

# RT<sup>2</sup> Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

## Human Epigenetic Chromatin Remodeling Factors

Cat. no. 330231 PAHS-086ZA

For pathway expression analysis

| Format                                       | For use with the following real-time cyclers                                                                                                                                                                                                                                          |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT <sup>2</sup> Profiler PCR Array, Format A | Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well block); Bio-Rad® models iCycler®, iQ™ 5, MyiQ™, MyiQ2; Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®; Takara TP-800 |
| RT <sup>2</sup> Profiler PCR Array, Format C | Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)                                                                                                                                                                                   |
| RT <sup>2</sup> Profiler PCR Array, Format D | Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®                                                                                                                                                                              |
| RT <sup>2</sup> Profiler PCR Array, Format E | Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™                                                                                                                                                                                           |
| RT <sup>2</sup> Profiler PCR Array, Format F | Roche® LightCycler® 480 (96-well block)                                                                                                                                                                                                                                               |
| RT <sup>2</sup> Profiler PCR Array, Format G | Roche LightCycler 480 (384-well block)                                                                                                                                                                                                                                                |
| RT <sup>2</sup> Profiler PCR Array, Format H | Fluidigm® BioMark™                                                                                                                                                                                                                                                                    |



Sample & Assay Technologies

## Description

The Human Epigenetic Chromatin Remodeling Factors RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in recognizing chromatin modifications and remodeling chromatin to regulate chromatin accessibility and therefore gene expression. Many of these genes contain the chromodomain responsible for ATP hydrolysis-dependent chromatin reorganization. Chromodomain proteins either activate or repress transcription depending on their additional domains and the proteins they recruit. Chromobox domain proteins recognize methylated histone lysine residues and mediate transcriptional repression. Bromodomains and plant homeodomains (PHD) respectively bind acetylated and methylated histone lysine residues and seem to work cooperatively. Other genes on this array, such as the Inhibitor of Growth (ING) family, associate with and modulate histone acetyltransferase and deacetylase complex activity, while still others directly bind methylated CpG DNA. During the development of stem cells to terminally differentiated cells, altered expression occurs for many of these genes to control chromatin dynamics. These genes also exhibit different expression profiles in tumor cells relative to normal cells, suggesting a role for chromatin modification and remodeling in oncogenesis. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in epigenetic chromatin remodeling with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

## Shipping and storage

RT<sup>2</sup> Profiler PCR Arrays in formats A, C, D, E, F, and G are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products. RT<sup>2</sup> Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

For long term storage, keep plates at –20°C.

**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

**Note:** Open the package and store the products appropriately immediately on receipt.

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## Array layout (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT<sup>2</sup> Profiler PCR Array Handbook* for layout.

|          | 1      | 2     | 3     | 4     | 5     | 6       | 7       | 8     | 9     | 10     | 11     | 12     |
|----------|--------|-------|-------|-------|-------|---------|---------|-------|-------|--------|--------|--------|
| <b>A</b> | ARID1A | ASXL1 | BAZ1A | BAZ1B | BAZ2A | BAZ2B   | BMI1    | BPTF  | BRD1  | BRD2   | BRD3   | BRD4   |
| <b>B</b> | BRD7   | BRD8  | BRDT  | BRPF1 | BRPF3 | BRWD1   | BRWD3   | CBX1  | CBX3  | CBX4   | CBX5   | CBX6   |
| <b>C</b> | CBX7   | CBX8  | CDYL  | CDYL2 | CHD1  | CHD2    | CHD3    | CHD4  | CHD5  | CHD6   | CHD7   | CHD8   |
| <b>D</b> | CHD9   | CTBP1 | CTBP2 | CTCF  | EED   | EZH2    | HINFP   | ING1  | ING2  | ING3   | ING4   | ING5   |
| <b>E</b> | INO80  | MBD1  | MBD2  | MBD3  | MBD4  | MECP2   | MTA1    | MTA2  | NAB2  | NSD1   | PBRM1  | PCGF1  |
| <b>F</b> | PCGF2  | PCGF3 | PCGF5 | PCGF6 | PHC1  | PHC2    | PHF1    | PHF13 | PHF2  | PHF21A | PHF21B | PHF3   |
| <b>G</b> | PHF5A  | PHF6  | PHF7  | RING1 | RNF2  | SMARCA2 | SMARCA4 | SPEN  | SUZ12 | TRIM27 | WDR11  | ZMYND8 |
| <b>H</b> | ACTB   | B2M   | GAPDH | HPRT1 | RPLP0 | HGDC    | RTC     | RTC   | RTC   | PPC    | PPC    | PPC    |

## Gene table: RT<sup>2</sup> Profiler PCR Array

| Position | UniGene   | GenBank      | Symbol | Description                                    |
|----------|-----------|--------------|--------|------------------------------------------------|
| A01      | Hs.468972 | NM_006015    | ARID1A | AT rich interactive domain 1A (SWI-like)       |
| A02      | Hs.374043 | NM_015338    | ASXL1  | Additional sex combs like 1 (Drosophila)       |
| A03      | Hs.509140 | NM_182648    | BAZ1A  | Bromodomain adjacent to zinc finger domain, 1A |
| A04      | Hs.728963 | NM_032408    | BAZ1B  | Bromodomain adjacent to zinc finger domain, 1B |
| A05      | Hs.314263 | NM_013449    | BAZ2A  | Bromodomain adjacent to zinc finger domain, 2A |
| A06      | Hs.470369 | NM_013450    | BAZ2B  | Bromodomain adjacent to zinc finger domain, 2B |
| A07      | Hs.380403 | NM_005180    | BMI1   | BMI1 polycomb ring finger oncogene             |
| A08      | Hs.444200 | NM_182641    | BPTF   | Bromodomain PHD finger transcription factor    |
| A09      | Hs.127950 | NM_014577    | BRD1   | Bromodomain containing 1                       |
| A10      | Hs.75243  | NM_005104    | BRD2   | Bromodomain containing 2                       |
| A11      | Hs.522472 | NM_007371    | BRD3   | Bromodomain containing 3                       |
| A12      | Hs.187763 | NM_014299    | BRD4   | Bromodomain containing 4                       |
| B01      | Hs.437894 | NM_013263    | BRD7   | Bromodomain containing 7                       |
| B02      | Hs.519337 | NM_006696    | BRD8   | Bromodomain containing 8                       |
| B03      | Hs.482520 | NM_001726    | BRDT   | Bromodomain, testis-specific                   |
| B04      | Hs.1004   | NM_004634    | BRPF1  | Bromodomain and PHD finger containing, 1       |
| B05      | Hs.520096 | NM_015695    | BRPF3  | Bromodomain and PHD finger containing, 3       |
| B06      | Hs.654740 | NM_018963    | BRWD1  | Bromodomain and WD repeat domain containing 1  |
| B07      | Hs.170667 | NM_153252    | BRWD3  | Bromodomain and WD repeat domain containing 3  |
| B08      | Hs.77254  | NM_006807    | CBX1   | Chromobox homolog 1                            |
| B09      | Hs.381189 | NM_007276    | CBX3   | Chromobox homolog 3                            |
| B10      | Hs.714363 | NM_003655    | CBX4   | Chromobox homolog 4                            |
| B11      | Hs.349283 | NM_012117    | CBX5   | Chromobox homolog 5                            |
| B12      | Hs.592201 | NM_014292    | CBX6   | Chromobox homolog 6                            |
| C01      | Hs.356416 | NM_175709    | CBX7   | Chromobox homolog 7                            |
| C02      | Hs.387258 | NM_020649    | CBX8   | Chromobox homolog 8                            |
| C03      | Hs.269092 | NM_004824    | CDYL   | Chromodomain protein, Y-like                   |
| C04      | Hs.373908 | NM_152342    | CDYL2  | Chromodomain protein, Y-like 2                 |
| C05      | Hs.643465 | NM_001270    | CHD1   | Chromodomain helicase DNA binding protein 1    |
| C06      | Hs.220864 | NM_001271    | CHD2   | Chromodomain helicase DNA binding protein 2    |
| C07      | Hs.25601  | NM_001005273 | CHD3   | Chromodomain helicase DNA binding protein 3    |
| C08      | Hs.162233 | NM_001273    | CHD4   | Chromodomain helicase DNA binding protein 4    |
| C09      | Hs.522898 | NM_015557    | CHD5   | Chromodomain helicase DNA binding protein 5    |
| C10      | Hs.371979 | NM_032221    | CHD6   | Chromodomain helicase DNA binding protein 6    |
| C11      | Hs.20395  | NM_017780    | CHD7   | Chromodomain helicase DNA binding protein 7    |
| C12      | Hs.530698 | NM_020920    | CHD8   | Chromodomain helicase DNA binding protein 8    |
| D01      | Hs.59159  | NM_025134    | CHD9   | Chromodomain helicase DNA binding protein 9    |
| D02      | Hs.208597 | NM_001328    | CTBP1  | C-terminal binding protein 1                   |
| D03      | Hs.501345 | NM_022802    | CTBP2  | C-terminal binding protein 2                   |
| D04      | Hs.368367 | NM_006565    | CTCF   | CCCTC-binding factor (zinc finger protein)     |
| D05      | Hs.503510 | NM_003797    | EED    | Embryonic ectoderm development                 |
| D06      | Hs.444082 | NM_004456    | EZH2   | Enhancer of zeste homolog 2 (Drosophila)       |
| D07      | Hs.504091 | NM_198971    | HINFP  | Histone H4 transcription factor                |
| D08      | Hs.46700  | NM_005537    | ING1   | Inhibitor of growth family, member 1           |
| D09      | Hs.107153 | NM_001564    | ING2   | Inhibitor of growth family, member 2           |

| Position | UniGene   | GenBank   | Symbol  | Description                                                                                       |
|----------|-----------|-----------|---------|---------------------------------------------------------------------------------------------------|
| D10      | Hs.489811 | NM_198267 | ING3    | Inhibitor of growth family, member 3                                                              |
| D11      | Hs.524210 | NM_016162 | ING4    | Inhibitor of growth family, member 4                                                              |
| D12      | Hs.645460 | NM_032329 | ING5    | Inhibitor of growth family, member 5                                                              |
| E01      | Hs.292949 | NM_017553 | INO80   | INO80 homolog ( <i>S. cerevisiae</i> )                                                            |
| E02      | Hs.405610 | NM_015844 | MBD1    | Methyl-CpG binding domain protein 1                                                               |
| E03      | Hs.25674  | NM_003927 | MBD2    | Methyl-CpG binding domain protein 2                                                               |
| E04      | Hs.178728 | NM_003926 | MBD3    | Methyl-CpG binding domain protein 3                                                               |
| E05      | Hs.35947  | NM_003925 | MBD4    | Methyl-CpG binding domain protein 4                                                               |
| E06      | Hs.200716 | NM_004992 | MECP2   | Methyl CpG binding protein 2 (Rett syndrome)                                                      |
| E07      | Hs.525629 | NM_004689 | MTA1    | Metastasis associated 1                                                                           |
| E08      | Hs.173043 | NM_004739 | MTA2    | Metastasis associated 1 family, member 2                                                          |
| E09      | Hs.159223 | NM_005967 | NAB2    | NGFI-A binding protein 2 (EGR1 binding protein 2)                                                 |
| E10      | Hs.106861 | NM_022455 | NSD1    | Nuclear receptor binding SET domain protein 1                                                     |
| E11      | Hs.189920 | NM_018165 | PBRM1   | Polybromo 1                                                                                       |
| E12      | Hs.316750 | NM_032673 | PCGF1   | Polycomb group ring finger 1                                                                      |
| F01      | Hs.371617 | NM_007144 | PCGF2   | Polycomb group ring finger 2                                                                      |
| F02      | Hs.144309 | NM_006315 | PCGF3   | Polycomb group ring finger 3                                                                      |
| F03      | Hs.500512 | NM_032373 | PCGF5   | Polycomb group ring finger 5                                                                      |
| F04      | Hs.335808 | NM_032154 | PCGF6   | Polycomb group ring finger 6                                                                      |
| F05      | Hs.305985 | NM_004426 | PHC1    | Polyhomeotic homolog 1 ( <i>Drosophila</i> )                                                      |
| F06      | Hs.524271 | NM_198040 | PHC2    | Polyhomeotic homolog 2 ( <i>Drosophila</i> )                                                      |
| F07      | Hs.166204 | NM_002636 | PHF1    | PHD finger protein 1                                                                              |
| F08      | Hs.516079 | NM_153812 | PHF13   | PHD finger protein 13                                                                             |
| F09      | Hs.211441 | NM_005392 | PHF2    | PHD finger protein 2                                                                              |
| F10      | Hs.502458 | NM_016621 | PHF21A  | PHD finger protein 21A                                                                            |
| F11      | Hs.254097 | NM_138415 | PHF21B  | PHD finger protein 21B                                                                            |
| F12      | Hs.348921 | NM_015153 | PHF3    | PHD finger protein 3                                                                              |
| G01      | Hs.474980 | NM_032758 | PHF5A   | PHD finger protein 5A                                                                             |
| G02      | Hs.356501 | NM_032458 | PHF6    | PHD finger protein 6                                                                              |
| G03      | Hs.372719 | NM_173341 | PHF7    | PHD finger protein 7                                                                              |
| G04      | Hs.631989 | NM_002931 | RING1   | Ring finger protein 1                                                                             |
| G05      | Hs.591490 | NM_007212 | RNF2    | Ring finger protein 2                                                                             |
| G06      | Hs.298990 | NM_003070 | SMARCA2 | SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2 |
| G07      | Hs.327527 | NM_003072 | SMARCA4 | SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 4 |
| G08      | Hs.558463 | NM_015001 | SPEN    | Spen homolog, transcriptional regulator ( <i>Drosophila</i> )                                     |
| G09      | Hs.462732 | NM_015355 | SUZ12   | Suppressor of zeste 12 homolog ( <i>Drosophila</i> )                                              |
| G10      | Hs.440382 | NM_006510 | TRIM27  | Tripartite motif containing 27                                                                    |
| G11      | Hs.144447 | NM_018117 | WDR11   | WD repeat domain 11                                                                               |
| G12      | Hs.446240 | NM_183048 | ZMYND8  | Zinc finger, MYND-type containing 8                                                               |
| H01      | Hs.520640 | NM_001101 | ACTB    | Actin, beta                                                                                       |
| H02      | Hs.534255 | NM_004048 | B2M     | Beta-2-microglobulin                                                                              |
| H03      | Hs.592355 | NM_002046 | GAPDH   | Glyceraldehyde-3-phosphate dehydrogenase                                                          |
| H04      | Hs.412707 | NM_000194 | HPRT1   | Hypoxanthine phosphoribosyltransferase 1                                                          |
| H05      | Hs.546285 | NM_001002 | RPLP0   | Ribosomal protein, large, P0                                                                      |
| H06      | N/A       | SA_00105  | HGDC    | Human Genomic DNA Contamination                                                                   |
| H07      | N/A       | SA_00104  | RTC     | Reverse Transcription Control                                                                     |
| H08      | N/A       | SA_00104  | RTC     | Reverse Transcription Control                                                                     |
| H09      | N/A       | SA_00104  | RTC     | Reverse Transcription Control                                                                     |
| H10      | N/A       | SA_00103  | PPC     | Positive PCR Control                                                                              |
| H11      | N/A       | SA_00103  | PPC     | Positive PCR Control                                                                              |
| H12      | N/A       | SA_00103  | PPC     | Positive PCR Control                                                                              |

## Related products

For optimal performance, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

| Product                                                         | Contents                                                                                                                                                                                                                                                                                                                                                            | Cat. no. |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| RT <sup>2</sup> First Strand Kit (12)                           | Enzymes and reagents for cDNA synthesis                                                                                                                                                                                                                                                                                                                             | 330401   |
| RT <sup>2</sup> SYBR Green qPCR Mastermix (2)*                  | For 2 x 96 assays in 96-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad models CFX96, CFX384, DNA Engine Opticon 2; Bio-Rad/MJ Research Chromo4; Roche LightCycler 480 (96-well and 384-well); all other cyclers                                                                                       | 330500   |
| RT <sup>2</sup> SYBR Green ROX <sup>™</sup> qPCR Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 5700, 7000, 7300, 7500 [Standard and FAST], 7700, 7900HT 96-well block [Standard and FAST] and 384-well block, StepOnePlus; Eppendorf Mastercycler ep realplex models 2, 2S, 4, 4S; Stratagene models Mx3000P, Mx3005P, Mx4000; Takara TP-800 | 330520   |
| RT <sup>2</sup> SYBR Green Fluor qPCR Mastermix (2)*            | For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler, iQ5, MyiQ, MyiQ2                                                                                                                                                                                                                                | 330510   |

\* Larger kit sizes available; please inquire.

RT<sup>2</sup> Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

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