

GeneChip® Plasmodium/Anopheles Genome Array

The GeneChip® Plasmodium/Anopheles Genome Array provides comprehensive coverage of two organisms on a single array, interrogating more than 20,000 transcripts from *Plasmodium falciparum* and *Anopheles gambiae*. This array has important applications for malaria, which is one of the most infectious diseases in the world and is estimated to cause 2.7 million deaths each year.

Applications

An estimated 300 million people are infected each year by *P. falciparum*, the malaria parasite, which infects red blood cells via the mosquito, *A. gambiae*. 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 Plasmodium/Anopheles Genome Array includes probe sets representing more than 5,400 *P. falciparum*

transcripts and approximately 16,900 *A. gambiae* genes. The Plasmodium/Anopheles Genome Array was developed in collaboration with the Malaria Research Institute at the Johns Hopkins Bloomberg School of Public Health.

P. falciparum sequence information for the Plasmodium/Anopheles Genome Array was collected primarily from PlasmodB and augmented with sequence information from GenBank® and dbEST. Sequence information for *A. gambiae* was drawn primarily from Ensembl 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 Plasmodium/Anopheles Genome Array.

Instrument/software requirements

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

Specifications

Number of probe sets	5,407 (<i>P. falciparum</i>); 16,941 (<i>A. gambiae</i>)
Number of transcripts	~4,700 (<i>P. falciparum</i>); ~16,000 (<i>A. gambiae</i>)
Number of arrays in set	One
Feature size	18 µm
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> 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>Bacillus subtilis</i>
Normalization control set	100 human normalization control probe sets
Housekeeping/control genes	Plasmodium, Anopheles: GADPH, 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.

Ordering information

Part number	Description
GeneChip[®] GeneChip[®] Plasmodium/Anopheles Genome Array	
900511	Contains 2 arrays
900512	Contains 6 arrays

Supporting products

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

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