

## The CytoScan™ HD Cytogenetics Solution

### Join the resolution revolution

The CytoScan™ HD Cytogenetics Solution from Affymetrix enables cytogenetic researchers to detect and analyze relevant chromosomal aberrations with more confidence than any other array-based technology.

DNA microarrays are revolutionizing the field of cytogenetics, and Affymetrix is leading the way with its next-generation products for molecular cytogenetics research.

The CytoScan™ HD Array, reagents, and software were developed with input from cytogeneticists and guidance from industry-leading scientists to deliver an intuitive platform for fast, reliable detection of chromosomal aberrations.

#### The CytoScan™ HD Array offers:

- **Best coverage** – The broadest coverage of constitutional, cancer, OMIM, and RefSeq genes on a single array for the most comprehensive and relevant cytogenetic analysis
- **Highest performance** – Exceeds cytogenetics community guidelines for specificity, sensitivity, and resolution across the genome
- **Most SNPs** – Confident breakpoint determination, allelic confirmation of copy number changes, high-resolution LOH, gene-level homozygosity mapping, and enhanced detection of low-level mosaics, sample heterogeneity, and triploidy

The CytoScan HD Array is based on the proven Genome-Wide Human SNP Array 6.0 and contains more than 2.6 million markers for copy number analysis and approximately 750,000 SNPs that fully genotype with greater than 99 percent accuracy.

The CytoScan HD Cytogenetics Solution is a complete cytogenetic microarray solution including the new CytoScan HD Array, an optimized and streamlined assay, an all-inclusive reagent kit, the proven GeneChip® System 3000 instrumentation platform, and state-of-the-art ChAS software for data visualization and analysis, coupled with full service and support.

#### Features

##### Array

The CytoScan HD Array provides the power to detect known and novel chromosome aberrations across the entire human genome. This array features unbiased whole-genome coverage,



excellent performance across the entire genome (>99% sensitivity and specificity for CN changes >400 kb), and the highest probe density (>2.6 million markers including 750,000 unique SNPs) to detect gene-level, copy-neutral LOH, uniparental isodisomy (UPD), and regions identical-by-descent, in addition to low-level mosaicism and sample heterogeneity.

#### Reagents

The complete and optimized CytoScan™ HD Reagent Kit\* is designed to save you time and money, reduce operator error, and deliver performance exceeding cytogenetics community guidelines. The simplified and streamlined assay protocol makes it easier to obtain consistent and high-quality results aligned with laboratory workflow requirements.

#### Software

The Affymetrix® Chromosome Analysis Suite (ChAS) software was developed with input from cytogenetics experts, so it is tailored to cytogenetic research analysis and reporting. Features include an intuitive and streamlined analysis workflow, multiple graphical views, and flexible analysis options presented in an easy-to-understand graphical interface. With the easy-to-use software, it is simple to analyze data and generate custom reports based on your specific requirements.

\*Clontech TITANIUM™ Taq ordered separately

## Specifications

<b>Markers for copy number analysis</b>	
Total number of copy number markers	2,696,550
Number of non-polymorphic markers	1,953,246
Number of SNP markers	743,304
Total number of "genotype-able" SNP markers	749,157
Genome build	hg19
Autosomal markers	2,491,915
Pseudoautosomal markers	4,624
Intragenic markers	1,410,535
Intergenic markers	1,286,015
<b>Average marker spacing (base pairs)</b>	
Intragenic (within all the genes below)	880
ISCA constitutional genes	384
Cancer genes	553
OMIM Morbid genes	659
X chromosome OMIM Morbid genes	486
RefSeq genes	880
Intergenic (non-gene backbone)	1,737
Overall (gene and non-gene backbone)	1,148
<b>Percentage of genes covered (25 markers/100 kb)</b>	
ISCA constitutional genes (340)	100%
Cancer genes (526)	100%
OMIM Morbid genes (2,640)	98%
X chromosome OMIM Morbid genes (177)	100%
RefSeq genes (36,121)	96%

## Ordering information

Part number	Product	Description
901835	CytoScan™ HD Array Kit and Reagent Kit Bundle	Arrays and reagents sufficient for 24 reactions
901834	CytoScan™ HD Training Kit	Arrays and reagents sufficient for 24 reactions plus training materials
N/A	Affymetrix® Chromosome Analysis Suite Software	Available as download from software web page
<b>CytoScan™ Training Products</b>		
000802	CytoScan FAS On-site Training	FAS performs both on-site preparation and first week of training
000803	CytoScan FAS Assisted Training	FAS performs on-site site preparation. Customer completes training using self-paced tools
<b>CytoScan™ Reagent Kit Components</b>		
<b>901803</b>	<b>Restriction and Ligation Reagents</b>	
901718	Nsp I Enzyme	
901719	10X Nsp I Buffer	
901720	100X BSA	
901697	Low EDTA TE Buffer	
901723	T4 DNA Ligase Enzyme	
901722	10X T4 DNA Ligase Buffer	
901781	Water (Nuclease Free)	
<b>901749</b>	<b>Ligation Adaptors and Fragmentation Reagents</b>	
900697	Adaptor, Nsp (50 µM)	
901016	PCR Primer, 002 (100 µM)	
901010	Fragmentation Reagent	
900422	10X Fragmentation Buffer	
900699	DNA Labeling Reagent (30 nM)	
900696	Terminal Deoxynucleotidyl Transferase Buffer	
900541	Oligonucleotide Control Reagent 0100	
900421	Genomic DNA	
<b>901826</b>	<b>Purification Reagents</b>	
901738	Elution Buffer	
901781	Water (Nuclease Free)	
901372	Purification Wash Buffer	
<b>901804</b>	<b>Hybridization Reagents</b>	
901725	Hyb Buffer Part 1	
901726	Hyb Buffer Part 2	
901727	Hyb Buffer Part 3	
901728	Hyb Buffer Part 4	
<b>901805</b>	<b>Stain Reagents</b>	
901751	Stain Buffer 1	
901752	Stain Buffer 2	
901733	Array Holding Buffer	
901807	Purification Beads	
<b>901806</b>	<b>Wash Reagents</b>	
901680	Wash A Buffer	
901681	Wash B Buffer	
<b>Additional components</b>		
639243	Clontech TITANIUM™ DNA Amplification Kit (400 reactions)	Order directly from Clontech

## Supporting products

Part number	Product name	Description
00-0218	GeneChip® 3000 7G with Workstation and AutoLoader	Includes: <ul style="list-style-type: none"> <li>▪ GeneChip® Scanner 3000 7G with AutoLoader</li> <li>▪ 2D Handheld Barcode Reader</li> <li>▪ GeneChip® Fluidics Station 450</li> <li>▪ GeneChip® Hybridization Oven 645</li> <li>▪ Computer Workstation with instrument control software</li> </ul>
00-0349	GeneChip® System 3000Dx v.2 with Data Transfer Server*	Includes: <ul style="list-style-type: none"> <li>▪ GeneChip® Scanner 3000Dx V.2 with AutoLoaderDx</li> <li>▪ Fluidics Station 450Dx v.2</li> <li>▪ Workstation with Affymetrix Molecular Diagnostics Software (AMDS)</li> <li>▪ Data Transfer Server</li> </ul> * Requires GeneChip® Hybridization Oven 645 (see below)
00-0331	GeneChip® Hybridization Oven 645	

For other instrument system configurations or individual system components to meet your needs, please contact your local Affymetrix account manager for assistance.

Affymetrix, Inc. Tel: +1-888-362-2447 ■ Affymetrix UK Ltd. Tel: +44-(0)-1628-552550 ■ Affymetrix Japan K.K. Tel: +81-(0)3-6430-4020  
 Panomics Products Tel: +1-877-PANOMICS www.panomics.com ■ USB Products Tel: +1-800-321-9322 www.usb.affymetrix.com

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