

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

## Rat Epigenetic Chromatin Modification Enzymes

Cat. no. 330231 PARN-085ZA

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 Rat Epigenetic Chromatin Modification Enzymes RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes encoding enzymes known or predicted to modify genomic DNA and histones to regulate chromatin accessibility and therefore gene expression. The de novo and maintenance DNA methyltransferases, and the enzymes responsible for demethylation of CpG dinucleotides are represented by the array. Enzymes catalyzing histone acetylation, methylation, phosphorylation, and ubiquitination are also included on the array as well as the enzymes the deacetylases and demethylases. The array also analyzes genes encoding the SET domain proteins, which all contain a homologous domain that demonstrates histone methyltransferase activity in some family members. 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 modifications 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.

---

## 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> | Aof1   | Ash1l | Ash2l  | Atf2   | Aurka  | Aurkb   | Aurkc   | Baz1b    | Brca2    | Cdk2  | Ciita | Crebbp |
| <b>B</b> | Cxcl   | Dnmt1 | Dnmt3a | Dnmt3b | Dot1l  | Edf1    | Eed     | Ehmt1    | Ehmt2    | Ep300 | Epc1  | Ezh2   |
| <b>C</b> | Fbxo11 | Hat1  | Hdac1  | Hdac10 | Hdac11 | Hdac2   | Hdac3   | Hdac4    | Hdac5    | Hdac6 | Hdac7 | Hdac8  |
| <b>D</b> | Hdac9  | Ing3  | Jmjd6  | Kat2a  | Kat5   | Mbd2    | Med24   | Men1     | Mill1    | Mill5 | Mta2  | Myst1  |
| <b>E</b> | Myst2  | Myst3 | Ncoa3  | Ncoa6  | Ncor1  | Nek6    | Nsd1    | Pak1     | Prdm2    | Prdm9 | Prmt1 | Prmt2  |
| <b>F</b> | Prmt5  | Prmt6 | Prmt7  | Rbbp5  | Rnf2   | Rnf20   | Rnf40   | Rps6ka5  | Seld4    | Seld5 | Seld6 | Seldb2 |
| <b>G</b> | Sirt1  | Sirt2 | Smyd1  | Smyd3  | Supf7l | Suv39h1 | Suv39h2 | Suv420h1 | Suv420h2 | Ube2a | Ube2b | Usp16  |
| <b>H</b> | Actb   | B2m   | Hprt1  | Ldha   | Rplp1  | RGDC    | RTC     | RTC      | RTC      | PPC   | PPC   | PPC    |

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

| Position | UniGene   | GenBank      | Symbol | Description                                                      |
|----------|-----------|--------------|--------|------------------------------------------------------------------|
| A01      | Rn.31695  | NM_001107343 | Aof1   | Amine oxidase (flavin containing) domain 1                       |
| A02      | Rn.206058 | NM_001107689 | Ash1l  | Ash1 (absent, small, or homeotic)-like (Drosophila)              |
| A03      | Rn.219095 | NM_001106089 | Ash2l  | Ash2 (absent, small, or homeotic)-like (Drosophila)              |
| A04      | Rn.9825   | NM_031018    | Atf2   | Activating transcription factor 2                                |
| A05      | Rn.161874 | NM_153296    | Aurka  | Aurora kinase A                                                  |
| A06      | Rn.10865  | NM_053749    | Aurkb  | Aurora kinase B                                                  |
| A07      | Rn.41092  | NM_001106221 | Aurkc  | Aurora kinase C                                                  |
| A08      | Rn.7043   | XM_347166    | Baz1b  | Bromodomain adjacent to zinc finger domain, 1B                   |
| A09      | Rn.103225 | NM_031542    | Brca2  | Breast cancer 2                                                  |
| A10      | Rn.104460 | NM_199501    | Cdk2   | Cyclin dependent kinase 2                                        |
| A11      | Rn.162013 | NM_053529    | Ciita  | Class II, major histocompatibility complex, transactivator       |
| A12      | Rn.108128 | NM_133381    | Crebbp | CREB binding protein                                             |
| B01      | Rn.86349  | NM_001079698 | Cxcl   | CXXC finger 1 (PHD domain)                                       |
| B02      | Rn.6955   | NM_053354    | Dnmt1  | DNA (cytosine-5-)-methyltransferase 1                            |
| B03      | Rn.92659  | NM_001003958 | Dnmt3a | DNA (cytosine-5-)-methyltransferase 3 alpha                      |
| B04      | Rn.117353 | NM_001003959 | Dnmt3b | DNA (cytosine-5-)-methyltransferase 3 beta                       |
| B05      | Rn.18027  | NM_001108733 | Dot1l  | DOT1-like, histone H3 methyltransferase ( <i>S. cerevisiae</i> ) |
| B06      | Rn.17092  | NM_001106557 | Edf1   | Endothelial differentiation-related factor 1                     |
| B07      | Rn.3939   | NM_001106278 | Eed    | Embryonic ectoderm development                                   |
| B08      | Rn.7645   | NM_001108572 | Ehmt1  | Euchromatic histone-lysine N-methyltransferase 1                 |
| B09      | Rn.116518 | NM_212463    | Ehmt2  | Euchromatic histone lysine N-methyltransferase 2                 |
| B10      | Rn.12447  | XM_576312    | Ep300  | E1A binding protein p300                                         |
| B11      | Rn.219240 | NM_001100972 | Epc1   | Enhancer of polycomb homolog 1 (Drosophila)                      |
| B12      | Rn.9027   | NM_001134979 | Ezh2   | Enhancer of zeste homolog 2 (Drosophila)                         |
| C01      | Rn.36585  | NM_181631    | Fbxo11 | F-box protein 11                                                 |
| C02      | Rn.139751 | NM_001009657 | Hat1   | Histone acetyltransferase 1                                      |
| C03      | Rn.1863   | NM_001025409 | Hdac1  | Histone deacetylase 1                                            |
| C04      | Rn.107028 | NM_001035000 | Hdac10 | Histone deacetylase 10                                           |
| C05      | Rn.28065  | NM_001106610 | Hdac11 | Histone deacetylase 11                                           |
| C06      | Rn.1797   | NM_053447    | Hdac2  | Histone deacetylase 2                                            |
| C07      | Rn.17284  | NM_053448    | Hdac3  | Histone deacetylase 3                                            |
| C08      | Rn.23483  | XM_343629    | Hdac4  | Histone deacetylase 4                                            |
| C09      | Rn.79863  | NM_053450    | Hdac5  | Histone deacetylase 5                                            |
| C10      | Rn.13453  | XM_228753    | Hdac6  | Histone deacetylase 6                                            |
| C11      | Rn.203327 | XM_345868    | Hdac7  | Histone deacetylase 7                                            |
| C12      | Rn.208476 | NM_001126373 | Hdac8  | Histone deacetylase 8                                            |
| D01      | Rn.198197 | XM_234063    | Hdac9  | Histone deacetylase 9                                            |
| D02      | Rn.52988  | NM_001034107 | Ing3   | Inhibitor of growth family, member 3                             |
| D03      | Rn.19923  | NM_001012143 | Jmjd6  | Jumonji domain containing 6                                      |
| D04      | Rn.53502  | NM_001107050 | Kat2a  | K(lysine) acetyltransferase 2A                                   |
| D05      | Rn.6629   | NM_001005872 | Kat5   | K(lysine) acetyltransferase 5                                    |
| D06      | Rn.4085   | NM_001115025 | Mbd2   | Methyl-CpG binding domain protein 2                              |
| D07      | Rn.7360   | NM_001034079 | Med24  | Mediator complex subunit 24                                      |
| D08      | Rn.6775   | NM_019208    | Men1   | Multiple endocrine neoplasia 1                                   |
| D09      | Rn.62341  | NM_001108139 | Mill1  | Myeloid/lymphoid or mixed-lineage leukemia 1                     |

| Position | UniGene   | GenBank      | Symbol   | Description                                                                     |
|----------|-----------|--------------|----------|---------------------------------------------------------------------------------|
| D10      | Rn.106040 | XM_231287    | Mll5     | Myeloid/lymphoid or mixed-lineage leukemia 5 (trithorax homolog, Drosophila)    |
| D11      | Rn.137719 | NM_001100740 | Mta2     | Metastasis associated 1 family, member 2                                        |
| D12      | Rn.205579 | NM_001017378 | Myst1    | MYST histone acetyltransferase 1                                                |
| E01      | Rn.12618  | NM_181081    | Myst2    | MYST histone acetyltransferase 2                                                |
| E02      | Rn.33802  | NM_001100570 | Myst3    | MYST histone acetyltransferase (monocytic leukemia) 3                           |
| E03      | Rn.20691  | XM_215947    | Ncoa3    | Nuclear receptor coactivator 3                                                  |
| E04      | Rn.9077   | XM_342552    | Ncoa6    | Nuclear receptor coactivator 6                                                  |
| E05      | Rn.24948  | XM_001077495 | Ncor1    | Nuclear receptor co-repressor 1                                                 |
| E06      | Rn.18744  | NM_182953    | Nek6     | NIMA (never in mitosis gene a)-related kinase 6                                 |
| E07      | Rn.19435  | NM_001107337 | Nsd1     | Nuclear receptor binding SET domain protein 1                                   |
| E08      | Rn.9149   | NM_017198    | Pak1     | P21 protein (Cdc42/Rac)-activated kinase 1                                      |
| E09      | Rn.202632 | NM_001077648 | Prdm2    | PR domain containing 2, with ZNF domain                                         |
| E10      | Rn.124847 | NM_001108903 | Prdm9    | PR domain containing 9                                                          |
| E11      | Rn.5870   | NM_024363    | Prmt1    | Protein arginine methyltransferase 1                                            |
| E12      | Rn.145566 | NM_001025144 | Prmt2    | Protein arginine methyltransferase 2                                            |
| F01      | Rn.101808 | NM_001108867 | Prmt5    | Protein arginine methyltransferase 5                                            |
| F02      | Rn.18530  | NM_001106466 | Prmt6    | Protein arginine methyltransferase 6                                            |
| F03      | Rn.14954  | NM_001014153 | Prmt7    | Protein arginine methyltransferase 7                                            |
| F04      | Rn.11774  | NM_001107174 | Rbbp5    | Retinoblastoma binding protein 5                                                |
| F05      | Rn.19719  | NM_001025667 | Rnf2     | Ring finger protein 2                                                           |
| F06      | Rn.15969  | NM_001107929 | Rnf20    | Ring finger protein 20                                                          |
| F07      | Rn.162466 | NM_153471    | Rnf40    | Ring finger protein 40                                                          |
| F08      | Rn.8940   | NM_001108048 | Rps6ka5  | Ribosomal protein S6 kinase, polypeptide 5                                      |
| F09      | Rn.24842  | NM_001113747 | Setd4    | SET domain containing 4                                                         |
| F10      | Rn.49964  | NM_001106614 | Setd5    | SET domain containing 5                                                         |
| F11      | Rn.18307  | NM_001106167 | Setd6    | SET domain containing 6                                                         |
| F12      | Rn.141376 | XM_224248    | Setdb2   | SET domain, bifurcated 2                                                        |
| G01      | Rn.219976 | NM_001107627 | Sirt1    | Sirtuin (silent mating type information regulation 2 homolog) 1 (S. cerevisiae) |
| G02      | Rn.59887  | NM_001008368 | Sirt2    | Sirtuin (silent mating type information regulation 2 homolog) 2 (S. cerevisiae) |
| G03      | Rn.203854 | NM_001106595 | Smyd1    | SET and MYND domain containing 1                                                |
| G04      | Rn.28284  | NM_001025762 | Smyd3    | SET and MYND domain containing 3                                                |
| G05      | Rn.11526  | NM_001108010 | Supt7l   | Suppressor of Ty 7 (S. cerevisiae)-like                                         |
| G06      | Rn.98526  | NM_001106956 | Suv39h1  | Suppressor of variegation 3-9 homolog 1 (Drosophila)                            |
| G07      | Rn.154750 | NM_001108883 | Suv39h2  | Suppressor of variegation 3-9 homolog 2 (Drosophila)                            |
| G08      | Rn.203473 | NM_001108512 | Suv420h1 | Suppressor of variegation 4-20 homolog 1 (Drosophila)                           |
| G09      | Rn.105145 | NM_001107475 | Suv420h2 | Suppressor of variegation 4-20 homolog 2 (Drosophila)                           |
| G10      | Rn.8585   | NM_001013933 | Ube2a    | Ubiquitin-conjugating enzyme E2A (RAD6 homolog)                                 |
| G11      | Rn.20766  | NM_031138    | Ube2b    | Ubiquitin-conjugating enzyme E2B (RAD6 homolog, S. cerevisiae)                  |
| G12      | Rn.55800  | NM_001100501 | Usp16    | Ubiquitin specific peptidase 16                                                 |
| H01      | Rn.94978  | NM_031144    | Actb     | Actin, beta                                                                     |
| H02      | Rn.1868   | NM_012512    | B2m      | Beta-2 microglobulin                                                            |
| H03      | Rn.47     | NM_012583    | Hprt1    | Hypoxanthine phosphoribosyltransferase 1                                        |
| H04      | Rn.107896 | NM_017025    | Ldha     | Lactate dehydrogenase A                                                         |
| H05      | Rn.973    | NM_001007604 | Rplp1    | Ribosomal protein, large, P1                                                    |
| H06      | N/A       | U26919       | RGDC     | Rat 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.

Trademarks: QIAGEN® (QIAGEN Group); Applied Biosystems®, ViiA™, StepOnePlus™, ROX™ (Applied Biosystems Corporation or its subsidiaries); Bio-Rad®, iCycler®, iQ™, MyiQ™, Chromo4™, CFX96™, DNA Engine Opticon®, CFX384™ (Bio-Rad Laboratories, Inc.); Stratagene®, Mx3005P®, Mx3000P®, Mx4000® (Stratagene); Eppendorf®, Mastercycler® (Eppendorf AG); Roche®, LightCycler® (Roche Group); Fluidigm® BioMark™ (Fluidigm Corporation); SYBR® (Molecular Probes, Inc.).

1066029 03/2011 © 2011 QIAGEN, all rights reserved.

[www.qiagen.com](http://www.qiagen.com)

Canada ■ 800-572-9613

China ■ 8621-3865-3865

Denmark ■ 80-885945

Finland ■ 0800-914416

France ■ 01-60-920-930

Germany ■ 02103-29-12000

Hong Kong ■ 800 933 965

Ireland ■ 1800 555 049

Italy ■ 800-787980

Japan ■ 03-6890-7300

Korea (South) ■ 080-000-7145

Luxembourg ■ 8002 2076

Mexico ■ 01-800-7742-436

The Netherlands ■ 0800 0229592

Norway ■ 800-18859

Singapore ■ 1800-742-4368

Spain ■ 91-630-7050

Sweden ■ 020-790282

Switzerland ■ 055-254-22-11

UK ■ 01293-422-911

USA ■ 800-426-8157

Australia ■ 1-800-243-800

Austria ■ 0800/281010

Belgium ■ 0800-79612

Brazil ■ 0800-557779



Sample & Assay Technologies