

Affymetrix® Cytogenetics Research Solution

With next-generation cytogenetics research products from Affymetrix, you will benefit from:

- **Greater confidence:** guided by renowned cytogenetics researchers, these next-generation products are targeted to your unique needs
- **Targeted relevance:** developed specifically for cytogenetics research, our solution detects the broadest range of chromosome aberrations affecting phenotypes
- **High performance:** with 2.7 million markers across the genome, including 400,000 single nucleotide polymorphisms (SNPs), you can detect even the smallest structural changes and regions of autozygosity
- **Simplicity:** a newly streamlined assay and all-inclusive reagent kit make detecting chromosome aberrations easier than ever
- **Flexibility:** featuring only the functions you need, the entirely new software suite offers unlimited options for data visualization and customized analysis

Introduction

DNA microarrays are revolutionizing the field of cytogenetics, and Affymetrix is leading the way with its next-generation products for molecular cytogenetics research. The array, reagents, and software were developed under the guidance of industry-leading scientists and deliver the smartest design for fast, reliable detection of the broadest range of chromosome aberrations that affect phenotype.

With the Affymetrix® Cytogenetics Research Solution, you can screen for aberrations at a level of detail not possible with karyotyping or fluorescent in situ hybridization (FISH). For example, because of their high resolution, our next-generation array can identify even the smallest chromosome aberrations—including those that would have been missed with classical techniques. Analysis and reporting of results is simple, giving you comprehensive and reliable results. All of this is achieved with just one array.

This solution was developed with a focus on cytogenetics research. Flexible and easy to use, the array, reagents, and software are designed to meet your specific needs, whether you're an experienced microarray user or new to the technology.

Features

Array

The Affymetrix® Cytogenetics Whole-Genome 2.7M Array gives you the greatest power to detect known and novel chromosome aberrations across the entire genome. This array provides unbiased, whole-genome coverage with the highest density of 2.7 million markers to enable superior resolution. In addition, the whole-genome array includes 400,000 SNPs to enable the detection of loss of heterozygosity (LOH), uniparental disomy (UPD), and regions identical-by-descent.

Reagents

The all-inclusive Affymetrix® Cytogenetics Reagent Kit is designed to save time and money, reduce operator error, and deliver high performance. The simplified and streamlined assay protocol, with no tedious polymerase chain reaction (PCR) steps or restriction digests, requires less than three hours of hands-on time, making it easy to obtain consistent and reliable results.

Software

The Affymetrix® Chromosome Analysis Suite was developed with input from leading researchers, so it's specifically targeted to cytogenetics research analysis and reporting. Features, including a streamlined analysis workflow, multiple graphical views, and flexible analysis options, are presented in an easy-to-understand graphical interface. With this unique software, you can analyze data and generate reports based on your specific requirements.

Specifications – Cytogenetics Whole-Genome 2.7M Array

Total number of copy number markers	2,761,979
Number of non-polymorphic markers	2,361,876
Number of SNP markers	400,103
Genome build	hg18
Autosomal markers	2,622,342
Pseudoautosomal markers	2,722
Intragenic markers	1,434,797
Intergenic markers	1,327,182
Median marker spacing (base pairs)	
Intragenic	686
RefSeq genes	686
Cancer genes	294
X chromosome genes	666
Cytogenetics relevant/haploinsufficiency genes	539
OMIM genes	637
Intergenic	833
Overall	735
Average marker spacing (base pairs)	1,086
Coverage*	
RefSeq genes (18,701)	18,533 (99.1%)
Cancer genes (318)	318 (100%)
Cytogenetics relevant/haploinsufficiency genes (559)	548 (98.0%)
X chromosome genes (801)	786 (98.1%)
OMIM genes (12,341)	12,242 (99.2%)

*20 markers with minimum size of 50 kb

Reagents

Reagent kits are available in 24- and 96-sample sizes; each kit contains three modules.

Module 1 Store at -20°C	Module 2 Store at 4°C	Module 3 Store at room temperature
Cyto 10X Denaturing Solution	Cyto Magnetic Beads	Cyto Purification Wash Buffer
Cyto 10X Neutralization Solution	Cyto Holding Buffer	Cyto Elution Buffer
Cyto Amplification Reaction Buffer	Cyto Stain Buffer 1	Cyto Water
Cyto Amplification Enzyme Mix	Cyto Stain Buffer 2	Cyto Wash Buffer A
Cyto 5X Fragmentation and Labeling Buffer		Cyto Wash Buffer B
Cyto Fragmentation and Labeling Enzyme Mix		
Cyto Hybridization Buffer		
Control DNA Cytogenetics		

Ordering information

Product	Description	Part number
Cytogenetics Whole-Genome 2.7M Array		
Cytogenetics Array	6 arrays	901387
Cytogenetics Array	24 arrays	901388
Cytogenetics Array	96 arrays	901389
Cytogenetics Reagent Kit		
Cytogenetics Reagent Kit	24 reactions	901378
Cytogenetics Reagent Kit	96 reactions	901382
Cytogenetics Software		
Cytogenetics Chromosome Analysis Suite	Available as download from product web page	

Related products

Product	Part number
Complete GeneChip® Instrument System	
GeneChip® Scanner 3000 7G Whole-Genome Association System	00-0362
Includes: 1x GeneChip® Scanner 3000 7G Plus Targeted Genotyping System with AutoLoader	
1x 2D Handheld Barcode Reader	
2x GeneChip® Fluidics Station 450	
1x GeneChip® Hybridization Oven 645	
1x Computer Workstation loaded with Affymetrix® Chromosome Analysis Suite Software	
For other instrument system configurations or individual system components to meet your needs, please contact your local Affymetrix Account Manager for assistance.	



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