AFFYMETRIX®

Data Sheet

GeneChip® Citrus Genome Array

The GeneChip® Citrus Genome Array is designed specifically to monitor gene expression in Citrus. This array was created in collaboration with leading Citrus researchers through the Affymetrix GeneChip® Consortia Program. The array is based on EST sequences obtained from several species of Citrus and Citrus hybrids. Also included are sequences from Poncirus and Poncirus crosses with Citrus hybrids.

Applications

Citrus is an important multi-billion dollar crop worldwide; Citrus is used in a wide variety of products and provides an important source of vitamin C as well as environmentally friendly solvents. Because Citrus has relatively long generations and time-to-production, it will be especially useful for researchers to identify the genetic mechanisms critical to high crop yield, resistance to diseases and insects, and response to environmental factors that influence productive growth. The GeneChip® Citrus Genome Array provides a tool that enables researchers to elucidate these complex genetic traits in Citrus to determine how crop production can be improved.

Array Profile

The GeneChip Citrus Genome Array is a 64-format, 11-micron array design, and contains 11 probe pairs per probe set. The sequence information for this array was selected from Citrus HarvEST EST and cDNA clustering database, provided by Dr. Tim Close and colleagues at UC Riverside. The array is based on EST sequences obtained from several Citrus species, and Citrus hybrids. Also included are sequences from Poncirus and Poncirus crosses with Citrus hybrids.

The array contains 30,171 probe sets representing up to 33,879 Citrus transcripts, 5,023 non-validated* SNP detection probe sets, and genome tiling** probes distributed on both strands at approximately 35-base spacing across 165 kb of genomic DNA near the suspected tristeza resistance locus. The array also includes 46 probe sets representing several Citrus pathogens, and 60 probe sets representing various reporters, selectable markers and transgenes.

*SNP probe sets were placed on the array to interrogate sequences of interest to the Citrus community. Future work by the Citrus community will enable the characterization of these SNP probe sets.

**Genome tiling of 165 kb of genomic sequence near the suspected tristeza virus-resistance locus was included on the array to interrogate sequences of interest to the Citrus community. The probes are spaced approximately 35 bases apart on both strands of genomic DNA. Future work by the Citrus community will enable the characterization of these probes. Currently, Affymetrix tiling array software, such as TAS and the Integrated Genome Browser, do not support the Citrus Genome Array. Analysis of tiling probes requires knowledge of probe level data extraction techniques.

Critical Specifications	
Probe Sets:	30,171 Citrus probe sets + 5,023 SNP probe sets + 7 Citrus control probe sets + 2 Citrus tiling probe sets + 46 Citrus pathogen probe sets
Transcripts:	Up to 33,879 Citrus transcripts + 7 Citrus control transcripts
Number of arrays in set	One
Array format	64
Feature size	11 μm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	11
Hybridization controls:	*bioB, bioC, bioD, cre*
Poly-A controls:	*dap, lys, phe, thr*
Housekeeping/Control genes:	GAPC, beta-actin, UBQ11
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.

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.

Supporting Products

Part Number	Product Name	Description
900493	GeneChip® One-Cycle Target Labeling and Control Reagents[1]	Sufficient for 30 reactions. Contains: · 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: · IVT Labeling Kit · Two-Cycle cDNA Synthesis Kit · Sample Cleanup Module · Poly-A RNA Control Kit · Hybridization Controls
900454 or 900457	GeneChip® Eukaryotic Hybridization Control Kit	Sufficient for 30 or 150 reactions, respectively
900301	GeneChip® Oligo B2 (included in Hybridization Control Kit)	Sufficient for 30 reactions.

[1]Individual Kit components may be ordered separately.

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

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Probe sets representing pathogen species:

- *Citrus tristeza* virus
- Bent leaf viroid
- *Exocortis Consensus*
- Citrus viroid III
- *Citrus cachexia* viroid
- Citrus viroid OS
- Citrus viroid-I-LSS
- Citrus viroid Ia
- *Citrus leprosis* virus
- Citrus leaf rugose ilarvirus
- *Citrus psorosis* virus
- Citrus variegation virus
- Citrus ringspot virus
- Citrus sudden death-associated virus
- Citrus leaf blotch virus
- Citrus mosaic virus
- Citrus yellow mosaic virus
- Citrus tatter leaf virus
- *Xylella fastidiosa*
- *Xanthomonas axonopodis*

Probe sets representing Citrus species:

- *C. aurantium*
- *C. jambhiri*
- *C. macrophylla*
- *C. medica*
- *C. paradisi x P trifoliata*
- *C. reshni*
- *C. reticulata*
- *C. sinensis*
- *C. sinensis x P trifoliata*
- *C. unshiu*
- *C. x paradisi*
- *P. trifoliata*

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