



Data Sheet

GeneChip® Medicago Genome Array

The GeneChip® Medicago Genome Array is designed specifically to monitor gene expression in *Medicago truncatula*, *Medicago sativa*, and the symbiotic organism *Sinorhizobium meliloti*. The Medicago Genome Array is particularly useful for agriculture researchers studying legume genomics and symbiotic relationships between nitrogen fixing bacteria and plants.

This array was created in collaboration with leading Medicago researchers through the Affymetrix GeneChip® Consortia Program and was designed based on content from TIGR *M. truncatula* gene index, gene predictions from IMGAG, gene predictions from the *S. meliloti* genome, and *M. sativa* EST information made available by TIGR.

Applications

Medicago truncatula is an important model organism for plant biology. In addition to its tractable genetic characteristics (small diploid genome and relatively short lifecycle), *M. truncatula* provides opportunities to investigate plant processes that are unique to legumes, such as the interaction with the rhizosphere and formation of symbiotic relationships with nitrogen fixing soil bacterial and colonizing arbuscular mycorrhizal fungi.

The GeneChip® Medicago Genome Array will be useful for genomic approaches to identify the underlying genetic mechanisms that are important for high crop yield, resistance to diseases and insects, and response to environmental factors.

Array Profile

The GeneChip Medicago Genome Array is a 49-format, 11-micron array design and contains 11 probe pairs per probe set. The sequence information for this array was selected from data sources including the TIGR *M. truncatula* gene index (The Institute for Genomic

Research, January 2005), gene predictions from the International Medicago Genome Annotation Group (IMGAG), gene predictions from the *S. meliloti* genome, and *M. sativa* EST information made available by TIGR. The array contains over 61,200 probe sets: 32,167 *M. truncatula* EST/mRNA-based and chloroplast gene-based probe sets; 18,733 *M. truncatula* IMGAG and phase 2/3 BAC prediction-based probe sets; 1,896 *M. sativa* EST/mRNA-based probe sets; and 8,305 *S. meliloti* gene prediction-based probe sets.

Instrument Software Requirements

- GeneChip® Scanner 3000, enabled for High-Resolution Scanning* or GeneChip® Scanner 3000 7G
- GeneChip® Operating Software (GCOS) v1.1.1, which contains the High-Resolution Scanning Update

*GeneChip Scanner 3000 High-Resolution Update is 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 probe sets, <i>M. truncatula</i>	50,902 + 14 controls
Number of transcripts, <i>M. truncatula</i>	48,116
Number of probe sets, <i>M. sativa</i>	1,896
Number of transcripts, <i>M. sativa</i>	1,850
Number of probe sets, <i>S. meliloti</i>	8,305 (gene prediction)
Number of transcripts, <i>S. meliloti</i>	8,226 (gene prediction)
Number of arrays in set	One
Array format	49
Feature size	11 µm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	11
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:	beta-actin, GAPDH, glutathione S-transferase, ubiquitin for <i>M. truncatula</i> and <i>M. sativa</i>
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® Medicago Genome Array

GeneChip® Medicago Genome Array

900734 *Contains 2 Arrays*

900735 *Contains 6 Arrays*

900736 *Contains 30 Arrays*



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