



# Data Sheet

## GeneChip® Maize Genome Array

The GeneChip® Maize Genome Array contains probe sets to detect transcripts from *Zea mays*, one of the most economically important crops in the world. The GeneChip Maize Genome Array provides comprehensive coverage of over 100 cultivars present in NCBI's UniGene data set, including the most highly represented strains: B73, Ohio43, W22, W23, W64A, and Black Mexican Sweet. The Maize Genome Array has 17,555 probe sets to interrogate approximately 14,850 *Zea mays* transcripts, which represent 13,339 genes (12,113 of which are represented in distinct UniGene clusters).

The sequence information for this array was selected from NCBI's GenBank® (up to September 29, 2004) and *Zea mays* UniGene Build 42 (July 23, 2004) databases. Probe sets on the array include 15 oligonucleotide pairs to detect each transcript, for added robustness and to facilitate detection of polymorphisms.

### Applications

Maize is both a classical genetic model for plant research and an economically important crop. The ability to apply maize sequence information to GeneChip® brand arrays will increase the understanding of the molecular basis of important agronomic traits, gene regulation, genome evolution, plant development, and for maize biology.

The GeneChip® Maize Genome Array, through examination of gene expression patterns of *Zea mays*, will enable researchers to view the global transcription effects of external stimuli, such as fertilizers, pesticides, and growth conditions. The array should enable greater understanding of the molecular mechanisms underlying maize phenotypic biology to increase breeding efficiency, streamline the delivery of new traits, and enable the discovery and enhancement of properties, such as drought tolerance. Finally, the detailed pattern of gene expression offered by the Maize Genome Array can help researchers

optimize production conditions from biomass feed stocks and distinguish the infection pathway of common maize pathogens.

### Array Profile

The sequence information for this array was selected from NCBI's GenBank® (up to September 29, 2004) and *Zea mays* UniGene Build 42 (July 23, 2004) databases. Probe sets on the array include 15 oligonucleotide pairs to detect each transcript, for added robustness and to facilitate detection of polymorphisms.

The Maize Genome Array provides comprehensive coverage of over 100 cultivars present in NCBI's UniGene data set, the most highly represented of which are strains B73, Ohio43, W22, W23, W64A, and Black Mexican Sweet. The maize array includes 17,555 probe sets for approximately 14,850 *Zea mays* transcripts, which in turn represent 13,339 genes (12,113 of which are represented in distinct UniGene clusters).

### Critical Specifications

|   |  |
|---|--|
| Number of probe sets, <i>Zea mays</i>                     | 17,555   |
| Number of transcripts, <i>Zea mays</i>                    | ~14,850  |
| Total # of probe sets including species specific controls | 17,582   |
| Number of arrays in set                                   | One  |
| Array format  | 100  |
| Feature size  | 11 µm  |
| Oligonucleotide probe length                              | 25-mer   |
| Probe pairs/sequence                                      | 15   |
| 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:                               | Maize genes from the commercial GeneChip Test3 Array, including GAPDH, Actin, Cyclophilin 1, Ubiquitin, and 18S rRNA. Additionally there are newly selected control probe sets for Actin, ef1a, and GAPDH. |
| Detection sensitivity                                     | 1:100,000*   |

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

This array was developed through the Affymetrix GeneChip® Consortia Program and provides researchers with a comprehensive tool for studying maize genetics.

## Instrument Software Requirements

- GeneChip® Scanner 3000, enabled for High-Resolution Scanning\*

- 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.

## Ordering Information

### GeneChip® Maize Genome Array

GeneChip® Maize Genome Array

**900614** Contains 2 Arrays

**900615** Contains 6 Arrays

**900616** Contains 30 Arrays

#### To Order

##### North America

888-DNACHIP 888-362-2447

##### Europe

+44 (0) 1628 552550

##### Japan

+81-(0)3-5730-8200

## Supporting Products

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

<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.

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