Data Sheet

Affymetrix®
Revolutionize life

3′ IVT Array Strips for the GeneAtlas® System

Easy-to-use, low-cost expression profiling with the most-cited human, mouse, and rat array designs

Introduction

Affymetrix® 3′ IVT Array Strips are easy-to-use, low-cost versions of the most popular and widely cited microarrays for human, mouse, and rat whole-genome expression analysis (GeneChip® HG-U133, HG-U219, MG-430, and RG-230 Arrays).

3′ IVT Array Strips are designed exclusively for the GeneAtlas® System—the first personal microarray system that combines affordability, simplified workflow, ease of use, and excellent performance while leveraging industry-standard expression array designs.

These whole-genome expression array strips provide comprehensive coverage of the human, mouse, and rat genomes in a convenient format that allows four samples to be processed in parallel. The four-array strip format also reduces the complexity of microarray processing to a few simple pipetting steps.

For more information on the GeneAtlas System, please visit www.affymetrix.com/geneatlas.

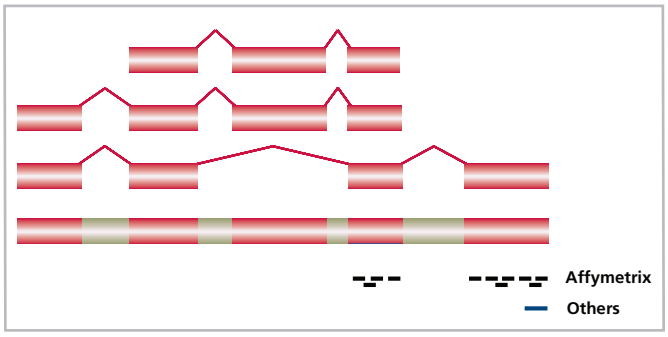
Benefits of Affymetrix® 3′ IVT Array Strips:

- **Most citations** – Leverage the thousands of studies published using these microarray designs, including the HG-U133 Array.
- **Convenient format** – Process four samples at the same time with minimal manual array handling.
- **Highest transcript coverage** – Get confident expression measurements with 9 to 11 probes per transcript.
- **High reproducibility** – Signal correlation greater than or equal to 95 percent.
- **High sensitivity** – Detect more than 70 percent of RNA transcripts at 1:100,000 (equivalent to 1.5 pM).

Design and coverage

Affymetrix HG-U133, MG-430, and RG-230 Array Strips utilize the same content as the corresponding array plates, which in turn are based on the GeneChip® Array Cartridge designs. Array strips, however, include only perfect matched (PM) probes. Affymetrix also offers the Human Genome U219 Array Strip, which is based on recent genome information.

Each 3′ IVT expression array design provides the highest coverage of the transcribed genome, using a comprehensive collection of information sources. These data sources are used to design probes that interrogate 9 to 11 unique sequences of each transcript.



The unique 25-mer probes interrogate up to 275 bases per transcript, providing superior performance, data confidence, and the ability to update your experimental data as the understanding of each genome and transcriptome grows.

Table 1 lists the key data sources used to design the probes and associated analysis files that contain the gene annotation for each set of probes. Affymetrix frequently updates array annotation files to remain up to date with the current understanding of each genome. Please visit the Affymetrix website for the most recent array annotation available.

Table 1: Annotation and key data sources for Affymetrix 3′ IVT Array Strips.

Data sources (June 2011)	HG-U133 (Human)	HG-U219 (Human)	MG-430 (Mouse)	RG-230 (Rat)
UniGene (design time)	133 and 159	219	107	99
RefSeq	41	41	41	41
NCBI genome version	37	37	-	-
UCSC	19	19	mm9	rn4
Ensembl	57	57	57	57
GenBank®	177	177	177	177
Entrez	6/2010	6/2010	6/2010	6/2010

Array content

RefSeq probe sets	HG-U133 (Human)	HG-U219 (Human)	MG-430 (Mouse)	RG-230 (Rat)
NM – RefSeq coding transcript, well-established annotation	38,026	43,134	34,325	17,277
XM – RefSeq coding transcript, provisional annotation	1,071	177	1,021	2,692
NR – RefSeq non-coding transcript, well-established annotation	1,515	542	438	12
XR – RefSeq non-coding transcript, provisional annotation	476	79	108	227
RefSeq probe sets (total)	41,090	43,932	35,892	20,208
UniGene probe sets not covered by RefSeq probe sets	10,377	5,388	2,819	8,842
Other probe sets (controls and other sequence sources)	3,273	334	6,412	2,070
Total probe sets	**54,700**	**49,411**	**45,123**	**31,120**
Control probe sets	**HG-U133 (Human)**	**HG-U219 (Human)**	**MG-430 (Mouse)**	**RG-230 (Rat)**
Poly-A controls	*dap, lys, phe, thr*	*dap, lys, phe, thr*	*dap, lys, phe, thr*	*dap, lys, phe, thr*
Hybridization controls	*bioB, bioC, bioD, cre*	*bioB, bioC, bioD, cre*	*bioB, bioC, bioD, cre*	*bioB, bioC, bioD, cre*
Housekeeping/control genes	GAPDH, beta-actin	GAPDH, beta-actin	GAPDH, beta-actin	GAPDH, beta-actin
Normalization controls	100 probe sets	100 probe sets	100 probe sets	100 probe sets

Specifications

	HG-U133 (Human)	HG-U219 (Human)	MG-430 (Mouse)	RG-230 (Rat)
Input RNA required	50–500 ng	50–500 ng	50–500 ng	50–500 ng
Sensitivity[1]	≥1:100,000	≥1:100,000	≥1:100,000	≥1:100,000
Detectable fold change	≥2.0 fold	≥2.0 fold	≥2.0 fold	≥2.0 fold
Dynamic range[1]	≥3log	≥3log	≥3log	≥3log
Probe length	25-mer	25-mer	25-mer	25-mer

[1] Sensitivity and dynamic range were determined using a Latin square experimental design with 61 in vitro transcribed (IVT), full-length transcripts added to HeLa total RNA. For this experiment, 12 spike pools with different relative abundances were tested. Spike concentration differences were defined as significant if the t-statistic results were greater than a threshold set based on three replicates and the alpha significance level of 0.95.

Ordering information

Part number	Product	Description
901569	Affymetrix® HG-U133 PM Array Strip Kit	Contains 1 four-array strip and necessary hybridization, wash, and scan trays
901579	Affymetrix® HG-U133 Array Strip Kit and 3′ IVT Express Kit Bundle	Contains 5 four-array strip kits (20 arrays) and one 3′ IVT Express Kit sufficient for 20 reactions
901613	Affymetrix® HG-U219 PM Array Strip Kit	Contains 1 four-array strip and necessary hybridization, wash, and scan trays
901614	Affymetrix® HG-U219 Array Strip Kit and 3′ IVT Express Kit Bundle	Contains 5 four-array strip kits (20 arrays) and one 3′ IVT Express Kit sufficient for 20 reactions
901570	Affymetrix® MG-430 PM Array Strip Kit	Contains 1 four-array strip and necessary hybridization, wash, and scan trays
901580	Affymetrix® MG-430 PM Array Strip Kit and 3′ IVT Express Kit Bundle	Contains 5 four-array strip kits (20 arrays) and one 3′ IVT Express Kit sufficient for 20 reactions
901571	Affymetrix® RG-230 PM Array Strip Kit	Contains 1 four-array strip and necessary hybridization, wash, and scan trays
901581	Affymetrix® RG-230 PM Array Strip Kit and 3′ IVT Express Kit Bundle	Contains 5 four-array strip kits (20 arrays) and one 3′ IVT Express Kit sufficient for 20 reactions

Required products

Part number	Product	Description
901228	3' IVT Express Kit (10 reactions)	Sufficient for 20 reactions
901229	3' IVT Express Kit (30 reactions)	Sufficient for 60 reactions
901531	GeneAtlas® Hybridization, Wash, and Stain Kit for 3' IVT Arrays (60 reactions)	Sufficient for 60 arrays

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