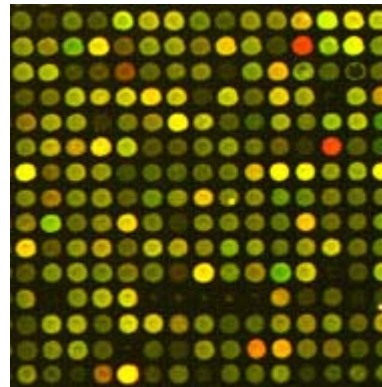


DNA Microarrays: An Essential Technology

Executive Summary



Introduction

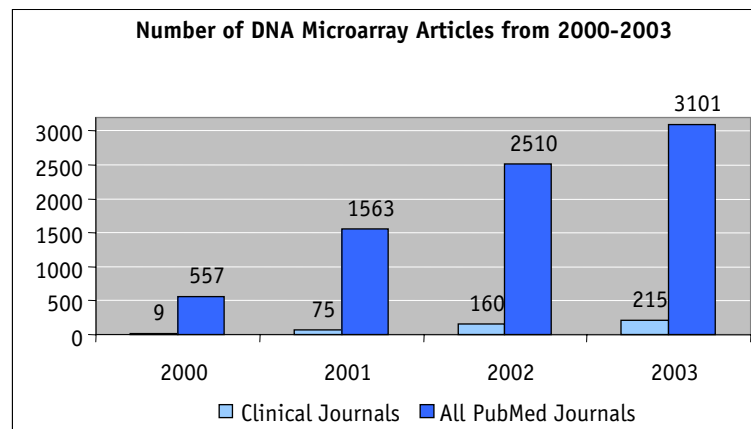
Since their development in the mid 1990's, DNA microarrays have become an essential tool for life science researchers interested in performing gene expression studies. While this technology was initially beset with technical challenges and was prohibitively expensive for most researchers, in recent years microarrays have become easier to use and more affordable. This has allowed the market for microarrays in the life sciences to grow significantly. In fact, this growth has even begun to expand into areas outside of basic research.

One interesting area of expansion for DNA microarrays is in the clinical/diagnostic laboratory. Some of the uses for microarrays in this setting include the identification of viral or bacterial strains in patient samples and profiling gene expression patterns of various cancers to determine the optimum therapeutic treatment. Recent advances in probe hybridization techniques, signal amplification strategies as well as signal detection and interpretation technologies have made this use of microarrays possible.

Biocompare has chosen to survey the DNA microarrays market landscape to determine how this tool is currently being used. We have assessed the obstacles in the path of the typical DNA microarray user as well as investigated DNA microarray product usage, brand awareness, and market growth potential.

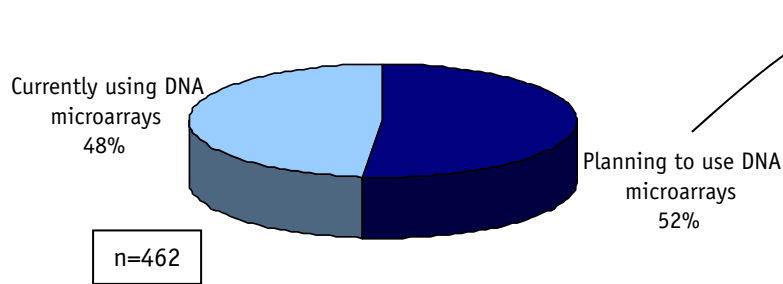
Among the equipment and reagents that we focus on in this report are: arraying equipment, scanning equipment, analysis software, RNA isolation kits and cDNA labeling kits.

For this report we interviewed researchers that are either currently using or planning to use DNA microarrays. These researchers consisted of attendees to the American Society for Microbiology's 2004 general meeting as well as Biocompare's online community of life science researchers. The focus of this survey was to determine the purchasing plans and perceived challenge of these researchers as well as the market leaders in this arena.



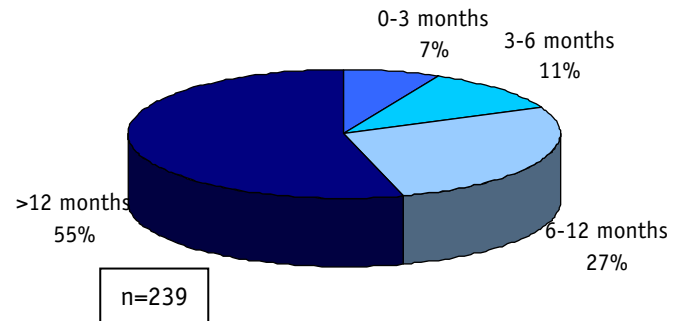
Source: NCBI

Are you currently using or planning to use DNA microarrays?

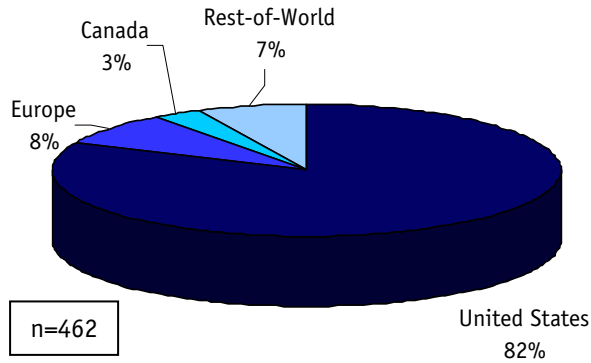


48 % of survey takers are currently using DNA microarrays in their research
23% of survey takers plan to use DNA microarrays in the next 12 months
28% of survey takers plan to use DNA microarrays in greater than 12 months

If you are planning to use DNA microarrays, when?

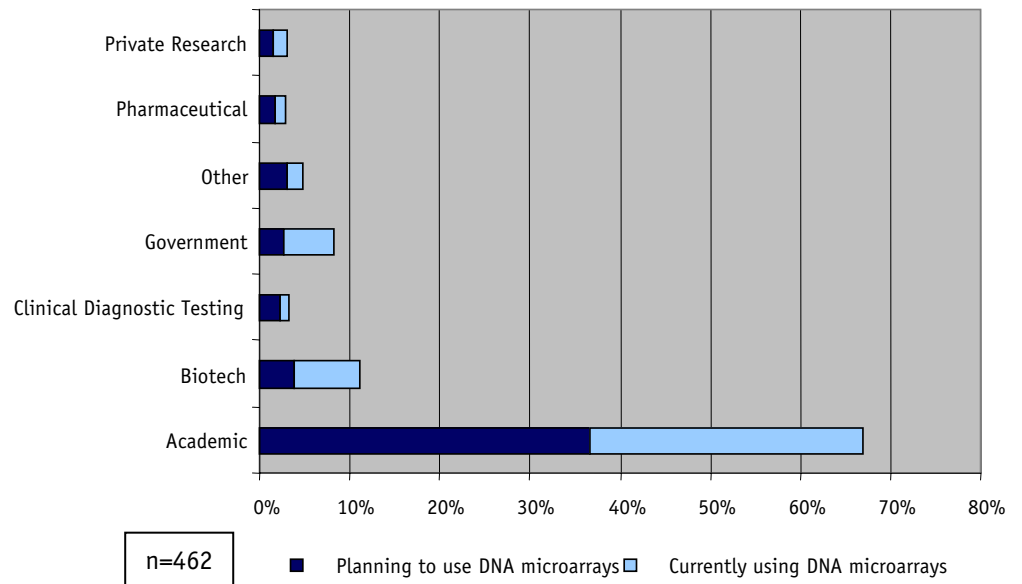


Country

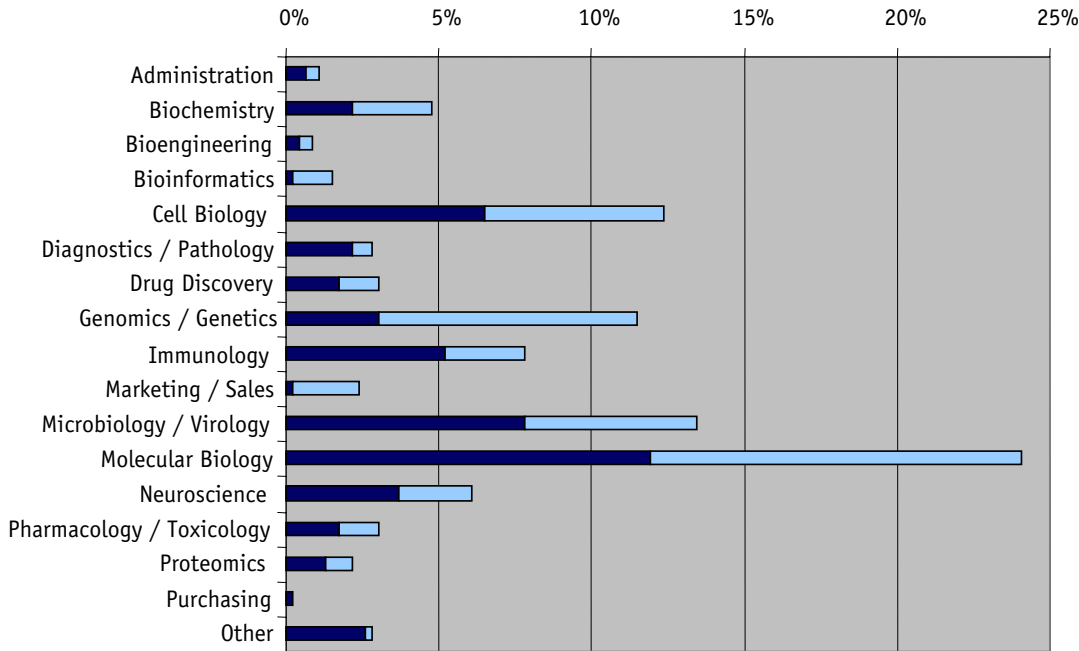


85% of respondents are in the US
67% of respondents are in academic institutions
14% of respondents are in biotech or pharmaceutical institutions

Institution Type



Principal Area of Research or Work

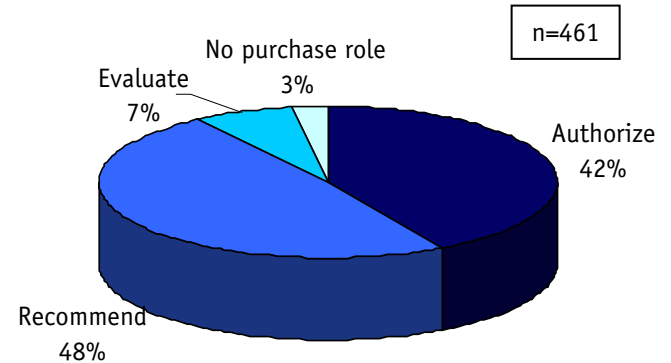


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■ Planning to use DNA microarrays ■ Currently using DNA microarrays

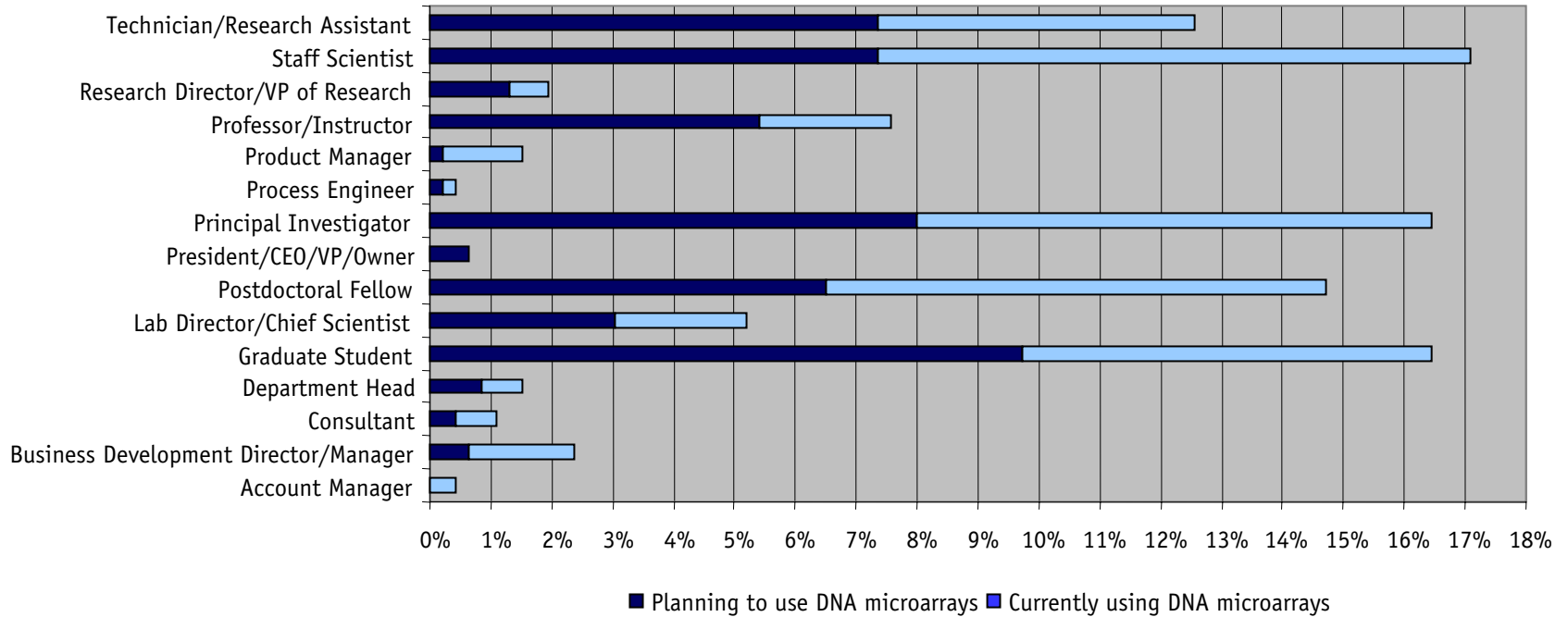
The majority of survey takers are working in Molecular Biology, Microbiology, Virology, Genetics, or Cell Biology
90% of survey takers either recommend or authorize purchases

Purchasing Authority



n=461

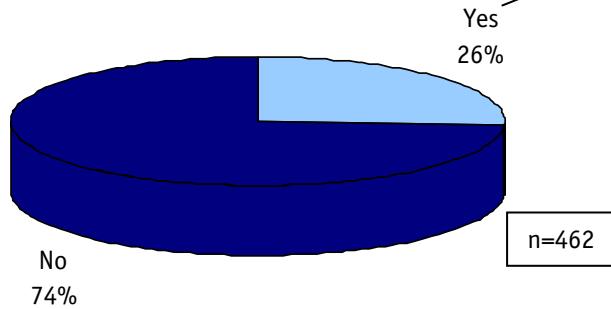
Which Title Best Applies?



n=461

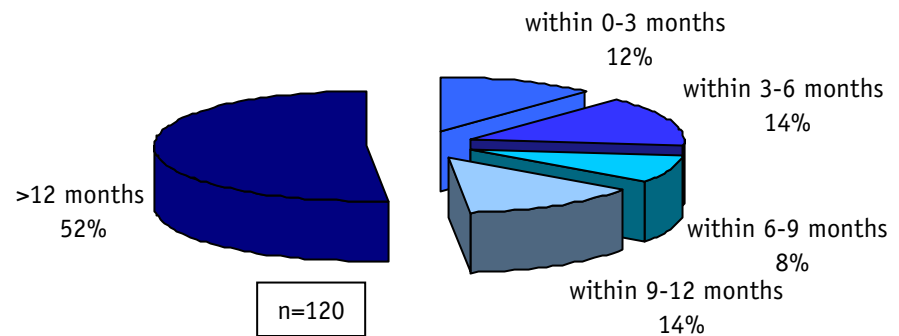
The majority of respondents are at the bench having the title of either Staff Scientist, Graduate Student, Postdoctoral Fellow, or Research Assistant.

Are You planning to Start a New Lab?



If Yes, When?

26% of survey respondents are planning to start a new lab, nearly half within 12 months



What Techniques or Technologies Do You Use In Your Lab? (sorted by those currently using DNA microarrays)

Data	Currently using DNA microarrays	Planning to use DNA microarrays	Total
PCR/RT-PCR	76%	74%	75%
Microarray Analysis	72%	17%	44%
DNA Microarrays	66%	10%	37%
RNA Isolation & Purification	64%	44%	53%
Gene Expression Analysis	63%	33%	48%
DNA Isolation & Purification	61%	59%	60%
Real-Time PCR	60%	39%	49%
Electrophoresis	60%	66%	63%
Cell/Tissue Culture	58%	56%	57%
Nucleic Acid Labeling and Detection	50%	29%	39%
Nucleic Acid Hybridization	50%	27%	38%
Microscopy	47%	56%	52%
Nucleic Acid Sequence Analysis	45%	34%	39%
Antibody-Based Technologies	41%	39%	40%
Transfection	39%	30%	34%
Protein Isolation & Purification	39%	35%	37%
Recombinant Protein Expression	33%	28%	30%
Image Analysis	33%	25%	29%
RNAi	32%	17%	24%

Data	Currently using DNA microarrays	Planning to use DNA microarrays	Total
Gene Transfer	26%	15%	20%
Vector Design/Construction	25%	26%	26%
Protein-Protein Interaction Analysis	23%	20%	21%
Protein-DNA interaction Analysis	21%	15%	18%
Mutagenesis	21%	22%	21%
Spectroscopy	18%	18%	18%
Gene Targeting	18%	11%	15%
Robotics/Automation	16%	7%	11%
High-Throughput Screening	16%	8%	12%
2D Electrophoresis	16%	19%	17%
SNP Analysis	14%	8%	11%
Chromatography	14%	22%	18%
Protein Sequence Analysis	13%	9%	11%
Protein Microarrays	13%	6%	9%
Mass Spectrometry	11%	12%	11%
Laser Capture Microdissection	8%	3%	5%
Capillary Electrophoresis	8%	8%	8%
Crystallization	2%	2%	2%
Other	2%	3%	2%

n=462

Which of the following equipment/systems do you plan to purchase in the next 3-6 months?

Fume hoods
Microfluidics equipment
Nucleic Acid Synthesizers
Mass Spectrometers
HTS Plate Handling/Storage
Hybridization Ovens
Incubators
Autoclave/Sterilizers
Nucleic Acid Sequencers
DNA Array Equipment
HPLC/FPLC Systems
Gel Electrophoresis Systems
Water Purification Systems
Imaging/Gel Documentation Systems
Spectrophotometers
Flow Cytometers
HTS Workstations
Microscopes
Peptide Synthesizers
Clean Room Equipment
Heating Blocks
Centrifuges
Real Time Thermal Cyclers
Balances
Thermal Cyclers
Tissue Culture Hoods
Water Baths
2D Electrophoresis Systems
Cell Analyzers

Do you have access to a DNA microarray core lab?

Yes
No

For which of the following are you using DNA microarrays?

Basic Research
Diagnostics
Genomics
Drug Discovery
None of the Above/Other (please specify)

Do you use pre-spotted arrays?

Yes
No

If so, which company's arrays do you use?

BD Biosciences Clontech
MWG Biotech
Agilent
Amersham Biosciences
Qiagen
Affymetrix
Nimblegen
GeneMed
Sigma-Genosys
SuperArray
Takara Mirus Bio
Other

In your opinion, what are the biggest challenges when using pre-spotted arrays?

Do you own or plan to purchase an automatic arrayer?

Own
Plan to purchase
Neither

If you own, which company's arrayer do you own?

Affymetrix
Amersham Biosciences
Genomic Solutions
Perkin Elmer
Genetix
Bio-Rad
GeneMachines
BioRobotics
Constructed own arrayer
Other

If you are planning to purchase, which company's arrayer would you consider purchasing?

Affymetrix
Amersham Biosciences
Genomic Solutions
Perkin Elmer
Genetix
Bio-Rad
GeneMachines
BioRobotics
Other

In your opinion, what is the biggest challenge when arraying slides?**Do you own or plan to purchase a microarray scanner?**

Own
Plan to purchase
Neither

If you own, which company's scanner do you own?

Axon
Agilent
Arrayit
AlphaInnotech
Genetix
Perkin Elmer
Amersham Biosciences
Applied Precision
Biomedical Photometrics
Bio-Rad
MWG Biotech/Affymetrix
Tecan
Other

If you are planning to buy, which company's scanner would you consider purchasing?

Axon
Agilent
Arrayit
AlphaInnotech
Genetix
Perkin Elmer
Amersham Biosciences
Applied Precision
Biomedical Photometrics
Bio-Rad
MWG Biotech/Affymetrix
Tecan
Other

Which of the following most influences you when choosing microarray equipment to purchase?

Cost
Technical Support
Colleague Recommendations
Brand Reputation
Sales Representatives
Service Contract
Complete System Offering

Do you own or plan to purchase array analysis software?

Own
Plan to purchase
Neither

If you own, how did you choose your analysis software?

It came with my scanner
I found it to be the easiest to use
I found it to have the greatest capacity for complex analysis
It was the least expensive software available
Other (please specify)

Do you use RNA isolation kits?

Yes
No

If yes, which company's RNA isolation kits do you use?

Ambion
BD Biosciences Clontech/Pharmingen
Bio-Rad
Marligen Biosciences, Inc.
Qiagen
Stratagene
Brinkmann
Arcturus
Amersham Biosciences
Agilent Technologies
Bay Gene
Biochain
Epicentre
Invitrogen
Maxim Biotech
Roche Applied Science
Zymo Research
Mo Bio Laboratories, Inc.
Gentra Systems
Applied Biosystems
Acitve Motif
Sequitur, Inc.
RNAture
Other

Do you use cDNA labeling kits?

Yes

No

If yes, which company's cDNA labeling kits do you use?

Agilent Technologies

Ambion

Amersham Biosciences

Enzo Biochem, Inc.

Genicon Sciences

Genisphere

Invitrogen

PerkinElmer

Qiagen

Stratagene

SuperArray Bioscience

Other

Which dyes do you use?

In your opinion, what are the biggest challenges in using DNA microarrays?

Other Surveys and Reports Available From Biocompare

Protein Arrays: A Market Overview

\$3500

Description: In this report, Biocompare asked nearly 300 scientists who either use protein arrays or plan to use them, for which type of research they think protein arrays are well-suited, their opinions towards current products available to them, and their purchasing plans for the near future.

RNAi: A Market Update

\$3500

Description: This report, based on a survey of over 600 scientists, spotlights this growing market by investigating who are the market leaders for RNAi kits and reagents, gauging the growth potential for RNAi products and outlining the current RNAi applications of researchers.

Mass Spectrometry: Fueling Discovery

\$4000

Description: In this report, Biocompare surveyed the mass spectrometry market to determine who the market leaders are, find out what the most challenging aspects of using this technology are and to gauge the growth of the market by identifying the purchasing plans of mass spectrometry users.

Cell Based Assays: A Survey of Cell Biologists

\$2495

Description: For this report we surveyed more than 400 Cell Biologists regarding cell based assays including plate based, tissue array based and flow cytometry based assays.

For more information or to purchase please contact:

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