type is finding attractive applications in diagnostics, including microarrays; Lab-on-a-chip (LOAC); and next-generation sequencing (NGS). Since 2011, the biochips industry has experienced numerous industry alliances and acquisitions that have changed the competitive dynamics of the sector. DNA microarrays are being influenced by NGS applications, as well as exciting new applications in rapid DNA analysis and diagnostics. Protein microarrays continue to make progress in the market, as well as emerging microarray classes (tissue/cell and glycomics). LOAC applications are becoming more important in point-of-care diagnostics applications, as well as in drug discovery and development. NGS applications continue to increase as a result of lowered costs and better informatics support.
- Emerging markets for biochips in diagnostics also are beginning to gain traction. Key developments in biochips should impact markets ranging from drug development to diagnostics. These include the growth in next-generation sequencing-based diagnostics applications, use of LOAC formats in point-of-care applications, migration toward more integrated on-chip systems and organ-on-a-chip systems.
- The biochips market is forecast to undergo a shift from R&D tools to clinical applications during the forecast period. This change stems from the ongoing need for diagnostics that are accurate and sensitive, easy to use, low-cost and suitable for automation. NGS-based tests are particularly well suited for cancer diagnostics, as they can examine specific genes, targeted regions of the genome, whole exomes or whole genomes.

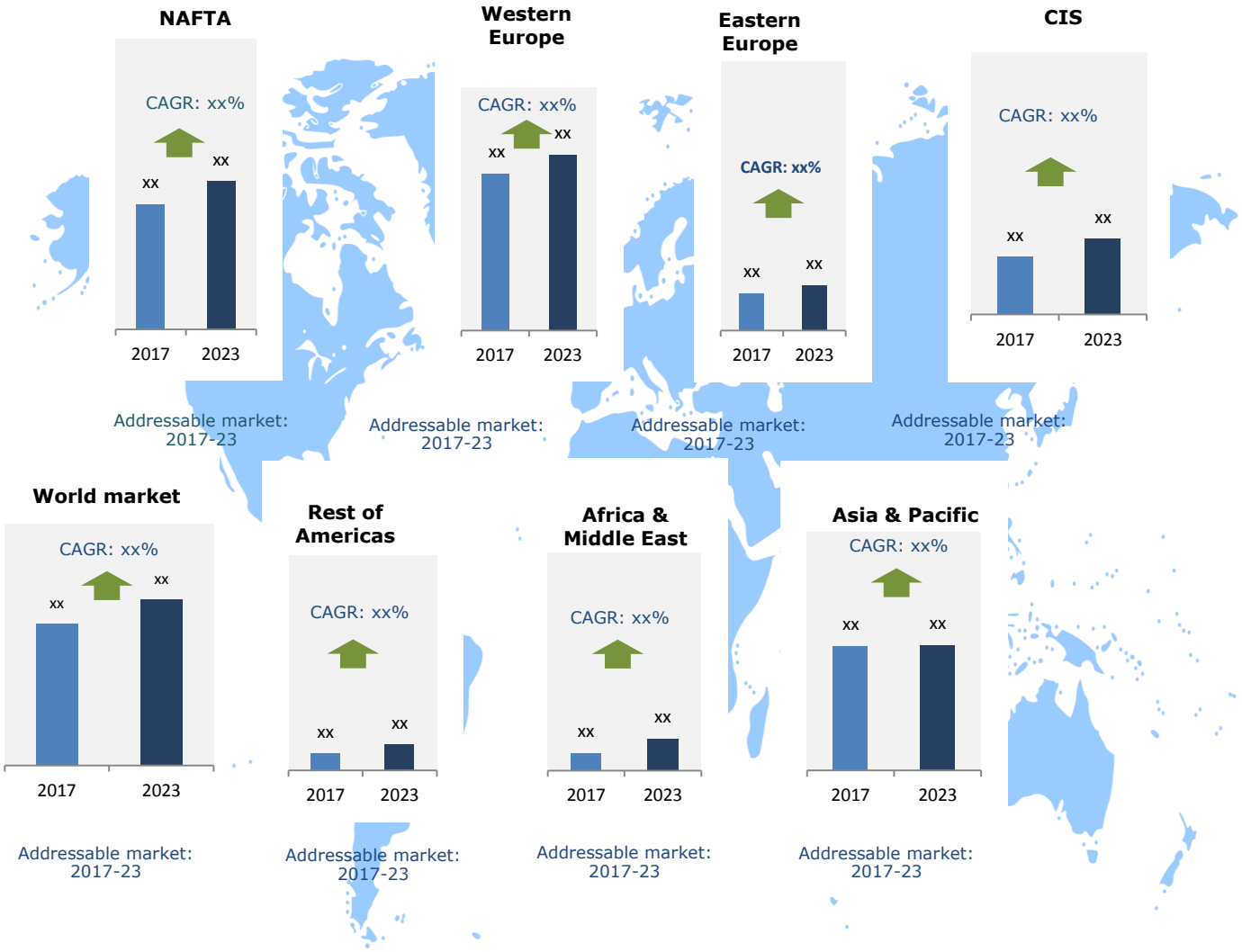




Regional Analysis

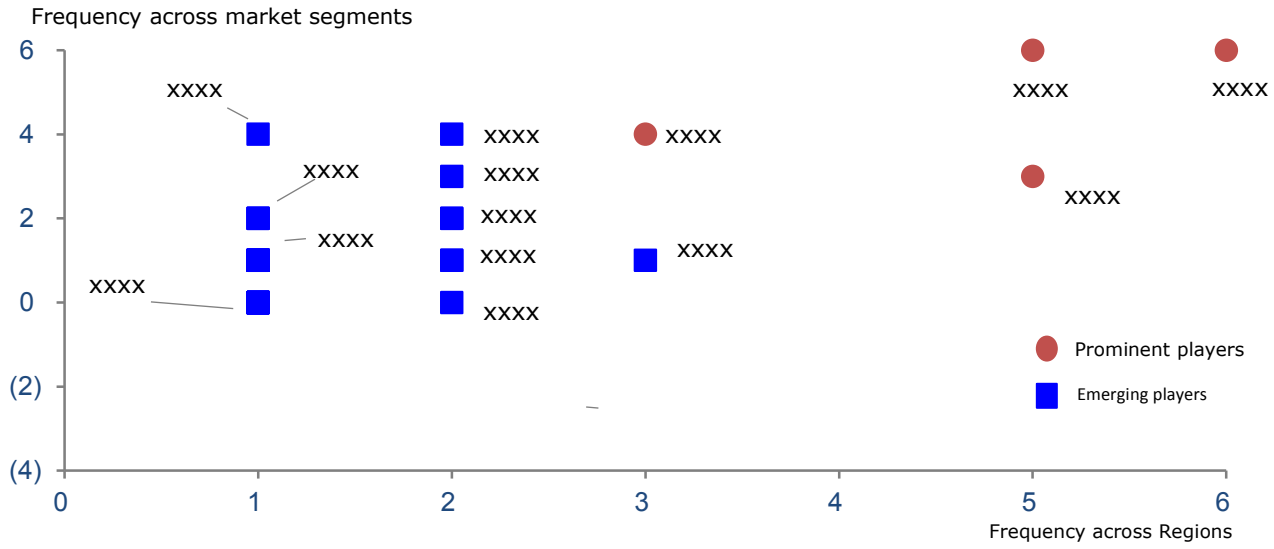
Global Microarrays Market by Region the total addressable market worldwide was $ xx billion in 2017.

Total Annual Addressable Market by Region



Competition Analysis

Fourteen players identified as candidates for benchmarking as 'Large Competition' given industry spread

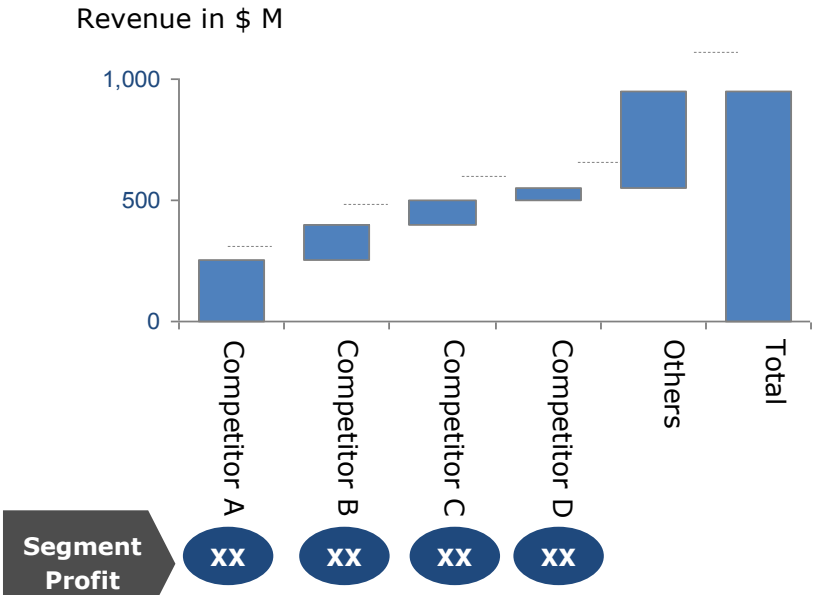


Fourteen players defining the industry benchmark in 2017

Top xx players contribute to yy% of the market

Significant shift in market shares in the last 5 years

Break-up of revenue share



Market Volatility

- Movement of market shares among top 3-4 players in industry in last 10 years with reason
  - Merger/Acquisition
  - Disruptive product
  - Aggressive expansion program etc.
- Cyclical vs Consistent (details of current cycle)
- Dependency on Macro factors

Key market trends

- Amenable to tech disruptions
- Risk assessment
- Is there consolidation in industry?
- Competition is organized by particular segment or domain (design, manufacturing etc.)
- Potential new entrants
- Geographical split of contribution to market

About us

GMR Analytics is a global market research and business consulting firm which provides global enterprises as well as medium and small businesses with unmatched quality of business intelligence solutions. Our team of experts guides our clients toward transformational growth strategies by focusing on innovation opportunities driven by disruptive technologies, mega trends, emerging markets and new business models. Our mission is to provide business in-depth market research analysis reports that assist our clients to take success-oriented strategic business decisions in their respective domains.

Thank you

GMR Analytics

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Companies profiled/cited

3M

ABACUS DIAGNOSTICA OY

ABBOTT LABORATORIES (ALERE, INC.)

ABBVIE, INC.

ABCAM

ABIONIC SA

ABTECH SCIENTIFIC, INC.

ACCELERATE DIAGNOSTICS, INC.

ACCURION GMBH

ACEA BIO

ACRIS ANTIBODIES

ADVANCED GENOMICS, INC.

ADVION, INC.

AGC GLASS EUROPE

AGILENT TECHNOLOGIES

AKONNI BIOSYSTEMS, INC.

ALERE, INC.

ALINE, INC.

ALMAC GROUP

ALTHEADX

ALTRABIO

AMKOR TECHNOLOGY

ANALYTIK JENA AG

ANGLE, PLC. (AXELA, INC.)

APPLIED BIOPHYSICS

APPLIED MICRO ARRAYS

AQUAMARIJN

AQUILA DIAGNOSTICS SYSTEMS, INC.

ARL DESIGNS LLC.

ARRAYIT CORP.

ARRAYJET

ARRAYSTAR, INC.

ARRY INTERNATIONAL GROUP, LTD.

ASSUREX HEALTH, INC.

ASTRAZENECA

AURAGEN PTE., LTD.

AUSHON BIOSYSTEMS

AUTOGENOMICS, INC.

AVACTA LIFE SCIENCES, LTD.

AVAGEN HEALTH LLC. (ADVANCED GENOMICS, INC.)

AVANT DIAGNOSTICS, INC.

AXELA, INC.

AXXICON MOULDS EINDHOVEN B.V.

AYOXXA BIOSYSTEMS GMBH

BASF SE

BECKMAN COULTER

BECTON DICKINSON AND CO.

BEIJING BOHUI INNOVATION TECHNOLOGY CO., LTD. (ADVION, INC.)

BIOCARTIS

BIOCAT GMBH

BIOCEPT, INC.

BIOCHAIN INSTITUTE, INC.

BIODISCOVERY

BIODOT

BIOFIRE DIAGNOSTICS

BIOFLUIDIX GMBH

BIOFORCE NANOSCIENCES

BIOLOG

BIOMERIEUX (BIOFIRE DIAGNOSTICS)

BIONANO GENOMICS

BIONEER CORP.

BIO-RAD LABORATORIES,
INC. (RAINDANCE TECHNOLOGIES)

BIO-REFERENCE LABORATORIES

BIOSURFIT SA

BIOSYSTEMS INTERNATIONAL KFT

BIOTRAY

BODITECH MED, INC.

BROADCOM

BURKERT FLUID CONTROL SYSTEMS

CAMBRIDGE BIOMAGNETICS

CANCER GENETICS, INC.

CANON, INC.

CAPITALBIO CORP.

CAPRION BIOSCIENCES, INC.

CARDINAL HEALTH, INC.

CARIS LIFE SCIENCES

CARTERRA, INC.

CBLPATH, INC.

CBS LABS

CEPHEID, INC.

CETONI GMBH

CHEAP TUBES, INC.

CHIRAL PHOTONICS, INC.

CLEARBRIDGE BIOMEDICS PTE., LTD.

COLLIMATED HOLES, INC.

COMBIMATRIX CORP.

COSPHERIC LLC.

COURTAGEN LIFE SCIENCES, INC.

CREATIVE PROTEOMICS

CUSTOMARRAY, INC.

CYCLOFLUIDIC, LTD.

CYNVENIO BIOSYSTEMS, INC.

CYTOGNOMIX, INC.

CYTOO SA

CYTOPATHFINDER, INC.

DANAHER CORP. (BECKMAN COULTER)

DEBIOTECH SA

DIAGENIC ASA

DIAXONHIT

DIGILAB, INC.

DNA ELECTRONICS

DNA LINK USA, INC.

DOLOMITE MICROFLUIDICS

DUNN LABORTECHNIK GMBH

E. I. DU PONT DE NEMOURS AND CO.

ELIM BIOPHARMACEUTICALS, INC.

ELVEFLOW

EMD MILLIPORE

EMINENT BIOSCIENCES

EMULATE, INC.

EPCOS

EPIGEM, LTD.

EPPENDORF AG

EUROFINS GENOMICS

EUROGENTEC

EUROIMMUN US

EV GROUP

EVONIK INDUSTRIES

EVOTEC

EXIQON

F. HOFFMANN-LA ROCHE AG

FLUIDIGM CORP.

FLUIMEDIX APS

FULL MOON BIOSYSTEMS, INC.

GE HEALTHCARE

GENEDX

GENEFAC, INC.

GENEFLUIDICS, INC.

GENENTECH, INC.

GENISPHERE

GENMARK DIAGNOSTICS, INC.

GENOMATIX GMBH

GENOMEDX

GENOMICA S.A.U

GENOSENSOR CORP.

GENOTYPIC TECHNOLOGY PVT., LTD.

GENSCRIPT (CUSTOMARRAY, INC.)

GENTEX CORP.

GINKGO BIOWORKS, INC.

GRACE BIO-LABS

GRADIENTECH AB

GREINER BIO ONE INTERNATIONAL GMBH

GWC TECHNOLOGIES

GYROS PROTEIN TECHNOLOGIES AB

HAI TECH LASERS, INC.

HISTOPATHOLOGY, LTD.

HITACHI, LTD.

HNU-NANOPOINT

HOLOGIC, LTD. (TEPNEL PHARMA SERVICES)

HOLOGRAPHIX LLC.

HYPERION CATALYSIS INTERNATIONAL

IBIDI GMBH

ILLUMINA, INC.

IMMUCOR, INC.

IMMUNOVIA AB

INANOVATE

INCOM USA, INC.

INDEVR, INC.

INOVA DIAGNOSTICS

INTAVIS BIOANALYTICAL INSTRUMENTS AG

INTEGRATED DNA TECHNOLOGIES, INC.

JPT PEPTIDE TECHNOLOGIES

KINEXUS BIOINFORMATICS CORP

KONINKLIJKE PHILIPS N.V.

LAB21, LTD.

LABCORP. (SEQUENOM)

LABCYTE. INC.

LC SCIENCES LLC.

LIFEGEN TECHNOLOGIES LLC.

LINEAGEN, INC.

LINTECH GLOBAL, INC.

LIONIX INTERNATIONAL

LUCIDANT POLYMERS

LUMINEX CORP.

MACROGEN, INC.

MADICO, INC.

MAGARRAY, INC.

MENARINI SILICON BIOSYSTEMS

MERCK KGAA (EMD MILLIPORE)

MESO SCALE DIAGNOSTICS LLC.

METAMARK GENETICS, INC.

MICROARRAYS, INC.

MICROCHIP TECHNOLOGY, INC.

MICROCHIPS BIOTECH, INC.

MICRODISH

MICRODROP

MICROFAB TECHNOLOGIES, INC.

MICROFLUIDIC CHIPSHOP GMBH

MICROFLUIDICS

MICROLIQUID

MICRONIT MICRO TECHNOLOGIES B.V.

MICROPOINT BIOSCIENCES

MICRUX

MILTENYI BIOTEC

MINGYUAN MEDICARE DEVELOPMENT CO., LTD.

MINIFAB

MINI-SYSTEMS, INC.

MOBIDIAG LTD

MOLECULAR CYTOMICS, INC.

MOLECULAR DEVICES LLC.

MONOGRAM BIOSCIENCES, INC.

MO-SCI

MYBIOSOURCE

MYCROARRAY

MYRIAD GENETICS, INC. (ASSUREX HEALTH, INC.)

NANION TECHNOLOGIES GMBH

NANO-C

NANOCYL S.A.

NANOINTEGRIS, INC.

NANOIVD

NANOLAB, INC.

NANOMIX, INC.

NANOSHEL LLC.

NANOSPEED DIAGNOSTICS, INC.

NANOSTRING TECHNOLOGIES, INC.

NEC CORP.

NECSEL IP, INC. (PD-LD, INC.)

NEOGEN CORP.

NEOGENOMICS LABORATORIES, INC.

NEXT ADVANCE, INC.

NEXTVAL, INC.

NGK INSULATORS, LTD.

NIMGENETICS GENOMICA Y MEDICINA S.L

NIPPON SHEET GLASS CO., LTD. (PILKINGTON PLC GROUP, LTD.)

NOVALED GMBH

NOVALIX

NOVARTIS INTERNATIONAL AG

NOVASEP

NUGEN TECHNOLOGIES, INC.

OCIMUM BIOSOLUTIONS

ONE LAMBDA, INC.

OPKO HEALTH, INC. (BIO-REFERENCE LABORATORIES)

ORIGENE TECHNOLOGIES, INC. (ACRIS ANTIBODIES)

OSMOTEX AG

OSTENDUM

OXFORD GENE TECHNOLOGY

OXFORD NANOPORE TECHNOLOGIES

PACIFIC BIOSCIENCES OF CALIFORNIA, INC.

PALL CORP.

PAMGENE INTERNATIONAL B.V.

PANAGENE

PATHNOSTICS

PATHOGENETIX, INC.

PD-LD, INC.

PEPPERPRINT

PEPSCAN

PERKINELMER, INC. (EUROIMMUN US)

PFIZER

PHALANX BIOTECH GROUP

PHARMASEQ, INC.

PILKINGTON PLC GROUP, LTD.

PLATYPUS TECHNOLOGIES

PLEOTINT LLC.

PLEXERA LLC.

POLYSCIENCES, INC.

PPG INDUSTRIES, INC.

PQ CORP.

PROMEGA CORP.

PROTAGEN AG

PROTEIN ONE

PROTEOGENIX

PROTERIXBIO, INC.

PROTNETEOMIX

QIAGEN (EXIQON)

QUANTERIX (AUSHON BIOSYSTEMS)

QUANTISCIENTIFICS LLC.

QVENTAS

QWANE BIOSCIENCES SA

R&D SYSTEMS, INC.

RADIX BIOSOLUTIONS, LTD.

RAINDANCE TECHNOLOGIES

RANDOX LABORATORIES

RAYBIOTECH, INC.

RHEONIX, INC.

RHEOSENSE, INC.

RUILONG YUAN ELECTRONICS

SAINT-GOBAIN S.A.

SAMSUNG

SARTORIUS AG

SAVYON DIAGNOSTICS, LTD.

SCHOTT NORTH AMERICA, INC.

SCIENION

SCIEX

SEEGENE, INC.

SENGENICS (OXFORD GENE TECHNOLOGY)

SENSIMED AG

SENSOVATION AG

SEQUENOM

SHANGHAI BIOTECHNOLOGY CORP.

SHANGHAI KEHUA BIO-ENGINEERING CO., LTD. (TECHNOGENETICS)

SHARP CORP.

SHOWA DENKO K.K.

SIEMENS HEALTHCARE GMBH

SIGMA-ALDRICH CORP.

SILOAM BIOSCIENCES

SIMSCELLS

SOLLEGA, INC.

SOMALOGIC, INC.

SOPHION BIOSCIENCE A/S

SPINCHIP DIAGNOSTICS AS

SQI DIAGNOSTICS

STMICROELECTRONICS

SUN EDGE LLC.

SUPERBIOCHIPS LABORATORIES

SURMODICS, INC.

SYNTEC OPTICS

SYSMEX CORP.

T2 BIOSYSTEMS, INC.

TAKARA BIO, INC. (WAFERGEN BIO-SYSTEMS, INC.)

TDK CORP. (EPCOS)

TECAN TRADING AG

TECHNOGENETICS

TELEDYNE TECHNOLOGIES, INC.

TEPNEL PHARMA SERVICES

TEXAS INSTRUMENTS, INC.

THERMO FISHER SCIENTIFIC (ONE LAMBDA, INC.)

TIANJIN BIOCHIP CORP.

TIRF LABS, INC.

TORAY INDUSTRIES, INC.

TOSHIBA CORP.

TRANS GENIC INC, LTD.

TRONICS

UFLUIDIX

UNCHAINED LABS

UNITED MICROELECTRONICS CORP.

UNITMA

US BIOMAX, INC.

VEREDUS LABORATORIES

VIEW, INC.

WAFERGEN BIO-SYSTEMS, INC.

WATERS

WELGENE BIOTECH CO., LTD.

WERFEN (INOVA DIAGNOSTICS)

WUXI GUOSHENG BIO-ENGINEERING CO., LTD.

XONA MICROFLUIDICS LLC.

YULONG OPTICS CO., LTD.

ZEUS SCIENTIFIC, INC.

ZYAGEN