



Data Sheet

GeneChip® *Drosophila* Genome 2.0 Array

The GeneChip® *Drosophila* Genome 2.0 Array provides comprehensive coverage of the *Drosophila melanogaster* genome and is an important tool for developmental biology. The array can be used to study expression of over 18,500 *Drosophila melanogaster* transcripts and was developed based on the content from the recent annotation (release 3.1) of the *Drosophila melanogaster* genome by FlyBase and the Berkeley *Drosophila* Genome Project (BDGP), funded by the National Human Genome Research Institute, Department of Energy, and the Howard Hughes Medical Institute. In addition, other published gene predictions from the *Drosophila* Research community were included on the array.

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 multiple independent measurements for each transcript.

This *Drosophila* Genome 2.0 Array includes over 30 percent more content than the previous generation *Drosophila melanogaster* design.

Applications

Drosophila melanogaster, otherwise known as the fruit fly, is an insect measuring approximately 3mm in length and is typically present near decaying fruit. Its short life cycle, easy reproduction in the laboratory, and low cost have contributed to the wide use of *Drosophila melanogaster* as one of the most valuable model organisms in biological research, particularly in genetics and development.

Besides its use in genetic and developmental studies, *Drosophila melanogaster* is used for studies such as embryology, alcoholism, learning, behavior, ecology, evolution, circadian rhythm, mechanistic pathways, disease, and pharmaceutical development.

Drosophila melanogaster represents one of the most well-understood model organisms. Mutant flies with defects in any of several thousand genes are available to the public, and the entire genome has recently been sequenced.

The GeneChip® *Drosophila* Genome 2.0 Array provides a valuable tool for researchers to quickly and reliably assess the biological effects of small molecules, as well as to investigate the mechanisms of action and signaling pathways responsible for biological processes and developmental changes. Because researchers can interrogate over 18,500 transcripts in a single experiment, the GeneChip *Drosophila* Genome 2.0 Array enables scientists to analyze changes in gene expression at the genome level in order to accelerate ongoing research and facilitate novel discovery.

Array Profile

The GeneChip *Drosophila* Genome 2.0 Array is a 100-format, 11-micron array design, and it contains 14 probe pairs per probe set, offer-

ing researchers the most comprehensive and up-to-date microarray available for *Drosophila melanogaster* gene expression research. The design of the new array was largely based on the content from the recent annotation (release 3.1) of the *Drosophila melanogaster* genome by Flybase and the Berkeley *Drosophila* Genome Project (BDGP), funded by the National Human Genome Research Institute, Department of Energy, and the Howard Hughes Medical Institute. In addition, other published gene predictions from the *Drosophila* Research community were included. This new array design includes over 30 percent more content than the previous generation *Drosophila melanogaster* design.

In total, the array uses over 500,000 data points to measure the expression of 18,500 transcripts and variants. Oligonucleotide probes complementary to each corresponding sequence are synthesized *in situ* on the arrays. Fourteen pairs of oligonucleotide probes are used to measure the level of transcription of each sequence represented on the GeneChip *Drosophila* Genome 2.0 Array.

Instrument/Software Requirements

- GeneChip® Scanner 3000, enabled for High-Resolution Scanning¹
- GeneChip® Operating Software (GCOS) v1.1.1, contains the High-Resolution Scanning Update

¹ GeneChip Scanner 3000 High-Resolution Update is a standard on all instruments shipped starting in September 2003 with serial number series 502. Previous versions, serial number series 501, will require the 00-0110 GeneChip Scanner 3000 High-Resolution Update to be installed.

Critical Specifications

Number of arrays in set	One
Number of transcripts	~18,500
Number of probe sets	18,880
Feature size	11 µm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	14
Array format	100
Control sequences included:	
Hybridization controls:	<i>bioB</i> , <i>bioC</i> , <i>bioD</i> from <i>E. coli</i> and <i>cre</i> from P1 bacteriophage
Poly-A controls:	<i>dap</i> , <i>lys</i> , <i>phe</i> , <i>thr</i> , <i>trp</i> from <i>B. subtilis</i>
Housekeeping/Control genes:	Actin (Actin 42A), GAPDH (Glyceraldehyde 3 phosphate dehydrogenase 2), Eif-4a (Eukaryotic initiation factor 4a)
Detection sensitivity	1:100,000*

*As measured by detection in comparative analysis between a complex target containing spiked control transcriptions and a complex target with no spikes.

Supporting Products

Part Number	Product Name	Description
900493	GeneChip® One-Cycle Target Labeling and Control Reagents ¹	Sufficient for 30 reactions. Contains: <ul style="list-style-type: none">• IVT Labeling Kit• One-Cycle cDNA Synthesis Kit• Sample Cleanup Module• Poly-A RNA Control Kit• Hybridization Controls
900494	GeneChip® Two-Cycle Target Labeling and Control Reagents ^{1,2}	Sufficient for 30 reactions. Contains: <ul style="list-style-type: none">• IVT Labeling Kit• Two-Cycle cDNA Synthesis Kit• Sample Cleanup Module• Poly-A RNA Control Kit• Hybridization Controls

¹Individual Kit components may be ordered separately.

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

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Ordering Information

GeneChip® Drosophila Genome 2.0 Array

GeneChip® Drosophila Genome 2.0 Array

900531 Contains 2 Arrays

900532 Contains 6 Arrays

900533 Contains 30 Arrays

To Order

North America

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Europe

+44 (0) 1628 552550


Japan

+81-(0)3-5730-8200

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