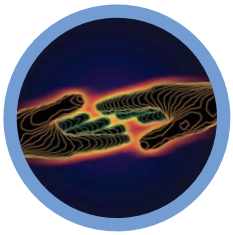
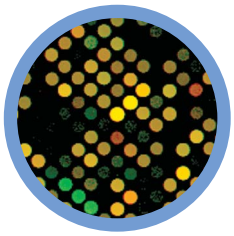
Agilent Whole Human Genome Oligo Microarray Kit

with SurePrint Technology

Catalog 60-mer Oligo





Specifications

Number of microarrays in kit	5
Number of genes and transcripts	~41,000
Feature size	115 µm
Microarray format	44K
Oligo probe length	60-mer
Probe orientation	Sense
Reproducibility	Median SD < 0.013
Detection sensitivity	1 transcript/cell/million cells*
Dynamic range	Over 3 orders of magnitude
RNA sample requirement/labeling reaction	20 µg total RNA for cDNA labeling
	50 ng total RNA for amplified cRNA labeling
Type of labeling	Cyanine 3 & cyanine 5 fluorescent labeling
Overall assay time	18.5 hours

*Based on studies using Agilent Yeast Oligo Microarrays and published as a technical note available on the Agilent website. Go to the library tab and type in 5988-5977EN.

Features at a glance

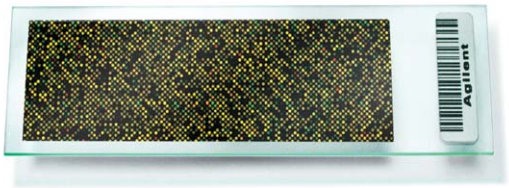
- Queries over 33,000 known and novel human genes (~41,000 human genes and transcripts) leveraging experimentally-validated probes
- Complete access to probe sequence information and annotation through Agilent's website
- Unparalleled sensitivity in a microarray for detecting genes with low expression levels—delivered by Agilent's unique 60-mer oligonucleotide probe format
- Annotation information includes: RefSeq ID, HUGO/LocusLink gene symbol, GenBank ID, Ensembl and GoldenPath ID—consult Agilent's website for compatible formats (www.agilent.com/chem/catalog)
- Consistent feature (spot) quality from microarray-to-microarray yielding results you can trust
- Convenient two-color labeling procedure reduces experimental variability by allowing biological samples to be directly compared with each other on the same microarray—after undergoing the same hybridization incubation
- Accessible format—microarrays on barcoded, 1" x 3" (25mm x 75mm) glass slides

Comprehensive coverage on a 1" x 3" slide

Agilent is committed to bringing scientists robust research tools that will accelerate their research. Case in point, Agilent is the first open systems microarray-based gene expression solutions provider to offer a whole human genome microarray designed for researchers. Leveraging Agilent's 1" x 3" (25mm x 75mm) glass slide microarray format, researchers can now run high-quality, commercially-printed whole genome microarrays in most lab environments leveraging their existing set-ups and scanning equipment.

Cutting-edge disease and drug discovery research demands up-to-date content. Agilent has taken extra measures to design its whole genome microarray to represent the best possible view of the human genome as we know it today. The vast majority of highly-sensitive 60-mer oligo probes on this microarray have been empirically and experimentally validated to provide you with added confidence in its content. Moreover, these 44K feature, whole genome microarrays offer comparable performance to their 22K feature Human 1A and Human 1B counterparts in Agilent's family of microarrays–namely the unparalleled sensitivity to detect low expressing genes that can make all the difference in your research.

Discover what you've been missing in flexibility and sensitivity in your microarray experiments.



Agilent Technologies

Whole Human Genome Oligo Microarray Kit

Content you can count on

Designed to truly represent the known genes in the human genome and their resulting transcripts, Agilent's Whole Human Genome Oligo microarray is comprised of approximately 41,000 (60-mer) oligonucleotide probes, which span conserved exons across the transcripts of the targeted full-length genes. These probes represent the human genome as we know it today leveraging well-characterized, full-length and partial human genes from a number of major public sources. The sequence and annotation information used in this microarray product is available through Agilent and publicly-available databases such as RefSeq, GoldenPath, Ensembl and more. Virtually all of the genes and corresponding probes have been mapped to the human genome DNA backbone. These probes have been experimentally validated in Agilent's laboratories leveraging advanced probe selection methods, as shown in Figures A & B below, which provides researchers with maximal confidence in the probes and avoids redundancy in gene coverage.

Figure A.

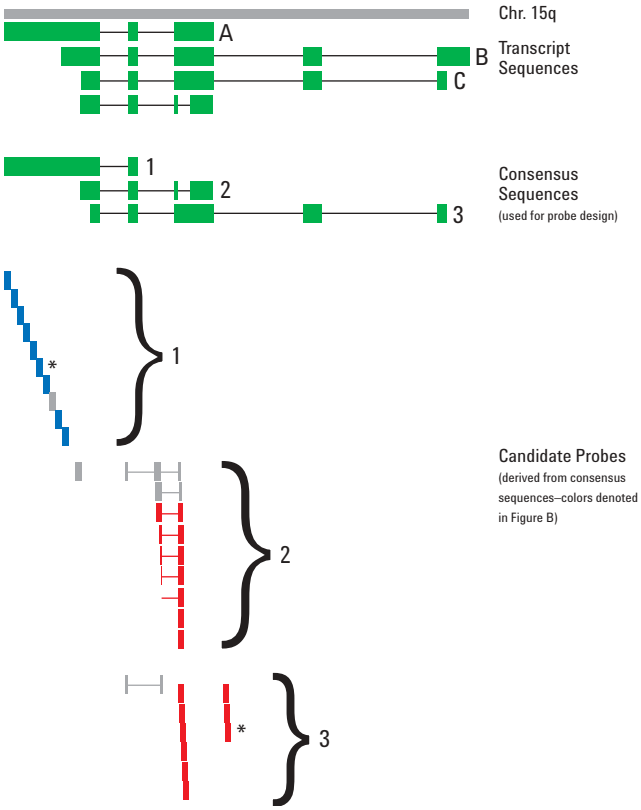
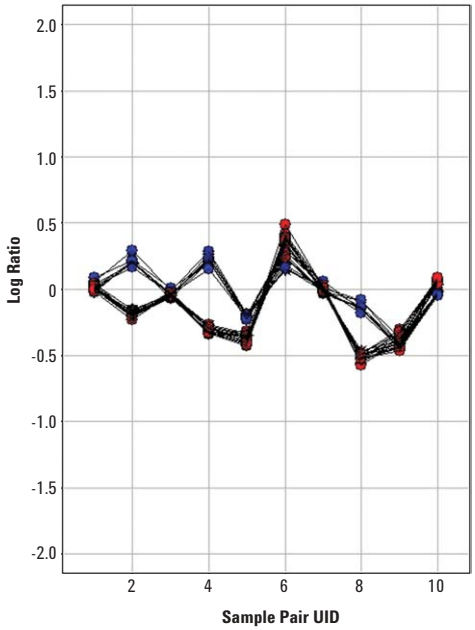


Figure B.



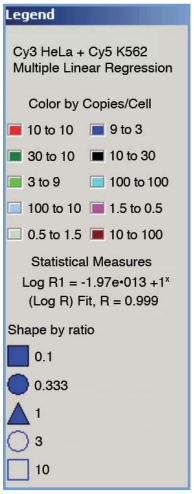
Optimizing probes for stellar performance

Figures A & B depict Agilent's proven process for 'superclustering' and choosing multiple probes within a GeneBin (gene and associated transcripts). In many cases, more than one consensus region will be selected for a given GeneBin. Figure A demonstrates the selection of consensus regions and probes to represent transcripts within a GeneBin. The transcripts (shown at the top of the diagram in green) are used to determine the location of consensus regions (shown in the middle section). In this example, 3 different consensus regions were chosen, and probes selected from those consensus regions (shown in the bottom section). Clustering data in Figure B demonstrates that probes for consensus regions 2 and 3 exhibit similar behavior, while probes for consensus region 1 exhibit different behavior, and thus represent, in this case, a real alternative 3' end of transcript A. Also in Figure A & B, probes are colored based on the supercluster to which they belong. Probes colored gray did not cluster with other probes. Although 3 consensus regions were designed in this example, only 2 probes were selected for this GeneBin (shown by the star), one for each 'supercluster.'

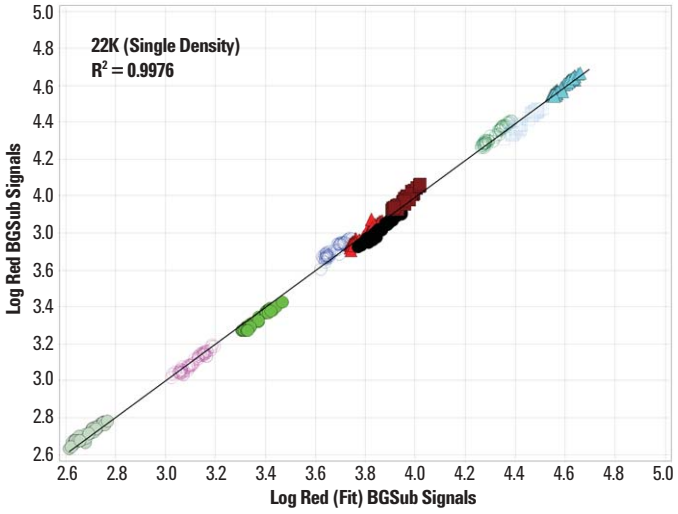
Whole Human Genome Oligo Microarray Kit

No matter the format–sensitivity and performance is preserved

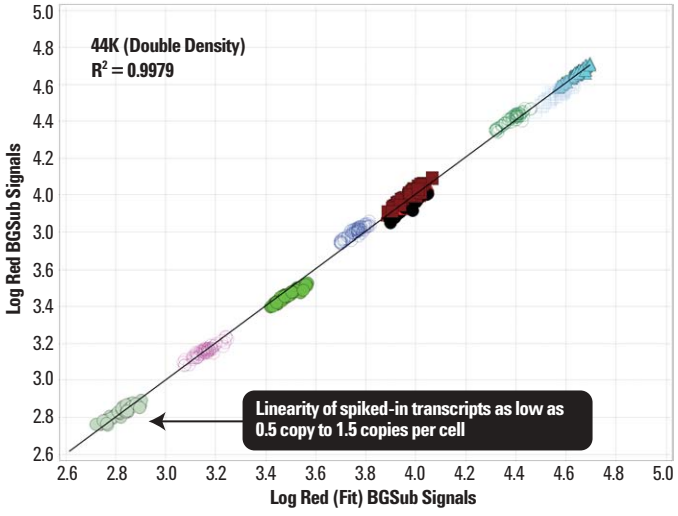
The following experiment demonstrates the cross-format performance of Agilent's 60-mer Oligo microarrays. Here, 22K (single density) oligo microarrays were compared to Agilent's new 44K (double densitiy) format oligo microarrays. The testing proves that both formats deliver robust linearity and sensitivity across a wide dynamic range, down to ratios measured with 0.5 to 1.5 copies per cell.



22K (Single Density) Cyanine 3 HeLa + Cyanine 5 K562 (Polarity + 1)
Multiple Linear Regression of Synthetic Spike-in Targets



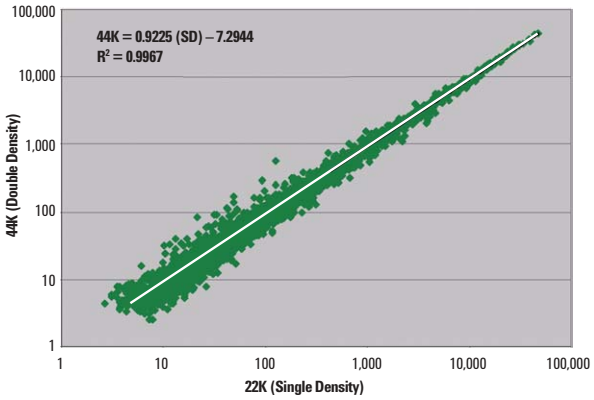
44K (Double Density) Cyanine 3 HeLa + Cyanine 5 K562 (Polarity + 1)
Multiple Linear Regression of Synthetic Spike-in Targets



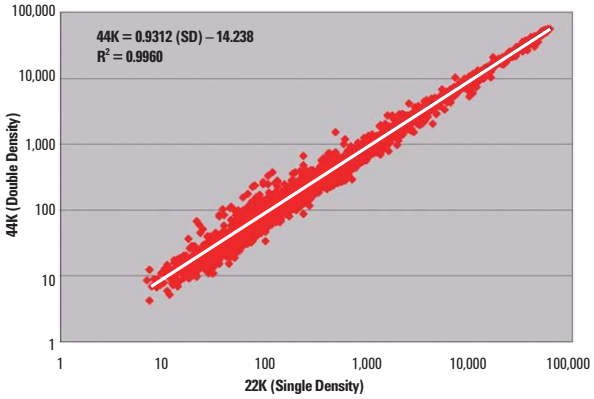
Tight data to prove our point

Low noise and excellent microarray-to-microarray format reproducibility leads to more consistent data. To prove this point, a series of experiments were performed to determine the data correlation of Agilent's 22K Human Oligo Microarrays when compared to the higher-density 44K Whole Human Genome Oligo Microarray format. Complex human targets were run on each type of microarray and subsequent analysis of the combined green signals and red signals were performed yielding tight intensity data correlation from the 22K to 44K microarray formats. Further analysis of the mean log ratios of the complex human targets show a favorable R^2 value of 0.9797 between the two microarray formats. This experiment proves that researchers can count on getting robust microarray data across all microarray formats.

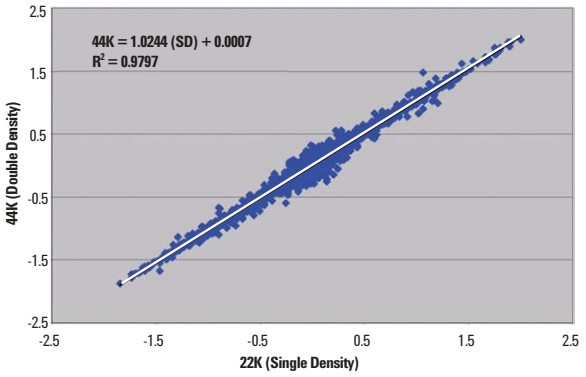
Comparison of Mean Green BGSub Signals of Complex Human Targets (Polarity + 1)
22K (Single Density) vs. 44K (Double Density) Cyanine 3 HeLa + Cyanine 5 K562



Comparison of Mean Red BGSub Signals of Complex Human Targets (Polarity + 1)
22K (Single Density) vs. 44K (Double Density) Cyanine 3 HeLa + Cyanine 5 K562



Comparison of Mean Log Ratios of Complex Human Targets (Polarity + 1)
22K (Single Density) vs. 44K (Double Density) Cyanine 3 HeLa + Cyanine 5 K562



Whole Human Genome Oligo Microarray Kit

We print microarrays so you don't have to

Agilent's SurePrint fabrication platform features a flexible, industrial-scale inkjet printing process that synthesizes oligonucleotide probes *in situ* on glass wafers that are laser scribed into barcoded 1" x 3" (25mm x 75mm) glass slides. This process allows Agilent to iterate its microarray designs quickly to keep pace with changes and updates to genomic content. For researchers, this means they can get easy access to high-quality microarrays with ***the best content today for tomorrow's discoveries.***

Agilent's flexible printing processes also leave the door open to researchers who want to add their own personal touch to microarrays. Space has been left open on this microarray for adding user-defined probes. Ask your sales representative about this flexible option available through Agilent's Custom Microarray Services Program.

Quick to implement

- Confidently scan on Agilent's DNA Microarray scanner for maximum performance and reproducibility or scan on most other commercial 1" x 3" (25mm x 75mm) glass slide scanners
- Analyze features seamlessly and quickly with Agilent's Feature Extraction software, or leverage existing feature analysis programs already in place (Agilent provides GAL, XML and tab-delimited text file formats on a CD-ROM in each kit)
    - *For those using other commercial scanners, you can feature extract your Agilent Whole Human Genome microarrays with BioDiscovery's ImaGene Image Analysis software (www. biodiscovery.com)*
- Access probe sequence and annotation information easily through Agilent's website

Enhanced performance

- Agilent provides a complete line of RNA isolation, labeling and hybridization reagents as well as Agilent SureHyb-enabled hybridization chambers and accessories that, when used together, enhance the ease-of-use and performance of Agilent's microarrays
- Discover the power of enterprise-level gene expression data analysis with Rosetta Resolver® or Rosetta Luminator™–available only from Agilent

Discover more on the web

Agilent's website offers additional performance data, ordering and configuration information, technical publications and more. While you're there, register for **Agilent e-notes**. E-notes is a convenient, monthly email update featuring relevant information matched to *your profiled* areas of interest (new product updates, applications, e-seminars, special offers & more). Sign up today–it's one of the best ways to keep up-to-date with Agilent! **www.agilent.com/chem/enotes**

Need a lab to run your microarrays?

If you are interested in accessing 60-mer oligo microarrays but need a lab to run them for you, be sure to check out one of Agilent's Certified Service Provider Laboratories. **www.agilent.com/chem/csp**

Kit contents

- 5 microarrays on five 1 x 3 inch glass slides
- CD-ROM containing feature information
- Oligo Microarray Kit Processing Protocol (SureHyb/SSC Wash)

Ordering information

Whole Human Genome Oligo Microarray Kit	G4112A
Fluorescent Direct Label Kit	G2557A
Fluorescent Linear Amplification Kit	G2554A
Low RNA Input Fluorescent Linear Amplification Kit	5184-3523
In situ Hybridization Kit Plus	5184-3568
Hybridization Chamber (44K/22K)	G2534A
Hybridization Septa, Backings & Gasket	G2534-60003

Microarray Solutions Website:
www.agilent.com/chem/dna

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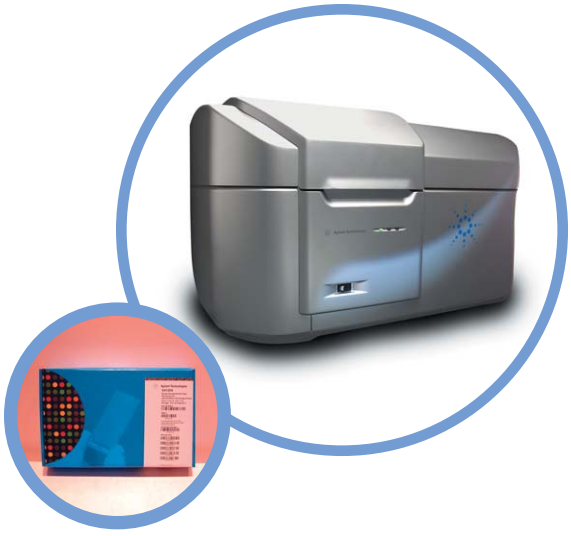
5989-0654EN July 15, 2004



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