

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

## Mouse Cancer Drug Resistance

Cat. no. 330231 PAMM-004ZA

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 Cancer Drug Resistance RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes involved in the body's response to chemotherapy. The genes encoding important enzymes for drug resistance (such as the P-glycoproteins), phase I metabolism (specifically the P450 family), and phase II metabolism (such as various covalent modification enzymes) are all represented on the array. Cancer-related genes involved in aspects of resistance are also included on the array such as DNA repair enzymes, cell cycle regulators, growth factor and hormone receptors, and transcription factors. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to cancer drug resistance and metabolism 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     |
|---|--------|--------|---------|-----------|----------|--------|--------|---------|---------|---------|---------|--------|
| A | Abcb1a | Abcb1b | Abcc1   | Abcc2     | Abcc3    | Abcc5  | Abcc6  | Abcg2   | Ahr     | Ap1s1   | Apc     | Ar     |
| B | Arnt   | Atm    | Bax     | Bcl2      | Bcl2l1   | Blmh   | Brca1  | Brca2   | Ccnd1   | Ccne1   | Cdk2    | Cdk4   |
| C | Cdkn1a | Cdkn1b | Cdkn2a  | Cdkn2d    | Crabp1   | Cyp1a1 | Cyp1a2 | Cyp2b19 | Cyp2c29 | Cyp2c70 | Cyp2d22 | Cyp2e1 |
| D | Dhfr   | Egfr   | Elk1    | Ephx1     | ErbB2    | ErbB3  | ErbB4  | Ercc3   | Esr1    | Esr2    | Fgf2    | Fos    |
| E | Gabpa  | Gstm1  | Gstp2   | Hif1a     | Igf1r    | Igf2r  | Ma1b   | Met     | Msh2    | Myp     | Myc     | Nat2   |
| F | Nfkb1  | Nfkb2  | Nfkbib  | Nfkbie    | Ppara    | Ppard  | Pparg  | Rara    | Rarb    | Rb1     | Relb    | Rra    |
| G | Rarb   | Sod1   | Sulf1e1 | Tnfrsf11a | Top1     | Top2a  | Top2b  | Tpmt    | Trp53   | Ugcg    | Xpa     | Xpc    |
| H | 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.207354 | NM_011076    | Abcb1a  | ATP-binding cassette, sub-family B (MDR/TAP), member 1A                                                        |
| A02      | Mm.146649 | NM_011075    | Abcb1b  | ATP-binding cassette, sub-family B (MDR/TAP), member 1B                                                        |
| A03      | Mm.196634 | NM_008576    | Abcc1   | ATP-binding cassette, sub-family C (CFTR/MRP), member 1                                                        |
| A04      | Mm.39054  | NM_013806    | Abcc2   | ATP-binding cassette, sub-family C (CFTR/MRP), member 2                                                        |
| A05      | Mm.23942  | NM_029600    | Abcc3   | ATP-binding cassette, sub-family C (CFTR/MRP), member 3                                                        |
| A06      | Mm.20845  | NM_013790    | Abcc5   | ATP-binding cassette, sub-family C (CFTR/MRP), member 5                                                        |
| A07      | Mm.63514  | NM_018795    | Abcc6   | ATP-binding cassette, sub-family C (CFTR/MRP), member 6                                                        |
| A08      | Mm.333096 | NM_011920    | Abcg2   | ATP-binding cassette, sub-family G (WHITE), member 2                                                           |
| A09      | Mm.341377 | NM_013464    | Ahr     | Aryl-hydrocarbon receptor                                                                                      |
| A10      | Mm.833    | NM_007457    | Ap1s1   | Adaptor protein complex AP-1, sigma 1                                                                          |
| A11      | Mm.384171 | NM_007462    | Apc     | Adenomatosis polyposis coli                                                                                    |
| A12      | Mm.39005  | NM_013476    | Ar      | Androgen receptor                                                                                              |
| B01      | Mm.250265 | NM_009709    | Arnt    | Aryl hydrocarbon receptor nuclear translocator                                                                 |
| B02      | Mm.5088   | NM_007499    | Atm     | Ataxia telangiectasia mutated homolog (human)                                                                  |
| B03      | Mm.19904  | NM_007527    | Bax     | Bcl2-associated X protein                                                                                      |
| B04      | Mm.257460 | NM_009741    | Bcl2    | B-cell leukemia/lymphoma 2                                                                                     |
| B05      | Mm.238213 | NM_009743    | Bcl2l1  | Bcl2-like 1                                                                                                    |
| B06      | Mm.399785 | NM_178645    | Blmh    | Bleomycin hydrolase                                                                                            |
| B07      | Mm.244975 | NM_009764    | Brca1   | Breast cancer 1                                                                                                |
| B08      | Mm.236256 | NM_009765    | Brca2   | Breast cancer 2                                                                                                |
| B09      | Mm.273049 | NM_007631    | Ccnd1   | Cyclin D1                                                                                                      |
| B10      | Mm.16110  | NM_007633    | Ccne1   | Cyclin E1                                                                                                      |
| B11      | Mm.111326 | NM_016756    | Cdk2    | Cyclin-dependent kinase 2                                                                                      |
| B12      | Mm.6839   | NM_009870    | Cdk4    | Cyclin-dependent kinase 4                                                                                      |
| C01      | Mm.195663 | NM_007669    | Cdkn1a  | Cyclin-dependent kinase inhibitor 1A (P21)                                                                     |
| C02      | Mm.2958   | NM_009875    | Cdkn1b  | Cyclin-dependent kinase inhibitor 1B                                                                           |
| C03      | Mm.4733   | NM_009877    | Cdkn2a  | Cyclin-dependent kinase inhibitor 2A                                                                           |
| C04      | Mm.29020  | NM_009878    | Cdkn2d  | Cyclin-dependent kinase inhibitor 2D (p19, inhibits CDK4)                                                      |
| C05      | Mm.34797  | NM_013496    | Crabp1  | Cellular retinoic acid binding protein I                                                                       |
| C06      | Mm.14089  | NM_009992    | Cyp1a1  | Cytochrome P450, family 1, subfamily a, polypeptide 1                                                          |
| C07      | Mm.15537  | NM_009993    | Cyp1a2  | Cytochrome P450, family 1, subfamily a, polypeptide 2                                                          |
| C08      | Mm.14098  | NM_007814    | Cyp2b19 | Cytochrome P450, family 2, subfamily b, polypeptide 19                                                         |
| C09      | Mm.20764  | NM_007815    | Cyp2c29 | Cytochrome P450, family 2, subfamily c, polypeptide 29                                                         |
| C10      | Mm.29119  | NM_145499    | Cyp2c70 | Cytochrome P450, family 2, subfamily c, polypeptide 70                                                         |
| C11      | Mm.474216 | NM_019823    | Cyp2d22 | Cytochrome P450, family 2, subfamily d, polypeptide 22                                                         |
| C12      | Mm.21758  | NM_021282    | Cyp2e1  | Cytochrome P450, family 2, subfamily e, polypeptide 1                                                          |
| D01      | Mm.23695  | NM_010049    | Dhfr    | Dihydrofolate reductase                                                                                        |
| D02      | Mm.8534   | NM_007912    | Egfr    | Epidermal growth factor receptor                                                                               |
| D03      | Mm.405823 | NM_007922    | Elk1    | ELK1, member of ETS oncogene family                                                                            |
| D04      | Mm.9075   | NM_010145    | Ephx1   | Epoxide hydrolase 1, microsomal                                                                                |
| D05      | Mm.290822 | NM_001003817 | ErbB2   | V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian) |
| D06      | Mm.373043 | NM_010153    | ErbB3   | V-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian)                                              |
| D07      | Mm.442420 | NM_010154    | ErbB4   | V-erb-a erythroblastic leukemia viral oncogene homolog 4 (avian)                                               |
|          |           |              |         | Excision repair cross-complementing rodent repair deficiency, complementation                                  |

| Position | UniGene   | GenBank   | Symbol    | Description                                                                           |
|----------|-----------|-----------|-----------|---------------------------------------------------------------------------------------|
| D08      | Mm.282335 | NM_133658 | Erc3      | group 3                                                                               |
| D09      | Mm.9213   | NM_007956 | Esr1      | Estrogen receptor 1 (alpha)                                                           |
| D10      | Mm.2561   | NM_010157 | Esr2      | Estrogen receptor 2 (beta)                                                            |
| D11      | Mm.473689 | NM_008006 | Fgf2      | Fibroblast growth factor 2                                                            |
| D12      | Mm.246513 | NM_010234 | Fos       | FBJ osteosarcoma oncogene                                                             |
| E01      | Mm.18974  | NM_008065 | Gabpa     | GA repeat binding protein, alpha                                                      |
| E02      | Mm.37199  | NM_010358 | Gstm1     | Glutathione S-transferase, mu 1                                                       |
| E03      | Mm.441542 | NM_181796 | Gstp2     | Glutathione S-transferase, pi 2                                                       |
| E04      | Mm.3879   | NM_010431 | Hif1a     | Hypoxia inducible factor 1, alpha subunit                                             |
| E05      | Mm.275742 | NM_010513 | Igf1r     | Insulin-like growth factor I receptor                                                 |
| E06      | Mm.26553  | NM_010515 | Igf2r     | Insulin-like growth factor 2 receptor                                                 |
| E07      | Mm.330745 | NM_010658 | Mafb      | V-maf musculoaponeurotic fibrosarcoma oncogene family, protein B (avian)              |
| E08      | Mm.86844  | NM_008591 | Met       | Met proto-oncogene                                                                    |
| E09      | Mm.4619   | NM_008628 | Msh2      | MutS homolog 2 (E. coli)                                                              |
| E10      | Mm.228797 | NM_080638 | Mvp       | Major vault protein                                                                   |
| E11      | Mm.2444   | NM_010849 | Myc       | Myelocytomatosis oncogene                                                             |
| E12      | Mm.4695   | NM_010874 | Nat2      | N-acetyltransferase 2 (arylamine N-acetyltransferase)                                 |
| F01      | Mm.256765 | NM_008689 | Nfkb1     | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105            |
| F02      | Mm.102365 | NM_019408 | Nfkb2     | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100        |
| F03      | Mm.220333 | NM_010908 | Nfkbib    | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, beta    |
| F04      | Mm.57043  | NM_008690 | Nfkbie    | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, epsilon |
| F05      | Mm.212789 | NM_011144 | Ppara     | Peroxisome proliferator activated receptor alpha                                      |
| F06      | Mm.328914 | NM_011145 | Ppard     | Peroxisome proliferator activator receptor delta                                      |
| F07      | Mm.3020   | NM_011146 | Pparg     | Peroxisome proliferator activated receptor gamma                                      |
| F08      | Mm.439744 | NM_009024 | Rara      | Retinoic acid receptor, alpha                                                         |
| F09      | Mm.259318 | NM_011243 | Rarb      | Retinoic acid receptor, beta                                                          |
| F10      | Mm.273862 | NM_009029 | Rb1       | Retinoblastoma 1                                                                      |
| F11      | Mm.1741   | NM_009046 | Relb      | Avian reticuloendotheliosis viral (v-rel) oncogene related B                          |
| F12      | Mm.24624  | NM_011305 | Rxra      | Retinoid X receptor alpha                                                             |
| G01      | Mm.1243   | NM_011306 | Rxrb      | Retinoid X receptor beta                                                              |
| G02      | Mm.276325 | NM_011434 | Sod1      | Superoxide dismutase 1, soluble                                                       |
| G03      | Mm.89655  | NM_023135 | Sult1e1   | Sulfotransferase family 1E, member 1                                                  |
| G04      | Mm.6251   | NM_009399 | Tnfrsf11a | Tumor necrosis factor receptor superfamily, member 11a                                |
| G05      | Mm.217233 | NM_009408 | Top1      | Topoisomerase (DNA) I                                                                 |
| G06      | Mm.4237   | NM_011623 | Top2a     | Topoisomerase (DNA) II alpha                                                          |
| G07      | Mm.130362 | NM_009409 | Top2b     | Topoisomerase (DNA) II beta                                                           |
| G08      | Mm.10169  | NM_016785 | Tpm1      | Thiopurine methyltransferase                                                          |
| G09      | Mm.222    | NM_011640 | Trp53     | Transformation related protein 53                                                     |
| G10      | Mm.198803 | NM_011673 | Ugcg      | UDP-glucose ceramide glucosyltransferase                                              |
| G11      | Mm.247036 | NM_011728 | Xpa       | Xeroderma pigmentosum, complementation group A                                        |
| G12      | Mm.2806   | NM_009531 | Xpc       | Xeroderma pigmentosum, complementation group C                                        |
| 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.

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