

# Readme for data used in white paper, “A Comparative Assessment of Performance between HT and Cartridge IVT Expression Arrays”, PN 702484

## Experimental Design

### *Samples*

Four samples were created with four different groups of spikes, containing 7 spikes per group. Pre-labeled spike transcripts were added to sample derived from the human cell line, HeLa. In any one sample, each of the four spike groups was represented at one of the four concentrations: 0, 0.75, 1.5 or 3.0 pM. All four samples had to be run to encompass the four concentrations in the range for any one spike group. Six replicates per sample were run on cartridges and 24-array plates. Twenty-four replicates per sample were run on 96-array plates. Table A1 below lists the probe sets for the 28 spikes and their concentrations in each of the four sample pools. Probe set 207641\_at was left out of the analyses in the white paper due to poor performance with both cartridge and plate arrays.

**Table A1.** Spike pool description. Concentration in pM. Spikes at 1.5 pM are approximately equivalent to 1 transcript in 100,000.

Probeset_ID	Pool 1	Pool 2	Pool 3	Pool 4
203508_at	0	3.0	1.5	0.75
200665_s_at	0	3.0	1.5	0.75
204563_at	0	3.0	1.5	0.75
207641_at	0	3.0	1.5	0.75
204513_s_at	0	3.0	1.5	0.75
207540_s_at	0	3.0	1.5	0.75
204959_at	0	3.0	1.5	0.75
207655_s_at	0.75	0	3.0	1.5
205291_at	0.75	0	3.0	1.5
203471_s_at	0.75	0	3.0	1.5
203921_at	0.75	0	3.0	1.5
209795_at	0.75	0	3.0	1.5
207777_s_at	0.75	0	3.0	1.5
204912_at	0.75	0	3.0	1.5
205569_at	1.5	0.75	0	3.0
203927_at	1.5	0.75	0	3.0
207160_at	1.5	0.75	0	3.0
205692_s_at	1.5	0.75	0	3.0
212827_at	1.5	0.75	0	3.0
212886_at	1.5	0.75	0	3.0
204951_at	1.5	0.75	0	3.0
209606_at	3.0	1.5	0.75	0
205267_at	3.0	1.5	0.75	0
207968_s_at	3.0	1.5	0.75	0
210895_s_at	3.0	1.5	0.75	0
205903_s_at	3.0	1.5	0.75	0
206060_s_at	3.0	1.5	0.75	0
205790_at	3.0	1.5	0.75	0

**Table A2.** Spike pool to well assignment for 24-array and 96-array plates. Plate 550001\_4025828\_241 had a different spike pool to well assignment, shown at bottom.

24-array plate			
	5	7	9
A	1	3	4
B	4	1	2
C	2	4	1
D	1	4	3
E	3	2	4
F	2	3	1
G	3	1	2
H	4	2	3

96-array plate															
	1	2	3	4	5	6	7	8	9	10	11	12			
A	1	3	4	2	1	3	4	2	1	3	4	2			
B	4	1	2	3	4	1	2	3	4	1	2	3			
C	2	4	1	3	2	4	1	3	2	4	1	3			
D	1	4	3	2	1	4	3	2	1	4	3	2			
E	3	2	4	1	3	2	4	1	3	2	4	1			
F	2	3	1	4	2	3	1	4	2	3	1	4			
G	3	1	2	4	3	1	2	4	3	1	2	4			
H	4	2	3	1	4	2	3	1	4	2	3	1			

550001\_4025828\_241

	5	7	9
A	1	4	1
B	4	2	4
C	2	1	2
D	1	3	1
E	3	4	3
F	2	1	2
G	3	2	3
H	4	3	4

Cartridge file names include suffix containing the sample pool name (1-4) and replicate number (a-f).

### ***Cartridge Arrays***

Twenty-four arrays each from three manufacturing lots of cartridges were tested in this study. All cartridges were run in a single experiment with one preparation of sample pools. There are a total of seventy-two cartridge “.cel” files. File nomenclature is as follows: 0034\_1a.cel

- 0034 represents the last four digits of the manufacturing lot number.
- \_1a denotes sample pool 1, replicate a.

There are four samples, 1-4 and six replicates, a-f. The three cartridge lots have file names beginning with 0034, 0035 and 8405, respectively.

### ***HT Arrays***

The HT plates were run in three separate experiments with a different target preparation for each experiment. The table below shows the plate ID, the experiment (1-3) and the month during which the plates were processed. For Figure 6 in the white paper, showing mean absolute RLE for multiple cartridge lots and multiple plates, only plates from Experiment 1 were used in the analysis (from a single experiment and target preparation).

File nomenclature is as follows: 550001\_4023845\_245.A01

- 550001 indicates part number (550001 for 24-array plates, 550002 for 96-array plates)
- 4023845 indicates plate manufacturing lot number

- 245 is a unique plate identifier
- A01 is the array location on the plate (row A, column 1)

**Table B.** Plate ID and experimental information.

Plate ID	Format	Experiment	Date
550001_4023845_245	24-array	1	Jul-06
550001_4023845_247	24-array	1	Jul-06
550001_4023845_249	24-array	1	Jul-06
550001_4023845_250	24-array	1	Jul-06
550001_4023846_229	24-array	1	Jul-06
550001_4023846_230	24-array	1	Jul-06
550002_4017803_207	96-array	1	Jul-06
550002_4017803_208	96-array	1	Jul-06
550002_4017803_209	96-array	1	Jul-06
550002_4017803_210	96-array	1	Jul-06
550002_4017804_216	96-array	1	Jul-06
550002_4017804_218	96-array	1	Jul-06
550001_4025826_185	24-array	2	Oct-06
550001_4025826_189	24-array	2	Oct-06
550001_4025826_191	24-array	2	Oct-06
550001_4025828_241	24-array	2	Oct-06
550001_4023166_078	24-array	3	Nov-06
550001_4023166_083	24-array	3	Nov-06
550002_4024676_689	96-array	3	Nov-06
550002_4024986_875	96-array	3	Nov-06

### ***Files***

“.cel” and “.exp” files are grouped by plate or cartridge lot in \*.zip files. Table C shows the file names, the array format and the number of “.cel”/“.exp” files included. We were unable to generate “.cel” files for 7 HT arrays due to scanning failures.

Files can be imported as follows:

- The files can be imported into a GCOS database using Data Transfer Tool (DTT) version 1.1.1 and selecting Migration of Microarray Suite Data. This option enables the transfer of DAT/CEL/CHP data that do not have the XML file which describes the GCOS project and sample information. A project and sample name will have to be provided to successfully transfer this data into GCOS. Other information required for transfer IN will be regenerated using the information available in the DAT/CEL headers. The data will be inserted under the user provided project and sample name.
- The files can be imported into a GCOS database using GCOS Manager version 1.4.
- The files can be migrated as loose files to any directory and analyzed with the Affymetrix Expression Console software.

**Table C.** File descriptions.

Format	Number of cel files	Zip file Name
24-array	24	HT_HG-U133A_24F_550001_4023845_245.zip
24-array	23	HT_HG-U133A_24F_550001_4023846_230.zip
24-array	24	HT_HG-U133A_24F_550001_4023166_078.zip
24-array	24	HT_HG-U133A_24F_550001_4023166_083.zip
24-array	24	HT_HG-U133A_24F_550001_4023845_247.zip
24-array	24	HT_HG-U133A_24F_550001_4023845_249.zip
24-array	24	HT_HG-U133A_24F_550001_4023845_250.zip
24-array	23	HT_HG-U133A_24F_550001_4023846_229.zip
24-array	24	HT_HG-U133A_24F_550001_4025826_185.zip
24-array	24	HT_HG-U133A_24F_550001_4025826_189.zip
24-array	23	HT_HG-U133A_24F_550001_4025826_191.zip
24-array	24	HT_HG-U133A_24F_550001_4025828_241.zip
96-array	96	HT_HG-U133A_96F_550002_4017803_207.zip
96-array	96	HT_HG-U133A_96F_550002_4017803_208.zip
96-array	95	HT_HG-U133A_96F_550002_4017803_209.zip
96-array	96	HT_HG-U133A_96F_550002_4017803_210.zip
96-array	94	HT_HG-U133A_96F_550002_4017804_216.zip
96-array	96	HT_HG-U133A_96F_550002_4017804_218.zip
96-array	96	HT_HG-U133A_96F_550002_4024676_689.zip
96-array	95	HT_HG-U133A_96F_550002_4024986_875.zip
Cartridge Lot 1 (0034)	24	HG-U133A_2_cartridges_Lot1_0034.zip
Cartridge Lot 2 (0035)	24	HG-U133A_2_cartridges_Lot2_0035.zip
Cartridge Lot 3 (8405)	24	HG-U133A_2_cartridges_Lot2_8405.zip