



Package Insert

GeneChip® Human X3P Array

Intended Use

The GeneChip® Human X3P Array was designed specifically for whole-genome expression profiling of formalin-fixed, paraffin-embedded (FFPE) samples, and is now available via the GeneChip Made-to-Order Array program.

Resulting from a collaboration between Affymetrix and Arcturus, this array is optimized as part of a system solution together with the Paradise™ Reagent System from Arcturus for expression analysis of FFPE samples.

FFPE samples introduce unique challenges for microarray analysis, including potential fragmentation and chemical modification of RNA molecules. In order to overcome these challenges, the Paradise Reagent System was developed to provide RNA isolation and amplification reagents optimized for FFPE samples. In addition, the X3P Array is designed to focus on interrogating sequences located closer to the 3' end of the transcripts compared with standard GeneChip arrays. Together, the reagents and array accommodate the characteristics of the FFPE RNA samples, enabling genome-wide profiling.

The target sequences on the X3P Array are identical to those used for designing the GeneChip® Human Genome U133 Plus 2.0 Array, for a total of 47,000 transcripts with 61,000 probe sets, although the probes on the two types of arrays are significantly different.

The probe selection criteria for the X3P Array have been modified to accommodate the unique characteristics of FFPE samples. The probe selection region is restricted to the 300 bases at the most 3' end of the transcripts. In contrast, the standard Affymetrix design strategy selects probe sets within the region 600 bases proximal to the 3' ends. As a result of this constraint, the majority of the probe sets on the X3P Array are selected from the 300 bases at the most 3' end of the transcript.

It was not possible to identify high-performance probe sets within the shorter probe selection region for all transcripts. For approximately 4,000 transcripts, two sets of probe sets are represented on the Human X3P Array: 1) the original probe sets from the standard HG-U133 Plus 2.0 Array design, and 2) a new, more 3' probe set that did not meet the minimum probe score selection threshold. In addition, for fewer than 200 transcripts where no probe sets within the smaller (300 bps) probe selection region could be found, only the HG-U133 Plus 2.0 Array probe sets are represented on the X3P Array.

Oligonucleotide probes are synthesized *in situ* complementary to each corresponding sequence. Eleven pairs of oligonucleotide probes are used to measure the level of transcription of each sequence represented.

GeneChip probe arrays are for research use only and not intended for use in diagnosis of disease. Please visit www.affymetrix.com for a complete list of supporting documentation including procedures regarding target preparation, target hybridization, fluidics station setup, probe array scan, and data analysis.

Instrumentation and Software Required

1. GeneChip® Scanner 3000 enabled for High-Resolution Scanning*
2. GeneChip® Command Console® Software (AGCC)
3. GeneChip® Fluidics Station

*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.

Critical Specifications	
Feature Size	11 µm
Probe Pairs/Sequence	11
Hybridization Controls	<i>bioB</i> , <i>bioC</i> , <i>bioD</i> and <i>cre</i> from P1 Bacteriophage
Poly-A Controls	<i>dap</i> , <i>lys</i> , <i>phe</i> , <i>thr</i> from <i>B. subtilis</i>
Normalization Controls	100 probe sets
Housekeeping Controls	GAPDH, beta-Actin, ISGF-3 (STAT-1)
Hybridization Volume	200 µL. The total fill volume of the cartridge is 250 µL.
Fluidics Protocol	EukGE-WS2v5 Fluidics Station 450/250 scripts are designated by the suffix "_450."
Library Files	U133_X3P

Accessory Files

Fluidics

The Fluidics Script used depends on the labeling protocol, hybridization and stain reagents used. Refer to the Fluidics Script Support page to determine the appropriate fluidics protocol for this array, GeneChip® instrument system, and reagents used. The Fluidics Scripts can be downloaded from the following URL: www.affymetrix.com/support/technical/fluidics_scripts.affx.

Library Files

Library files contain information about the probe array design characteristics, probe use and content, and scanning and analysis parameters. These files are unique for each probe array type. Additional information can be located under the specific array product on the Affymetrix web site at the following URL: www.affymetrix.com/index.affx.

Mask Files

The GeneChip Human X3P Array includes a set of human maintenance genes to facilitate the normalization and scaling of array experiments. These control probe sets are the same as the control probe sets on the HG-U133 Plus 2.0 Array. This set of genes serves as a tool to normalize or scale your data prior to performing data comparison. This set of normalization genes shows consistent levels of expression over a diverse set of tissues. Mask files enabling the use of these probe sets for normalization and scaling are available on the Affymetrix web site at the following URL: www.affymetrix.com/support/technical/mask_files.affx.

Comparison Spreadsheets

Comparison Spreadsheets are designed to assist in understanding the relationship between the data generated using different, but related, GeneChip expression probe arrays. Comparison Spreadsheets are available on the Affymetrix web site at the following URL: www.affymetrix.com/support/technical/comparison_spreadsheets.affx.

Ordering Information

P/N	Product Name	Description
Arrays		
900516	GeneChip® Human X3P Array	6 Arrays
Supporting Products		
901228	GeneChip® 3' IVT Express Kit	Sufficient for 10 Reactions
901229		Sufficient for 30 Reactions
900720	GeneChip® Hybridization, Wash, and Stain Kit ¹	Sufficient for 30 Reactions

1. Each kit contains one (1) Hybridization Module, one (1) Stain Module, three (3) bottles of Wash Buffer A and one (1) bottle of Wash Buffer B, sufficient for 30 reactions. Individual kit components may be ordered separately.

Affymetrix® products can be purchased directly from Affymetrix in the United States, and many European and Asian countries. For all other territories, please view a list of our distribution partners, which can be located at: www.affymetrix.com/site/contact/index.affx.

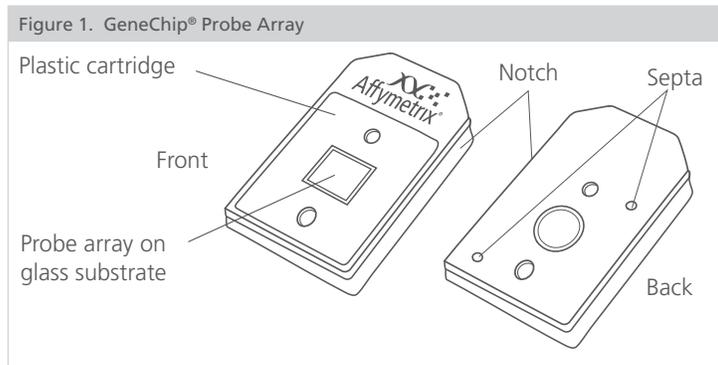
Precautions

1. GENECHIP PROBE ARRAYS ARE FOR RESEARCH USE ONLY; NOT FOR DIAGNOSTIC PROCEDURES.
2. Avoid microbial contamination, which may cause erroneous results.
3. **WARNING: All biological specimens and materials with which they come into contact should be handled as if capable of transmitting infection and disposed of with proper precautions in accordance with federal, state, and local regulations. This includes adherence to the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) for blood-derived and other samples governed by this act. Never pipet by mouth. Avoid specimen contact with skin and mucous membranes.**
4. **CAUTION:** Exercise standard precautions when obtaining, handling, and disposing of potentially carcinogenic reagents.
5. Exercise care to avoid cross-contamination of samples during all steps of this procedure, as this may lead to erroneous results.
6. Use powder-free gloves whenever possible to minimize introduction of powder particles into sample or probe array cartridges.

Storage, Handling and Stability

The GeneChip probe array consists of a square glass substrate mounted in a plastic cartridge (Figure 1). The glass contains an array of oligonucleotides that, when mounted, is on the inner glass surface. A chamber in the plastic housing directly under the glass acts as a reservoir where hybridization and washing occur.

Although the inner glass surface of the probe array is protected, any contamination or scratches on the outer surface of the glass can compromise the accuracy of the scan. Avoid touching the surface of the glass with your fingers. Skin oils and other substances, such as lotions or ink, can fluoresce. If the surface of the glass is noticeably dirty, it can be carefully cleaned with a non-abrasive laboratory tissue.



The GeneChip® probe arrays should be stored at 2° to 8°C. Refer to the expiration date on the package label. Do not use probe arrays or reagents after the expiration date.

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Patents

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