



Data Sheet

GeneChip® Zebrafish Genome Array

The GeneChip® Zebrafish Genome Array provides comprehensive coverage of the zebrafish genome and is an important tool for developmental studies. The array can be used to study expression of over 14,900 *Danio rerio* transcripts and was developed in consultation with a public consortium of zebrafish researchers, Affymetrix array designers, and the National Institutes of Health. Sequences on the array are drawn from a variety of public data sources including GenBank®, dbEST, and UniGene.

Applications

Danio rerio, commonly known as zebrafish, is a model organism used to study vertebrate development and the roles of specific genes and signaling pathways¹ in human development and disease. Specifically, zebrafish are used to model hematopoietic, cardiovascular, visual, and kidney disorders. Transparent, *ex utero* embryogenesis², ease of *in vivo* manipulation, and large clutch sizes make the zebrafish particularly useful for these applications. Additionally, the zebrafish is commonly used as a bioassay for toxicological studies and infectious diseases.

The GeneChip® Zebrafish Genome 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 actions and signaling pathways responsible for biological processes and developmental changes. Because researchers can interrogate over 14,900 transcripts in a single experiment, the Zebrafish Genome Array enables scientists to analyze changes in gene expression at the

genome level in order to accelerate ongoing research and facilitate novel discoveries.

¹Spitsbergen J.M, Kent M.L., The state of the art of the zebrafish model for toxicology and toxicologic pathology research--advantages and current limitations. *Toxicol Pathol* **31** Suppl:62-87 (2003 Jan-Feb).

²Pichler, F.B., Laurenson, S., Williams, L.C., Dodd, A., Copp, B.R. & Love, D.R. Chemical discovery and global gene expression analysis in zebrafish. *Nat Biotechnol* **21**(8):879-83 (2003 Aug).

Array Profile

Sequence information for the GeneChip Zebrafish Genome Array was selected from the following public data sources: RefSeq (July 2003), GenBank® (release 136.0, June 2003), dbEST (July 2003), and UniGene (Build 54, June 2003). The array was designed in collaboration with representative members of the Zebrafish community and the National Institutes of Health.

Oligonucleotide probes complementary to each corresponding sequence are synthesized *in situ* on the arrays. Sixteen pairs of oligonucleotide probes are used to measure the level of transcription of each sequence represented on the GeneChip Zebrafish Genome Array.

Critical Specifications

Number of arrays in set	One
Number of transcripts	~14,900
Number of probe sets	15,509
Feature size	18 µm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	16
Control sequences included:	
Hybridization controls:	<i>bioB</i> , <i>bioC</i> , <i>bioD</i> , and <i>cre</i>
Poly-A controls:	<i>dap</i> , <i>lys</i> , <i>phe</i> , and <i>thr</i>
Housekeeping/Control genes:	GAPDH, alpha 1 Actin
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.

Note: The DsRed probe set is provided with permission from BD Biosciences, and BD Biosciences grants users a limited license to utilize this probe set only on the Affymetrix array. Other uses of the probe set, or other DsRed sequence or sequences require a license from BD Biosciences.

Supporting Products

Part Number	Product Name	Description
900301	Control Oligo B2, 3nM	Sufficient for 30 reactions
900433	Eukaryotic Poly-A RNA Control Kit	Approximately 100 reactions
900454	Eukaryotic Hybridization Control Kit	Sufficient for 30 reactions
900457	Eukaryotic Hybridization Control Kit	Sufficient for 150 reactions
900449	GeneChip® Expression 3'-Amplification Reagents for IVT Labeling	Sufficient for 30 reactions
900371	GeneChip® Sample Cleanup Module	Sufficient for 30 reactions
900375	T7-Oligo(dT) Promoter Primer Kit	Sufficient for 150 reactions

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Ordering Information

GeneChip® Zebrafish Genome Array

GeneChip® Zebrafish Genome Array

900487 *Contains 5 Arrays*

900488 *Contains 30 Arrays*



上海仪方生物技术有限公司

电话: 021-3202-0611 传真: 021-6085-2521

邮箱: yeslab@126.com 网址: www.yeslab.com