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

# Rat Embryonic Stem Cells

### Cat. no. 330231 PARN-081YR

### 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 Embryonic Stem Cell RT² Profiler PCR Array profiles the expression of 84 key genes involved in the maintenance of pluripotency and the self-renewal status of embryonic stem cells. Embryonic stem cells (ESC) hold great potential in treating diseases and injuries. However, turning them into a safe therapeutic agent still requires a deeper understanding how the control mechanisms for cell-lineage commitment and differentiation work. Some of this work is performed with ESCs, but similar studies make use of induced pluripotent stem cells (iPSC). The array includes embryonic stem cell-specific genes that maintain their pluripotent and self-renewal characteristics as well as key genes necessary for the first steps of iPSC generation. The array also includes differentiation markers that can be used to monitor the early events of ESC differentiation. A set of controls present on each array enables data analysis using the ΔΔCT method of relative quantification, assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze expression of a focused panel of genes involved in embryonic stem cells maintenance and differentiation with this array.

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

## Shipping and storage

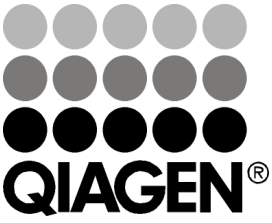
RT² Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

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.3114 | NM_031004 | Acta2 | Smooth muscle alpha-actin |
| A02 | Rn.118188 | NM_001100779 | Aicda | Activation-induced cytidine deaminase |
| A03 | Rn.202968 | NM_134326 | Alb | Albumin |
| A04 | Rn.82764 | NM_013059 | Alpl | Alkaline phosphatase, liver/bone/kidney |
| A05 | Rn.13094 | NM_053702 | Ccna2 | Cyclin A2 |
| A06 | Rn.1120 | NM_012924 | Cd44 | Cd44 molecule |
| A07 | Rn.228625 | NM_171994 | Cdc42 | Cell division cycle 42 (GTP binding protein) |
| A08 | Rn.6934 | NM_019296 | Cdk1 | Cyclin-dependent kinase 1 |
| A09 | Rn.198122 | NM_001107465 | Chd1 | Chromodomain helicase DNA binding protein 1 |
| A10 | N/A | NM_001107906 | Chd7 | Chromodomain helicase DNA binding protein 7 |
| A11 | Rn.212216 | NM_001107471 | Cnot3 | CCR4-NOT transcription complex, subunit 3 |
| A12 | Rn.39196 | NM_022531 | Des | Desmin |
| B01 | Rn.117353 | NM_001003959 | Dnmt3b | DNA (cytosine-5-)-methyltransferase 3 beta |
| B02 | N/A | XM_001063497 | Dppa2 | Developmental pluripotency associated 2 |
| B03 | Rn.79056 | NM_001047864 | Dppa3 | Developmental pluripotency-associated 3 |
| B04 | Rn.156472 | NM_001109214 | En2 | Engrailed homeobox 2 |
| B05 | Rn.187025 | NM_001010968 | Eng | Endoglin |
| B06 | Rn.104984 | NM_001008516 | Esrrb | Estrogen-related receptor beta |
| B07 | N/A | XM_341830 | Etv2 | Ets variant 2 |
| B08 | Rn.31808 | NM_019305 | Fgf2 | Fibroblast growth factor 2 |
| B09 | Rn.44445 | NM_022211 | Fgf5 | Fibroblast growth factor 5 |
| B10 | Rn.144698 | NM_001008279 | Flii | Flightless I homolog (Drosophila) |
| B11 | Rn.92964 | XM_575873 | Foxd3 | Forkhead box D3 |
| B12 | Rn.10024 | NM_012764 | Gata1 | GATA binding protein 1 |
| C01 | Rn.34322 | NM_033442 | Gata2 | GATA binding protein 2 |
| C02 | Rn.8701 | NM_019185 | Gata6 | GATA binding protein 6 |
| C03 | Rn.92363 | NM_053708 | Gbx2 | Gastrulation brain homeobox 2 |
| C04 | Rn.202592 | NM_001109671 | Gdf3 | Growth differentiation factor 3 |
| C05 | Rn.91512 | NM_017009 | Gfap | Glial fibrillary acidic protein |
| C06 | Rn.228175 | NM_001191873 | Gsc | Goosecoid homeobox |
| C07 | Rn.100787 | NM_021592 | Hand1 | Heart and neural crest derivatives expressed 1 |
| C08 | Rn.12238 | NM_022180 | Hnf4a | Hepatocyte nuclear factor 4, alpha |
| C09 | Rn.7535 | NM_001100658 | Hspa9 | Heat shock protein 9 |
| C10 | Rn.36202 | NM_017339 | Isl1 | ISL LIM homeobox 1 |
| C11 | Rn.6629 | NM_001005872 | Kat5 | K(lysine) acetyltransferase 5 |
| C12 | Rn.7719 | NM_053713 | Klf4 | Kruppel-like factor 4 (gut) |
| D01 | Rn.218667 | NM_001109080 | Lefty1 | Left right determination factor 1 |
| D02 | Rn.147538 | NM_001109269 | Lin28a | Lin-28 homolog (C. elegans) |
| D03 | Rn.32269 | NM_001134702 | Meis1 | Meis homeobox 1 |
| D04 | Rn.115951 | NM_001107531 | Mesp1 | Mesoderm posterior 1 homolog (mouse) |
| D05 | Rn.218456 | NM_001105979 | Mixl1 | Mix1 homeobox-like 1 (Xenopus laevis) |
| D06 | Rn.20824 | NM_001106536 | Mybl2 | Myeloblastosis oncogene-like 2 |
| D07 | Rn.12072 | NM_012603 | Myc | Myelocytomatosis oncogene |
| D08 | Rn.9493 | NM_176079 | Myod1 | Myogenic differentiation 1 |
| D09 | Rn.124668 | NM_001100781 | Nanog | Nanog homeobox |
| D10 | Rn.214248 | NM_031521 | Ncam1 | Neural cell adhesion molecule 1 |
| D11 | Rn.9701 | NM_012987 | Nes | Nestin |
| D12 | Rn.6179 | NM_053651 | Nkx2-5 | NK2 transcription factor related, locus 5 (Drosophila) |
| E01 | Rn.218528 | NM_001106394 | Nodal | Nodal homolog (mouse) |
| E02 | Rn.10596 | NM_053317 | Nr0b1 | Nuclear receptor subfamily 0, group B, member 1 |
| E03 | Rn.42941 | NM_021742 | Nr5a2 | Nuclear receptor subfamily 5, group A, member 2 |
| E04 | Rn.233417 | XM_006224403 | Nr6a1 | Nuclear receptor subfamily 6, group A, member 1 |
| E05 | Rn.40132 | NM_021576 | Nt5e | 5' nucleotidase, ecto |
| E06 | Rn.22121 | NM_001100557 | Olig2 | Oligodendrocyte lineage transcription factor 2 |
| E07 | Rn.35222 | NM_001100566 | Otx2 | Orthodenticle homeobox 2 |
| E08 | Rn.161558 | NM_001024898 | Paf1 | Paf1, RNA polymerase II associated factor, homolog (S. cerevisiae) |
| E09 | Rn.89724 | NM_013001 | Pax6 | Paired box 6 |

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| E10 | Rn.161748 | NM_001009178 | Pou5f1 | POU class 5 homeobox 1 |
| E11 | N/A | XM_003753723 | Rif1 | Rap1 interacting factor 1 homolog (yeast) |
| E12 | Rn.32079 | NM_030875 | Scn1a | Sodium channel, voltage-gated, type I, alpha |
| F01 | Rn.10635 | NM_013130 | Smad1 | SMAD family member 1 |
| F02 | Rn.2755 | NM_019191 | Smad2 | SMAD family member 2 |
| F03 | Rn.10636 | NM_013095 | Smad3 | SMAD family member 3 |
| F04 | Rn.145250 | NM_001108830 | Sox15 | SRY (sex determining region Y)-box 15 |
| F05 | Rn.7884 | NM_001107902 | Sox17 | SRY (sex determining region Y)-box 17 |
| F06 | Rn.17369 | NM_001109181 | Sox2 | SRY (sex determining region Y)-box 2 |
| F07 | Rn.17732 | NM_001106045 | Sox7 | SRY (sex determining region Y)-box 7 |
| F08 | Rn.10247 | NM_012747 | Stat3 | Signal transducer and activator of transcription 3 |
| F09 | Rn.218650 | NM_001106209 | T | T, brachyury homolog (mouse) |
| F10 | Rn.34397 | NM_031549 | Tagln | Transgelin |
| F11 | Rn.9434 | NM_001107958 | Tal1 | T-cell acute lymphocytic leukemia 1 |
| F12 | Rn.9947 | NM_012668 | Tat | Tyrosine aminotransferase |
| G01 | Rn.162144 | NM_181638 | Tbx3 | T-box 3 |
| G02 | Rn.33103 | NM_001107865 | Tcf7l1 | Transcription factor 3 |
| G03 | Rn.218634 | NM_001109601 | Tcl1a | T-cell leukemia/lymphoma 1A |
| G04 | N/A | XM_001056317 | Tdgf1 | Teratocarcinoma-derived growth factor 1 |
| G05 | Rn.9159 | NM_001105737 | Tek | TEK tyrosine kinase, endothelial |
| G06 | Rn.48802 | NM_053423 | Tert | Telomerase reverse transcriptase |
| G07 | Rn.2823 | NM_001107422 | Thap11 | THAP domain containing 11 |
| G08 | Rn.108198 | NM_012673 | Thy1 | Thy-1 cell surface antigen |
| G09 | Rn.198494 | NM_053916 | Trim28 | Tripartite motif-containing 28 |
| G10 | Rn.220371 | NM_001131032 | Utf1 | Undifferentiated embryonic cell transcription factor 1 |
| G11 | N/A | XM_002728408 | Zfp42 | Zinc finger protein 42 |
| G12 | Rn.218078 | NM_001109017 | Zfx | Zinc finger protein X-linked |
| 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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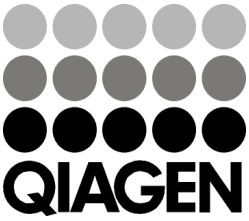


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