

GeneChip[®] Arabidopsis ATH1 Genome Array

The GeneChip[®] Arabidopsis ATH1 Genome Array is a versatile and powerful tool for the analysis of gene expression in *Arabidopsis thaliana*, the most commonly studied plant model organism. The array contains probes synthesized *in situ* and designed to measure temporal and spatial gene expression in more than 24,000 gene sequences.

Applications

Study genes involved in development

The advantages of short generation time, small genome size, and ease of cultivation make *Arabidopsis* an excellent model for the study of photosynthesis, embryology, photobiology, physiology, and developmental gene expression.

Measure gene expression in varying environmental conditions

Environmental and chemical stimuli alter gene expression profiles. The Arabidopsis ATH1 Genome Array can help elucidate relationships between gene expression and phenotypic changes based on environmental factors.

Compare and contrast the expression profiles of mutant lines

Analyze gene expression profile differences among easily accessible mutant lines. Examine mutant plant lines to understand the mutation's effect on global gene expression.

Build quantitative databases

GeneChip expression arrays allow for highly parallel, reproducible, quantification of gene expression levels. The Arabidopsis ATH1 Genome Array is an ideal tool for developing robust expression databases.

Array content

The Arabidopsis ATH1 Genome Array, designed in collaboration with The Institute for Genomic Research (TIGR), contains more than 22,500 probe sets representing approximately 24,000 gene sequences on a single array. The array is based on information from the International Arabidopsis Sequencing Project that was formally completed in December 2000. In parallel and subsequent to the genome's completion, TIGR re-annotated the entire genome in a project funded by the National Science Foundation, and the resulting data were used in the design of this array.

To represent as many gene sequences on the array wherever possible, non-unique probe sets were used to represent two or more highly similar genes. Preference was given to genes for which there was evidence of expression, supported by database matches and robust gene models. Ultimately the more than 22,500 probe sets represent 24,000 gene sequences.

Instrument/software requirements

- GeneChip[®] Scanner 3000
- Affymetrix[®] GeneChip[®] Command Console[®] Software (AGCC)

Specifications

Number of sequences represented	>24,000 gene sequences
Number of arrays in set	One
Feature size	18 μ m
Oligonucleotide probe length	25-mer
Probe pairs per sequence	11
Hybridization controls	<i>bioB</i> , <i>bioC</i> , <i>bioD</i> from <i>Escherichia coli</i> ; <i>lysA</i> from <i>Bacillus subtilis</i> ; <i>cre</i> from <i>P1 bacteriophage</i> ; <i>GAPDH</i> , <i>ubiquitin</i> , <i>actin</i> from <i>Arabidopsis</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.

Ordering information

Part number	Description
GeneChip[®] Arabidopsis ATH1 Genome Array	
900385	Contains 5 arrays
900386	Contains 30 arrays

Supporting products

Part number	Description
GeneChip[®] 3' IVT Express Kit	
901228	10 reactions
901229	30 reactions

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