# RT² Profiler PCR Array (Rotor-Gene® Format)

# Rat Cancer PathwayFinder

### Cat. no. 330231 PARN-033ZR

### For pathway expression analysis

| Format | For use with the following real-time cyclers |
|---|---|
| RT² Profiler PCR Array, Format R | Rotor-Gene Q, other Rotor-Gene cyclers |

## Description

The Rat Cancer PathwayFinder RT² Profiler PCR Array profiles the expression of 84 genes representative of 9 different biological pathways involved in transformation and tumorigenesis. During oncogenesis, gene mutations and related expression changes accumulate in pathways regulating specific aspects of cell growth. Biological pathways that, when deregulated, allow cells to grow and divide unchecked include apoptosis (or programmed cell death), cell cycle, DNA damage repair, cellular senescence, and telomere maintenance. Recent studies indicate that changes in metabolism also occur as tumors grow, due in part to altered gene expression. Angiogenesis, another commonly affected pathway, allows further tumor growth via vascularization and oxygenation when stimulated by tumor cell hypoxia signaling. Epithelial-to-mesenchymal transition (EMT) permits tumors to invade surrounding tissue and metastasize. Many genes mediate and control each of these pathways, and changes in the expression of any of those genes can deregulate its pathway. Thus, the combination of affected genes in any given cancer or tumor can be distinctive. Understanding the molecular mechanisms behind specific cancers and researching diagnostic and prognostic biomarkers requires analyses of not just one of these pathways in isolation, but of all the pathways together. This array includes target genes for these 9 important cancer-related pathways, and its results can suggest pathways that are potentially activated or inhibited in tumor cell samples for further follow-up studies. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes related to oncogenesis with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

## Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

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

**Note**: Ensure that you have the correct RT² 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

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

## Gene table: RT² Profiler PCR Array

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| A01 | Rn.29771 | NM_016987 | Acly | ATP citrate lyase |
| A02 | Rn.87821 | NM_053623 | Acsl4 | Acyl-CoA synthetase long-chain family member 4 |
| A03 | Rn.10232 | NM_012715 | Adm | Adrenomedullin |
| A04 | Rn.161953 | NM_053546 | Angpt1 | Angiopoietin 1 |
| A05 | Rn.138360 | NM_134454 | Angpt2 | Angiopoietin 2 |
| A06 | Rn.64522 | NM_023979 | Apaf1 | Apoptotic peptidase activating factor 1 |
| A07 | Rn.10520 | NM_012780 | Arnt | Aryl hydrocarbon receptor nuclear translocator |
| A08 | Rn.40255 | NM_023093 | Atp5a1 | ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle |
| A09 | Rn.107838 | NM_001105757 | Atrx | Alpha thalassemia/mental retardation syndrome X-linked (RAD54 homolog, S. cerevisiae) |
| A10 | Rn.161874 | NM_153296 | Aurka | Aurora kinase A |
| A11 | Rn.82709 | NM_022612 | Bcl2l11 | BCL2-like 11 (apoptosis facilitator) |
| A12 | Rn.64578 | NM_023987 | Birc3 | Baculoviral IAP repeat-containing 3 |
| B01 | Rn.220522 | NM_001107368 | Bmi1 | Bmi1 polycomb ring finger oncogene |
| B02 | Rn.162391 | NM_001107956 | Car9 | Carbonic anhydrase 9 |
| B03 | Rn.1438 | NM_022522 | Casp2 | Caspase 2 |
| B04 | Rn.53995 | NM_022260 | Casp7 | Caspase 7 |
| B05 | Rn.32199 | NM_031632 | Casp9 | Caspase 9, apoptosis-related cysteine peptidase |
| B06 | Rn.4772 | NM_031530 | Ccl2 | Chemokine (C-C motif) ligand 2 |
| B07 | Rn.96083 | NM_022267 | Ccnd2 | Cyclin D2 |
| B08 | Rn.3483 | NM_012766 | Ccnd3 | Cyclin D3 |
| B09 | Rn.9262 | NM_171993 | Cdc20 | Cell division cycle 20 homolog (S. cerevisiae) |
| B10 | Rn.23200 | NM_031333 | Cdh2 | Cadherin 2 |
| B11 | Rn.204752 | NM_057138 | Cflar | CASP8 and FADD-like apoptosis regulator |
| B12 | Rn.11077 | NM_145783 | Cox5a | Cytochrome c oxidase, subunit Va |
| C01 | Rn.11389 | NM_012930 | Cpt2 | Carnitine palmitoyltransferase 2 |
| C02 | Rn.154614 | XM_242065 | Ddb2 | Damage specific DNA binding protein 2 |
| C03 | Rn.4223 | NM_133419 | Dkc1 | Dyskeratosis congenita 1, dyskerin |
| C04 | Rn.54711 | XM_225259 | Dsp | Desmoplakin |
| C05 | Rn.154586 | XM_226441 | E2f4 | E2F transcription factor 4 |
| C06 | Rn.11365 | NM_017001 | Epo | Erythropoietin |
| C07 | Rn.44012 | NM_001031644 | Ercc3 | Excision repair cross-complementing rodent repair deficiency, complementation group 3 |
| C08 | Rn.208330 | NM_001106910 | Ercc5 | Excision repair cross-complementing rodent repair deficiency, complementation group 5 |
| C09 | Rn.164554 | NM_001107107 | Ets2 | V-ets erythroblastosis virus E26 oncogene homolog 2 (avian) |
| C10 | Rn.9725 | NM_012908 | Faslg | Fas ligand (TNF superfamily, member 6) |
| C11 | Rn.31808 | NM_019305 | Fgf2 | Fibroblast growth factor 2 |
| C12 | Rn.10239 | NM_019306 | Flt1 | Fms-related tyrosine kinase 1 |
| D01 | Rn.216723 | NM_001101680 | Foxc2 | Forkhead box C2 |
| D02 | Rn.11040 | NM_017006 | G6pd | Glucose-6-phosphate dehydrogenase |
| D03 | Rn.16950 | NM_001077640 | Gadd45g | Growth arrest and DNA-damage-inducible, gamma |
| D04 | Rn.89705 | NM_012736 | Gpd2 | Glycerol-3-phosphate dehydrogenase 2, mitochondrial |
| D05 | Rn.198763 | XM_343101 | Gsc | Goosecoid homeobox |
| D06 | Rn.3160 | NM_012580 | Hmox1 | Heme oxygenase (decycling) 1 |
| D07 | Rn.26369 | NM_012588 | Igfbp3 | Insulin-like growth factor binding protein 3 |
| D08 | Rn.1593 | NM_012817 | Igfbp5 | Insulin-like growth factor binding protein 5 |
| D09 | Rn.203012 | NM_001013048 | Igfbp7 | Insulin-like growth factor binding protein 7 |
| D10 | Rn.145491 | NM_001038591 | Ing1 | Inhibitor of growth family, member 1 |
| D11 | Rn.88869 | NM_013062 | Kdr | Kinase insert domain receptor |
| D12 | Rn.153972 | NM_001008751 | Krt14 | Keratin 14 |
| E01 | Rn.107896 | NM_017025 | Ldha | Lactate dehydrogenase A |
| E02 | Rn.219326 | NM_001106095 | Lig4 | Ligase IV, DNA, ATP-dependent |
| E03 | Rn.3834 | NM_012598 | Lpl | Lipoprotein lipase |
| E04 | Rn.5850 | NM_031643 | Map2k1 | Mitogen activated protein kinase kinase 1 |
| E05 | Rn.100064 | NM_001100674 | Map2k3 | Mitogen activated protein kinase kinase 3 |

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| E06 | Rn.2715 | NM_001107873 | Mcm2 | Minichromosome maintenance complex component 2 |
| E07 | Rn.73551 | XM_225460 | Mki67 | Antigen identified by monoclonal antibody Ki-67 |
| E08 | Rn.86956 | NM_053516 | Nol3 | Nucleolar protein 3 (apoptosis repressor with CARD domain) |
| E09 | Rn.31429 | NM_031329 | Ocln | Occludin |
| E10 | Rn.4212 | NM_013190 | Pfkl | Phosphofructokinase, liver |
| E11 | Rn.6960 | NM_053595 | Pgf | Placental growth factor |
| E12 | Rn.15365 | NM_001083337 | Pinx1 | PIN2-interacting protein 1 |
| F01 | Rn.2232 | NM_133546 | Ppp1r15a | Protein phosphatase 1, regulatory (inhibitor) subunit 15A |
| F02 | Rn.42912 | NM_021696 | Serpinb2 | Serpin peptidase inhibitor, clade B (ovalbumin), member 2 |
| F03 | Rn.16993 | NM_177927 | Serpinf1 | Serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1 |
| F04 | Rn.59887 | NM_001008368 | Sirt2 | Sirtuin (silent mating type information regulation 2 homolog) 2 (S. cerevisiae) |
| F05 | Rn.154278 | NM_001106416 | Skp2 | S-phase kinase-associated protein 2 (p45) |
| F06 | Rn.3205 | NM_138827 | Slc2a1 | Solute carrier family 2 (facilitated glucose transporter), member 1 |
| F07 | Rn.8008 | NM_053805 | Snai1 | Snail homolog 1 (Drosophila) |
| F08 | Rn.43117 | NM_013035 | Snai2 | Snail homolog 2 (Drosophila) |
| F09 | Rn.127187 | NM_001107439 | Snai3 | Snail homolog 3 (Drosophila) |
| F10 | Rn.6059 | NM_017050 | Sod1 | Superoxide dismutase 1, soluble |
| F11 | Rn.10883 | NM_019193 | Sox10 | SRY (sex determining region Y)-box 10 |
| F12 | Rn.555 | NM_017166 | Stmn1 | Stathmin 1 |
| G01 | Rn.38282 | NM_001107033 | Tbx2 | T-box 2 |
| G02 | Rn.9159 | NM_001105737 | Tek | TEK tyrosine kinase, endothelial |
| G03 | Rn.5890 | NM_022591 | Tep1 | Telomerase associated protein 1 |
| G04 | Rn.2055 | NM_001013143 | Terf2ip | Telomeric repeat binding factor 2, interacting protein |
| G05 | Rn.107132 | NM_001006962 | Tinf2 | TERF1 (TRF1)-interacting nuclear factor 2 |
| G06 | Rn.213840 | NM_001106084 | Tnks | Tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase |
| G07 | Rn.75288 | NM_001107607 | Tnks2 | Tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase 2 |
| G08 | Rn.2603 | NM_001008888 | Uqcrfs1 | Ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1 |
| G09 | Rn.6913 | NM_053653 | Vegfc | Vascular endothelial growth factor C |
| G10 | Rn.208255 | NM_001012742 | Wee1 | Wee 1 homolog (S. pombe) |
| G11 | Rn.91239 | NM_022231 | Xiap | X-linked inhibitor of apoptosis |
| G12 | Rn.40979 | NM_001006999 | Xrcc4 | X-ray repair complementing defective repair in Chinese hamster cells 4 |
| 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, RT² Profiler PCR Arrays should be used together with the RT² First Strand Kit for cDNA synthesis and RT² SYBR® Green qPCR Mastermixes for PCR.

| Product | Contents | Cat. no. |
|---|---|---|
| RT² First Strand Kit (12) | Enzymes and reagents for cDNA synthesis | 330401 |
| RT² SYBR Green ROX™ FAST Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers | 330620 |

* Larger kit sizes available; please inquire.

RT² 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 or can be requested from QIAGEN Technical Services or your local distributor.



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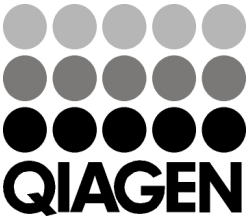


Sample & Assay Technologies