



Data Sheet

GeneChip® Plasmodium/Anopheles Genome Array

The GeneChip® Plasmodium/Anopheles Genome Array is the first GeneChip brand array to provide comprehensive coverage of two organisms on a single array, interrogating over 20,000 transcripts from *Plasmodium falciparum* and *Anopheles gambiae*. This new array has important applications for malaria, which is one of the most infectious diseases in the world estimated to cause 2.7 million deaths each year. The GeneChip Plasmodium/Anopheles Array was originally designed through the CustomExpress® Array Program and is now available through the Made-to-Order Program.

Applications

It is estimated 300 million people are infected each year by *Plasmodium falciparum*, the malaria parasite which infects red blood cells via the mosquito, *Anopheles gambiae*. Until now, research on these organisms was difficult, as few comprehensive genetic systems existed. By including both organisms on a single array, scientists can better understand the molecular dynamics involved in the host/parasite relationship as well as the mechanism of action and biology behind malaria.

Array Profile

The GeneChip® Plasmodium/Anopheles Genome Array includes probe sets representing over 5,400 *P. falciparum* transcripts and approximately 16,900 *A. gambiae* genes. The

GeneChip Plasmodium/Anopheles Genome Array was developed in collaboration with the Malaria Research Institute at the Johns Hopkins Bloomberg School of Public Health.

Plasmodium falciparum sequence information for the Plasmodium/Anopheles Genome Array was collected primarily from PlasmodB (version 4.1, June 2003) and augmented with sequence information from GenBank® and dbEST. Sequence information for *A. gambiae* was drawn primarily from Ensembl (Build 2, 2003) and augmented with sequence information from GenBank and dbEST.

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

Critical Specifications

Number of arrays in set	One
Number of transcripts	~4,700 (<i>P. falciparum</i>); ~16,000 (<i>A. gambiae</i>)
Number of probe sets	5,407 (<i>P. falciparum</i>); 16,941 (<i>A. gambiae</i>)
Feature size	18 µm
Oligonucleotide probe length	25-mer
Probe pairs/sequence	11
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>
Normalization control set:	100 human normalization control probe sets
Housekeeping/Control genes:	human, Plasmodium, Anopheles: GAPDH actin human: 18S-rRNA, 28S-rRNA, ISGF3A, Alu
Blood related controls:	192 human probe sets
Detection sensitivity	1:100,000*

*As measured by detection of pre-labeled transcripts derived from Plasmodium and Anopheles cDNA clones in a complex background.

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
900493	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	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® Plasmodium/ Anopheles Genome Array

GeneChip® Plasmodium/Anopheles
Genome Array

900511 *Contains 2 Arrays*

900512 *Contains 6 Arrays*

To Order

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