

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

## Mouse Oncogenes & Tumor Suppressor Genes

Cat. no. 330231 PAMM-502ZA

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 Mouse Oncogenes & Tumor Suppressor Genes RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes that promote oncogenesis. The genes represented by this array either have oncogenic or tumor suppressor properties or both depending not only on the tumor type, but also on the known or observed differences in gene expression relative to matched normal tissue. Profiling the expression of these genes in your tumor samples may correlate them with biological phenotypes or clinical outcomes like staging, therapy selection, metastasis, recurrence, and survival rate, among others. The results may also provide insights into the molecular mechanisms and biological pathways behind oncogenesis and cancer pathology, including deregulation of apoptosis, cell cycle, cell adhesion, DNA damage & repair, and signal transduction. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in oncogenesis 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> | Abl1   | Akt1  | Apc    | Atm    | Bax      | Bcl2  | Bcl2l1  | Bcr    | Brca1    | Brca2    | Casp8 | Ccnd1 |
| <b>B</b> | Cdh1   | Cdk4  | Cdkn1a | Cdkn2a | Cdkn2b   | Cdkn3 | Ctnnb1  | E2f1   | Egf      | Elk1     | ErbB2 | Esr1  |
| <b>C</b> | Ets1   | Fhit  | Fos    | Foxd3  | Hgf      | Hic1  | Hras1   | Igf2r  | Jak2     | Jun      | Junb  | Jund  |
| <b>D</b> | Kit    | Kitl  | Kras   | Mcl1   | Mdm2     | Men1  | Met     | Mgmt   | Mlh1     | Mos      | Myb   | Myc   |
| <b>E</b> | Mycn   | Nf1   | Nf2    | Nlk1   | Nlkbia   | Nras  | Pik3c2a | Pik3ca | Pml      | Prkca    | Raf1  | Rara  |
| <b>F</b> | Rassf1 | Rb1   | Rel    | Ret    | Ros1     | Runx1 | Runx3   | S100a4 | Serpinb5 | Sh3pxd2a | Smad4 | Src   |
| <b>G</b> | Stat3  | Slk11 | Tgfb1  | Tnf    | Trp53    | Trp73 | Tsc1    | Vhl    | Vhl1     | Wwax     | Xrcc1 | Zhx2  |
| <b>H</b> | Actb   | B2m   | Gapdh  | Gusb   | Hsp90ab1 | MGDC  | RTC     | RTC    | RTC      | PPC      | PPC   | PPC   |

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

| Position | UniGene   | GenBank      | Symbol | Description                                                                                                    |
|----------|-----------|--------------|--------|----------------------------------------------------------------------------------------------------------------|
| A01      | Mm.1318   | NM_009594    | Abl1   | C-abl oncogene 1, non-receptor tyrosine kinase                                                                 |
| A02      | Mm.6645   | NM_009652    | Akt1   | Thymoma viral proto-oncogene 1                                                                                 |
| A03      | Mm.384171 | NM_007462    | Apc    | Adenomatosis polyposis coli                                                                                    |
| A04      | Mm.5088   | NM_007499    | Atm    | Ataxia telangiectasia mutated homolog (human)                                                                  |
| A05      | Mm.19904  | NM_007527    | Bax    | Bcl2-associated X protein                                                                                      |
| A06      | Mm.257460 | NM_009741    | Bcl2   | B-cell leukemia/lymphoma 2                                                                                     |
| A07      | Mm.238213 | NM_009743    | Bcl2l1 | Bcl2-like 1                                                                                                    |
| A08      | Mm.333722 | NM_001081412 | Bcr    | Breakpoint cluster region                                                                                      |
| A09      | Mm.244975 | NM_009764    | Brca1  | Breast cancer 1                                                                                                |
| A10      | Mm.236256 | NM_009765    | Brca2  | Breast cancer 2                                                                                                |
| A11      | Mm.336851 | NM_009812    | Casp8  | Caspase 8                                                                                                      |
| A12      | Mm.273049 | NM_007631    | Ccnd1  | Cyclin D1                                                                                                      |
| B01      | Mm.35605  | NM_009864    | Cdh1   | Cadherin 1                                                                                                     |
| B02      | Mm.6839   | NM_009870    | Cdk4   | Cyclin-dependent kinase 4                                                                                      |
| B03      | Mm.195663 | NM_007669    | Cdkn1a | Cyclin-dependent kinase inhibitor 1A (P21)                                                                     |
| B04      | Mm.4733   | NM_009877    | Cdkn2a | Cyclin-dependent kinase inhibitor 2A                                                                           |
| B05      | Mm.423094 | NM_007670    | Cdkn2b | Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)                                                      |
| B06      | Mm.272394 | NM_028222    | Cdkn3  | Cyclin-dependent kinase inhibitor 3                                                                            |
| B07      | Mm.291928 | NM_007614    | Ctnnb1 | Catenin (cadherin associated protein), beta 1                                                                  |
| B08      | Mm.18036  | NM_007891    | E2f1   | E2F transcription factor 1                                                                                     |
| B09      | Mm.252481 | NM_010113    | Egf    | Epidermal growth factor                                                                                        |
| B10      | Mm.405823 | NM_007922    | Elk1   | ELK1, member of ETS oncogene family                                                                            |
| B11      | Mm.290822 | NM_001003817 | ErbB2  | V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian) |
| B12      | Mm.9213   | NM_007956    | Esr1   | Estrogen receptor 1 (alpha)                                                                                    |
| C01      | Mm.292415 | NM_011808    | Ets1   | E26 avian leukemia oncogene 1, 5' domain                                                                       |
| C02      | Mm.397619 | NM_010210    | Fhit   | Fragile histidine triad gene                                                                                   |
| C03      | Mm.246513 | NM_010234    | Fos    | FBJ osteosarcoma oncogene                                                                                      |
| C04      | Mm.4758   | NM_010425    | Foxd3  | Forkhead box D3                                                                                                |
| C05      | Mm.267078 | NM_010427    | Hgf    | Hepatocyte growth factor                                                                                       |
| C06      | Mm.57250  | NM_010430    | Hic1   | Hypermethylated in cancer 1                                                                                    |
| C07      | Mm.334313 | NM_008284    | Hras1  | Harvey rat sarcoma virus oncogene 1                                                                            |
| C08      | Mm.26553  | NM_010515    | Igf2r  | Insulin-like growth factor 2 receptor                                                                          |
| C09      | Mm.275839 | NM_008413    | Jak2   | Janus kinase 2                                                                                                 |
| C10      | Mm.275071 | NM_010591    | Jun    | Jun oncogene                                                                                                   |
| C11      | Mm.1167   | NM_008416    | Junb   | Jun-B oncogene                                                                                                 |
| C12      | Mm.419851 | NM_010592    | Jund   | Jun proto-oncogene related gene d                                                                              |
| D01      | Mm.247073 | NM_021099    | Kit    | Kit oncogene                                                                                                   |
| D02      | Mm.45124  | NM_013598    | Kitl   | Kit ligand                                                                                                     |
| D03      | Mm.383182 | NM_021284    | Kras   | V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog                                                           |
| D04      | Mm.1639   | NM_008562    | Mcl1   | Myeloid cell leukemia sequence 1                                                                               |
| D05      | Mm.22670  | NM_010786    | Mdm2   | Transformed mouse 3T3 cell double minute 2                                                                     |
| D06      | Mm.12917  | NM_008583    | Men1   | Multiple endocrine neoplasia 1                                                                                 |
| D07      | Mm.86844  | NM_008591    | Met    | Met proto-oncogene                                                                                             |
| D08      | Mm.440219 | NM_008598    | Mgmt   | O-6-methylguanine-DNA methyltransferase                                                                        |

| Position | UniGene   | GenBank   | Symbol   | Description                                                                         |
|----------|-----------|-----------|----------|-------------------------------------------------------------------------------------|
| D09      | Mm.196006 | NM_026810 | Mlh1     | MutL homolog 1 (E. coli)                                                            |
| D10      | Mm.459300 | NM_020021 | Mos      | Maloney sarcoma oncogene                                                            |
| D11      | Mm.52109  | NM_010848 | Myb      | Myeloblastosis oncogene                                                             |
| D12      | Mm.2444   | NM_010849 | Myc      | Myelocytomatosis oncogene                                                           |
| E01      | Mm.16469  | NM_008709 | Mycn     | V-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)        |
| E02      | Mm.255596 | NM_010897 | Nf1      | Neurofibromatosis 1                                                                 |
| E03      | Mm.297109 | NM_010898 | Nf2      | Neurofibromatosis 2                                                                 |
| E04      | Mm.256765 | NM_008689 | Nfkb1    | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105          |
| E05      | Mm.170515 | NM_010907 | Nfkbia   | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha |
| E06      | Mm.400954 | NM_010937 | Nras     | Neuroblastoma ras oncogene                                                          |
| E07      | Mm.3810   | NM_011083 | Pik3c2a  | Phosphatidylinositol 3-kinase, C2 domain containing, alpha polypeptide              |
| E08      | Mm.260521 | NM_008839 | Pik3ca   | Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide                         |
| E09      | Mm.392123 | NM_008884 | Pml      | Promyelocytic leukemia                                                              |
| E10      | Mm.222178 | NM_011101 | Prkca    | Protein kinase C, alpha                                                             |
| E11      | Mm.184163 | NM_029780 | Raf1     | V-raf-leukemia viral oncogene 1                                                     |
| E12      | Mm.439744 | NM_009024 | Rara     | Retinoic acid receptor, alpha                                                       |
| F01      | Mm.12091  | NM_019713 | Rassf1   | Ras association (RalGDS/AF-6) domain family member 1                                |
| F02      | Mm.273862 | NM_009029 | Rb1      | Retinoblastoma 1                                                                    |
| F03      | Mm.4869   | NM_009044 | Rel      | Reticuloendotheliosis oncogene                                                      |
| F04      | Mm.57199  | NM_009050 | Ret      | Ret proto-oncogene                                                                  |
| F05      | Mm.236163 | NM_011282 | Ros1     | Ros1 proto-oncogene                                                                 |
| F06      | Mm.4081   | NM_009821 | Runx1    | Runt related transcription factor 1                                                 |
| F07      | Mm.378894 | NM_019732 | Runx3    | Runt related transcription factor 3                                                 |
| F08      | Mm.3925   | NM_011311 | S100a4   | S100 calcium binding protein A4                                                     |
| F09      | Mm.268618 | NM_009257 | Serpnb5  | Serine (or cysteine) peptidase inhibitor, clade B, member 5                         |
| F10      | Mm.297461 | NM_008018 | Sh3pxd2a | SH3 and PX domains 2A                                                               |
| F11      | Mm.100399 | NM_008540 | Smad4    | MAD homolog 4 (Drosophila)                                                          |
| F12      | Mm.22845  | NM_009271 | Src      | Rous sarcoma oncogene                                                               |
| G01      | Mm.249934 | NM_011486 | Stat3    | Signal transducer and activator of transcription 3                                  |
| G02      | Mm.44231  | NM_011492 | Slk11    | Serine/threonine kinase 11                                                          |
| G03      | Mm.248380 | NM_011577 | Tgfb1    | Transforming growth factor, beta 1                                                  |
| G04      | Mm.1293   | NM_013693 | Tnf      | Tumor necrosis factor                                                               |
| G05      | Mm.222    | NM_011640 | Trp53    | Transformation related protein 53                                                   |
| G06      | Mm.78015  | NM_011642 | Trp73    | Transformation related protein 73                                                   |
| G07      | Mm.224354 | NM_022887 | Tsc1     | Tuberous sclerosis 1                                                                |
| G08      | Mm.29407  | NM_009507 | Vhl      | Von Hippel-Lindau tumor suppressor                                                  |
| G09      | Mm.389339 | NM_144783 | Wt1      | Wilms tumor 1 homolog                                                               |
| G10      | Mm.440420 | NM_019573 | Wwox     | WW domain-containing oxidoreductase                                                 |
| G11      | Mm.4347   | NM_009532 | Xrcc1    | X-ray repair complementing defective repair in Chinese hamster cells 1              |
| G12      | Mm.36557  | NM_199449 | Zhx2     | Zinc fingers and homeoboxes 2                                                       |
| H01      | Mm.328431 | NM_007393 | Actb     | Actin, beta                                                                         |
| H02      | Mm.163    | NM_009735 | B2m      | Beta-2 microglobulin                                                                |
| H03      | Mm.343110 | NM_008084 | Gapdh    | Glyceraldehyde-3-phosphate dehydrogenase                                            |
| H04      | Mm.3317   | NM_010368 | Gusb     | Glucuronidase, beta                                                                 |
| H05      | Mm.2180   | NM_008302 | Hsp90ab1 | Heat shock protein 90 alpha (cytosolic), class B member 1                           |
| H06      | N/A       | SA_00106  | MGDC     | Mouse 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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