



# Data Sheet

## GeneChip® Mouse Genome Arrays

### Comprehensive Coverage of the Mouse Genome in Two Flexible Formats: Single-array Cartridges and Multi-array Plates

Affymetrix provides microarrays for expression analysis with comprehensive coverage of the mouse genome. GeneChip® Mouse Genome 430 and 430A 2.0 Arrays provide gene expression data for a multitude of applications, including:

- Discovering genes and characterizing gene function
- Understanding biological mechanisms
- Analyzing toxicological responses
- Building robust databases

#### Single-array Cartridge Format

Analyze the entire genome or focus on a targeted set of well-annotated genes with the GeneChip® Mouse Genome 430 2.0 Array and GeneChip® Mouse Genome 430A 2.0 Array, respectively.

#### Multi-array Plate Format

Run multiple whole-genome mouse microarrays in parallel, while reducing labor cost and increasing standardization with the GeneChip® HT Mouse Genome 430 Array Plate Set.

#### Power of the Probe Set

The key advantage of GeneChip® technology is that each high-density array contains multiple probe pairs per probe set, providing several independent measurements for every transcript.

### GeneChip® Mouse Genome Arrays

The family of GeneChip® Mouse Genome 430 (MG-430) Arrays enables you to analyze gene expression across the whole mouse genome or focus on a subset of well-characterized genes using either single-array cartridges or multi-array plates. All MG-430 Arrays are based on the same genome content and use the same probe set strategy to measure gene expression levels accurately and comprehensively.

- GeneChip® Mouse Genome 430 2.0 Array (single array, cartridge format) – Analyze gene expression across the entire mouse genome for one sample
- GeneChip® Mouse Genome 430A 2.0 Array (single array, cartridge format) – Analyze gene expression of the most well-characterized genes in the mouse

genome for one sample

- GeneChip® HT Mouse Genome 430 Array Plate Set (multiple arrays, plate format) – Analyze gene expression across the entire mouse genome for up to 96 samples at a time

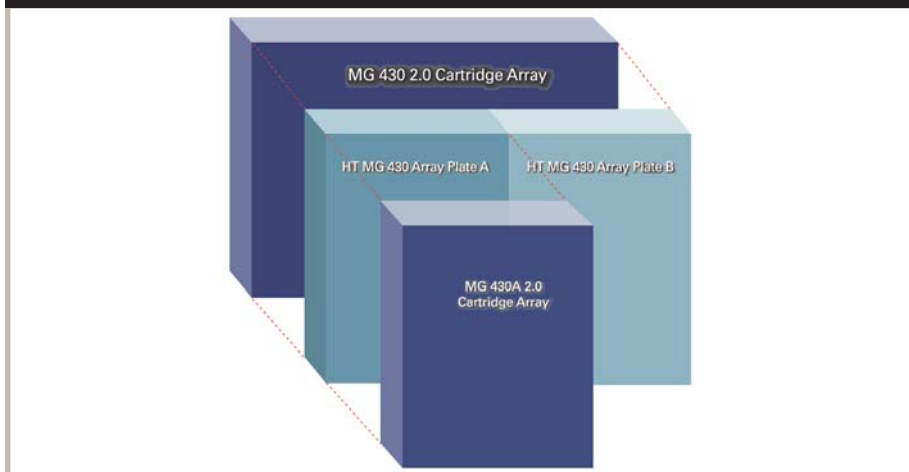
#### CONTENT RELATIONSHIP BETWEEN GENECHIP® MOUSE GENOME ARRAY FORMATS

All probes on the GeneChip® Mouse Genome 430 2.0 Array (cartridge format) are also contained on the HT Mouse Genome 430 Array Plate Set. Plate A of the two-plate HT set contains about half of the probe sets found on the Mouse Genome 430 2.0 Array; plate B contains the remainder. More detailed information on the identity of the genes represented on each array can be found at the NetAffx™ Analysis Center ([www.affymetrix.com/analysis/index.affx](http://www.affymetrix.com/analysis/index.affx)).

**Figure 1:** GeneChip® Mouse Genome 430 Arrays shown in cartridge and HT plate formats.



**Figure 2:** Relationship between GeneChip® Mouse Genome Array formats.



Oligonucleotide probes complementary to each corresponding sequence are synthesized *in situ* on the array for each format. Eleven pairs of oligonucleotide probes, including a perfect match and mismatch probe, are used to measure the level of transcription of each sequence represented on all GeneChip Mouse Genome 430 and 430A 2.0 Arrays.

### GeneChip® Mouse Genome 430 2.0 Array in Cartridge Format

The GeneChip® Mouse Genome 430 2.0 Array in cartridge format offers comprehensive analysis of genome-wide expres-

sion on a single array.

- Provides coverage of the transcribed mouse genome on a single cartridge array
- 45,000 probe sets analyze the expression level of more than 39,000 transcripts and variants from more than 34,000 well-characterized mouse genes and UniGene clusters

#### INSTRUMENT/SOFTWARE REQUIREMENTS

- GeneChip® Scanner 3000, GeneChip® Scanner 30007G or GeneChip® Scanner 3000 7G Plus
- GeneChip® Operating Software (GCOS) v1.2 or higher

### GeneChip® Mouse Genome 430A 2.0 Array in Cartridge Format

The GeneChip® Mouse Genome 430A 2.0 Array in cartridge format is a single array that can be used to explore mechanisms behind biological and disease processes. New design and reduced feature size mean you can obtain the same high-quality information in a more cost-effective manner.

- Provides coverage of well-substantiated genes in the transcribed mouse genome on a single cartridge array
- 22,600 probe sets analyze the expression level of more than 14,000 well-characterized mouse genes

#### INSTRUMENT/SOFTWARE REQUIREMENTS

- GeneChip® Scanner 3000, GeneChip® Scanner 30007G or GeneChip® Scanner 3000 7G Plus
- GeneChip® Operating Software (GCOS) v1.2 or higher

### GeneChip® HT Mouse Genome 430 Array Plate Set

The GeneChip® HT Mouse Genome 430 Array Plate Set is designed for high-throughput microarray expression analysis, greatly simplifying the management of multiple microarrays run in parallel. The plates are constructed to be spatially compatible with conventional 96-well plate

### Critical Specifications for GeneChip® Mouse Genome Arrays

	Mouse Genome 430 2.0 Array	HT Mouse Genome 430 Array Plate A	HT Mouse Genome 430 Array Plate B
Number of genes	>34,000	~14,000	~20,000
Number of probe sets	>45,000	>22,600	>22,500
Feature size	11 µm	8 µm	8 µm
Oligonucleotide probe length	25-mer	25-mer	25-mer
Probe pairs/sequence	11	11	11
Control sequences included:			
Hybridization controls	<i>bioB, bioC, bioD and cre</i>	<i>bioB, bioC, bioD and cre</i>	<i>bioB, bioC, bioD and cre</i>
Poly-A controls	<i>dap, lys, phe and thr</i>	<i>dap, lys, phe and thr</i>	<i>dap, lys, phe and thr</i>
Normalization control set	100 probe sets	100 probe sets	100 probe sets
Housekeeping/control genes	GAPDH, beta-Actin, transferrin receptor, pyruvate carboxylase	GAPDH, beta-Actin, transferrin receptor, pyruvate carboxylase	GAPDH, beta-Actin, transferrin receptor, pyruvate carboxylase
Detection sensitivity	1:100,000*	1:100,000*	1:100,000*

\*As measured by detection of pre-labeled transcripts derived from murine cDNA clones in a complex mouse background.

formats and liquid-handling equipment. This configuration is designed to address the needs of large-scale experiments by greatly simplifying the management of multiple microarrays run in parallel, reducing labor costs and enabling increased standardization within studies and across sites.

- Provides coverage of the transcribed mouse genome on a two-array plate set
- 45,000 probe sets analyze the expression level of more than 39,000 transcripts and variants from more than 34,000 well-characterized mouse genes and UniGene clusters

The GeneChip® HT Mouse Genome 430 Array Plate Set is a two-plate set that includes the GeneChip® HT Mouse Genome 430A Array Plate and the GeneChip® HT Mouse Genome 430B Array Plate. For each plate, two plate configurations are offered:

- 24-Array Plate – 24 HT MG-430A or HT MG-430B microarrays are positioned on a single plate of 24 arrays for simultaneous processing and analysis
- 96-Array Plate – 96 HT MG-430A or HT MG-430B Arrays are positioned on a single plate of 96 arrays

#### INSTRUMENT, SOFTWARE AND REAGENT REQUIREMENTS

- GeneChip® HT One-Cycle Target Labeling and Control Reagents
- GeneChip® Array Station
- GeneChip® HT Array Plate Scanner
- GeneChip® HT Software Suite, composed of:
  - GeneChip® Operating Software (GCOS) v1.2 or higher
  - HT Image Reader Software
  - HT Data Transfer Tool

### Content Profile for All Mouse Genome 430 Arrays

The probe sets represented on all GeneChip® Mouse Genome 430 and 430A 2.0 Arrays were selected from sequences derived from GenBank, dbEST and RefSeq. The sequence clusters were created from the UniGene database (Build 107, June 2002) and refined by analysis and comparison with the publicly

available draft assembly of the mouse genome from the Whitehead Institute Center for Genome Research (MSCG, April 2002).

### Normalization Controls for All Mouse Genome 430 Arrays

All GeneChip® Mouse Genome Arrays include a set of mouse maintenance genes to facilitate the normalization and scaling of array experiments. These probe sets are identical on all mouse genome arrays.

This set of genes serves as a tool to normalize and scale your data prior to per-

forming data comparisons. This set of normalization genes shows consistent levels of expression over a diverse set of tissues.

#### RELATED PUBLICATIONS:

Busch, A. K., *et al.* Expression Profiling of Palmitate- and Oleate-regulated Genes Provides Novel Insights into the Effects of Chronic Lipid Exposure on Pancreatic [beta]-cell Function. *Diabetes* **51**(4):977-987 (2002).

Han, S. Y., *et al.* Differential Gene Regulation by Specific Gain-of-function JNK1 Proteins Expressed in Swiss 3T3 Fibroblasts. *Journal of Biological Chemistry* **26**:26 (2002).

Ueda, H. R., *et al.* A Transcription Factor Response Element for Gene Expression during Circadian Night. *Nature* **418**(6897):534-9 (2002).

### Supporting Products for GeneChip® Mouse Genome Cartridge Arrays

Part Number	Product Name	Description
900493	One-Cycle Target Labeling and Control Reagents <sup>1</sup>	Sufficient for 30 reactions Contains: • IVT Labeling Kit • One-Cycle cDNA Synthesis Kit • Sample Cleanup Module • Poly-A RNA Control Kit • Hybridization Controls
900494	Two-Cycle Target Labeling and Control Reagents <sup>1,2</sup>	Sufficient for 30 reactions Contains: • IVT Labeling Kit • Two-Cycle cDNA Synthesis Kit • Sample Cleanup Module • Poly-A RNA Control Kit • Hybridization Controls
900720	Hybridization, Wash and Stain Kit	Sufficient for 30 reactions Contains: Hybridization Module • 2X Hybridization Mix • DMSO • Nuclease-free water Stain Module • Stain Cocktail 1 • Stain Cocktail 1 • Array Holding Buffer Wash Buffer A <sup>3</sup> Wash Buffer B <sup>3</sup>

<sup>1</sup> Individual kit components may be ordered separately.

<sup>2</sup> For the intermediate IVT step with unlabeled nucleotides, please order the MEGAscript® T7 Kit directly from Ambion.

<sup>3</sup> Wash Buffers A and B are also available for individual purchase.

### Supporting Products for GeneChip® HT Mouse Genome Array Plates

Part Number	Product Name	Description
900686	One-Cycle Target Labeling and Control Reagents <sup>1</sup>	Sufficient for 96 reactions Contains: • HT IVT Labeling Kit • HT One-Cycle cDNA Synthesis Kit • Poly-A RNA Control Kit

## Instrument/Software for GeneChip® Mouse Genome Arrays

### Instrument/Software Compatibility

#### Mouse 430 2.0 Cartridge Arrays

GeneChip® Scanner 3000,  
GeneChip® Scanner 3000 7G or  
GeneChip® Scanner 3000 7G Plus  
and GeneChip® Operating Software  
(GCOS) v1.2 or higher

#### Mouse 430A 2.0 Cartridge Arrays

GeneChip® Scanner 3000,  
GeneChip® Scanner 3000 7G or  
GeneChip® Scanner 3000 7G Plus  
and GeneChip® Operating Software  
(GCOS) v1.2 or higher

#### HT Mouse Genome 430 Array Plate Set

GeneChip® HT Array Plate Scanner  
GeneChip® Array Station  
GeneChip® HT Image Reader Software  
GeneChip® HT Data Transfer Tool  
GeneChip® Operating Software (GCOS)  
v1.2 or higher

## Ordering Information

### GeneChip® Mouse Genome Cartridge Arrays

#### Mouse Genome 430 2.0 Cartridge Arrays

- 900495** Contains 2 Arrays  
**900496** Contains 6 Arrays  
**900497** Contains 30 Arrays

#### Mouse Genome 430A 2.0 Cartridge Arrays

- 900498** Contains 2 Arrays  
**900499** Contains 6 Arrays  
**900500** Contains 30 Arrays

#### HT Mouse Genome Array Plates

- 901045** **HT Mouse 430A 96-Array Plate**  
Contains 1 HT Mouse 430A  
96-Array Plate
- 901044** **HT Mouse 430A 24-Array Plates**  
Contains 4 HT Mouse 430A  
24-Array Plates
- 901051** **HT Mouse 430A 96-Array Plate  
with Reagents**  
Contains 1 HT Mouse 430A  
96-Array Plate with Reagents  
Contains 1 HT One-Cycle  
Target Labeling and Controls Kit,  
96 Reactions
- 901050** **HT Mouse 430A 24-Array Plates  
with Reagents**  
Contains 4 HT Mouse 430A  
24-Array Plates with Reagents  
Contains 1 HT One-Cycle  
Target Labeling and Controls Kit,  
96 Reactions
- 901047** **HT Mouse 430B 96-Array Plate**  
Contains 1 HT Mouse 430B  
96-Array Plate
- 901046** **HT Mouse 430B 24-Array Plates**  
Contains 4 HT Mouse 430B  
24-Array Plates

- 901053** **HT Mouse 430B 96-Array Plate  
with Reagents**  
Contains 1 HT Mouse 430B  
96-Array Plate with Reagents  
Contains 1 GeneChip® HT One-Cycle  
Target Labeling and Controls Kit,  
96 Reactions
- 901052** **HT Mouse 430B 24-Array Plates  
with Reagents**  
Contains 4 HT Mouse 430B  
24-Array Plates with Reagents  
Contains 1 HT One-Cycle  
Target Labeling and Controls Kit,  
96 Reactions
- 900800** **HT Mouse 24-Array Plate Set**  
Contains 4 HT Mouse Genome 430A  
24-Array Plates  
Contains 4 HT Mouse Genome 430B  
24-Array Plates
- 900803** **HT Mouse 96-Array Plate Set**  
Contains 1 HT Mouse Genome 430A  
96-Array Plate  
Contains 1 HT Mouse Genome 430B  
96-Array Plate
- 900844** **HT Mouse 24-Array Plate Set with  
Reagents**  
Contains 4 HT Mouse 430A 24-Array  
Plates  
Contains 4 HT Mouse 430B 24-Array  
Plates  
Contains 1 HT One-Cycle Target  
Labeling and Controls Kit
- 900847** **HT Mouse 96-Array Plate Set with  
Reagents**  
Contains 1 HT Mouse 430A 96-Array  
Plate  
Contains 1 HT Mouse 430B 96-Array  
Plate  
Contains 1 HT One-Cycle Target  
Labeling and Controls Kit



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