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

# Rat Oncogenes & Tumor Suppressor Genes

### Cat. no. 330231 PARN-502ZR

### 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 Oncogenes & Tumor Suppressor Genes RT² 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 *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.3105 | NM_001100850 | Abl1 | C-abl oncogene 1, receptor tyrosine kinase |
| A02 | Rn.11422 | NM_033230 | Akt1 | V-akt murine thymoma viral oncogene homolog 1 |
| A03 | Rn.88057 | NM_012499 | Apc | Adenomatous polyposis coli |
| A04 | Rn.214048 | NM_001106821 | Atm | Ataxia telangiectasia mutated homolog (human) |
| A05 | Rn.10668 | NM_017059 | Bax | Bcl2-associated X protein |
| A06 | Rn.9996 | NM_016993 | Bcl2 | B-cell CLL/lymphoma 2 |
| A07 | Rn.10323 | NM_031535 | Bcl2l1 | Bcl2-like 1 |
| A08 | Rn.48840 | NM_012514 | Brca1 | Breast cancer 1 |
| A09 | Rn.103225 | NM_031542 | Brca2 | Breast cancer 2 |
| A10 | Rn.54474 | NM_022277 | Casp8 | Caspase 8 |
| A11 | Rn.22279 | NM_171992 | Ccnd1 | Cyclin D1 |
| A12 | Rn.1303 | NM_031334 | Cdh1 | Cadherin 1 |
| B01 | Rn.6115 | NM_053593 | Cdk4 | Cyclin-dependent kinase 4 |
| B02 | Rn.10089 | NM_080782 | Cdkn1a | Cyclin-dependent kinase inhibitor 1A |
| B03 | Rn.48717 | NM_031550 | Cdkn2a | Cyclin-dependent kinase inhibitor 2A |
| B04 | Rn.105626 | NM_130812 | Cdkn2b | Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4) |
| B05 | Rn.107220 | NM_001106028 | Cdkn3 | Cyclin-dependent kinase inhibitor 3 |
| B06 | Rn.112601 | NM_053357 | Ctnnb1 | Catenin (cadherin associated protein), beta 1 |
| B07 | Rn.72471 | NM_001100778 | E2f1 | E2F transcription factor 1 |
| B08 | Rn.6075 | NM_012842 | Egf | Epidermal growth factor |
| B09 | Rn.37227 | NM_031507 | Egfr | Epidermal growth factor receptor |
| B10 | Rn.204602 | XM_001055949 | Elk1 | ELK1, member of ETS oncogene family |
| B11 | Rn.93966 | NM_017003 | Erbb2 | V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian) |
| B12 | Rn.10595 | NM_012689 | Esr1 | Estrogen receptor 1 |
| C01 | Rn.88756 | NM_012555 | Ets1 | V-ets erythroblastosis virus E26 oncogene homolog 1 (avian) |
| C02 | Rn.45598 | NM_021774 | Fhit | Fragile histidine triad gene |
| C03 | Rn.103750 | NM_022197 | Fos | FBJ osteosarcoma oncogene |
| C04 | Rn.92964 | XM_575873 | Foxd3 | Forkhead box D3 |
| C05 | Rn.19361 | NM_012755 | Fyn | FYN oncogene related to SRC, FGR, YES |
| C06 | Rn.10468 | NM_017017 | Hgf | Hepatocyte growth factor |
| C07 | Rn.11570 | NM_001107021 | Hic1 | Hypermethylated in cancer 1 |
| C08 | Rn.102180 | NM_001098241 | Hras | Harvey rat sarcoma virus oncogene |
| C09 | Rn.270 | NM_012756 | Igf2r | Insulin-like growth factor 2 receptor |
| C10 | Rn.18909 | NM_031514 | Jak2 | Janus kinase 2 |
| C11 | Rn.93714 | NM_021835 | Jun | Jun oncogene |
| C12 | Rn.15806 | NM_021836 | Junb | Jun B proto-oncogene |
| D01 | Rn.46225 | NM_138875 | Jund | Jun D proto-oncogene |
| D02 | Rn.54004 | NM_022264 | Kit | V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog |
| D03 | Rn.44216 | NM_021843 | Kitlg | KIT ligand |
| D04 | Rn.24554 | NM_031515 | Kras | V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog |
| D05 | Rn.129914 | NM_021846 | Mcl1 | Myeloid cell leukemia sequence 1 |
| D06 | Rn.91829 | NM_001108099 | Mdm2 | Mdm2 p53 binding protein homolog (mouse) |
| D07 | Rn.6775 | NM_019208 | Men1 | Multiple endocrine neoplasia 1 |
| D08 | Rn.10617 | NM_031517 | Met | Met proto-oncogene |
| D09 | Rn.9836 | NM_012861 | Mgmt | O-6-methylguanine-DNA methyltransferase |
| D10 | Rn.20391 | NM_031053 | Mlh1 | MutL homolog 1 (E. coli) |
| D11 | Rn.10341 | NM_020102 | Mos | Moloney sarcoma oncogene |
| D12 | Rn.12072 | NM_012603 | Myc | Myelocytomatosis oncogene |
| E01 | Rn.81116 | NM_001013096 | Mycn | V-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian) |
| E02 | Rn.10686 | NM_012609 | Nf1 | Neurofibromin 1 |
| E03 | Rn.46695 | NM_013193 | Nf2 | Neurofibromin 2 (merlin) |
| E04 | Rn.2411 | XM_342346 | Nfkb1 | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 |
| E05 | Rn.12550 | NM_001105720 | Nfkbia | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha |
| E06 | Rn.217722 | NM_080766 | Nras | Neuroblastoma ras oncogene |
| E07 | Rn.60820 | NM_001108500 | Pik3c2a | Phosphoinositide-3-kinase, class 2, alpha polypeptide |

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| E08 | Rn.44193 | NM_133399 | Pik3ca | Phosphoinositide-3-kinase, catalytic, alpha polypeptide |
| E09 | Rn.207908 | NM_001105713 | Prkca | Protein kinase C, alpha |
| E10 | Rn.22158 | NM_031606 | Pten | Phosphatase and tensin homolog |
| E11 | Rn.33262 | NM_012639 | Raf1 | V-raf-leukemia viral oncogene 1 |
| E12 | Rn.91057 | NM_031528 | Rara | Retinoic acid receptor, alpha |
| F01 | Rn.83042 | NM_001007754 | Rassf1 | Ras association (RalGDS/AF-6) domain family member 1 |
| F02 | Rn.55115 | NM_017045 | Rb1 | Retinoblastoma 1 |
| F03 | Rn.106948 | XM_223688 | Rel | V-rel reticuloendotheliosis viral oncogene homolog (avian) |
| F04 | Rn.93200 | NM_012643 | Ret | Ret proto-oncogene |
| F05 | Rn.87436 | NM_012874 | Ros1 | C-ros oncogene 1 , receptor tyrosine kinase |
| F06 | Rn.11201 | NM_017325 | Runx1 | Runt-related transcription factor 1 |
| F07 | Rn.205217 | NM_130425 | Runx3 | Runt-related transcription factor 3 |
| F08 | Rn.504 | NM_012618 | S100a4 | S100 calcium-binding protein A4 |
| F09 | Rn.25752 | NM_057108 | Serpinb5 | Serpin peptidase inhibitor, clade B (ovalbumin), member 5 |
| F10 | Rn.127935 | NM_001107606 | Sh3pxd2a | SH3 and PX domains 2A |
| F11 | Rn.9774 | NM_019275 | Smad4 | SMAD family member 4 |
| F12 | Rn.112600 | NM_031977 | Src | V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian) |
| G01 | Rn.10247 | NM_012747 | Stat3 | Signal transducer and activator of transcription 3 |
| G02 | Rn.12052 | NM_001108069 | Stk11 | Serine/threonine kinase 11 |
| G03 | Rn.40136 | NM_021578 | Tgfb1 | Transforming growth factor, beta 1 |
| G04 | Rn.2275 | NM_012675 | Tnf | Tumor necrosis factor (TNF superfamily, member 2) |
| G05 | Rn.54443 | NM_030989 | Tp53 | Tumor protein p53 |
| G06 | Rn.103860 | NM_001108696 | Tp73 | Tumor protein p73 |
| G07 | Rn.205837 | NM_021854 | Tsc1 | Tuberous sclerosis 1 |
| G08 | Rn.11059 | NM_052801 | Vhl | Von Hippel-Lindau tumor suppressor |
| G09 | Rn.92531 | NM_031534 | Wt1 | Wilms tumor 1 |
| G10 | Rn.158117 | NM_001106188 | Wwox | WW domain-containing oxidoreductase |
| G11 | Rn.13754 | NM_053435 | Xrcc1 | X-ray repair complementing defective repair in Chinese hamster cells 1 |
| G12 | Rn.25386 | XM_235318 | Zhx2 | Zinc fingers and homeoboxes 2 |
| 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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