

RT² Profiler PCR Array (Rotor-Gene[®] Format)

Human Cytoskeleton Regulators

Cat. no. 330231 PAHS-088ZR

For pathway expression analysis

| Format | For use with the following real-time cyclers |
|--|--|
| RT ² Profiler PCR Array, Format R | Rotor-Gene Q, other Rotor-Gene cyclers |

Description

The Human Cytoskeleton Regulators RT² Profiler PCR Array profiles the expression of 84 genes controlling the intracellular scaffolding's biogenesis, organization, polymerization, and depolymerization. The actin filaments (or microfilaments), intermediate filaments, and microtubules that comprise the cytoskeleton all share many regulatory mechanisms but each have unique functions. Microfilaments regulate cell motility, migration, size and shape via projections such as axons, dendrites, filopodia, growth cones, lamellipodia, microvilli, pseudopodia, and ruffles. Actin filaments also contribute to cell-cell and cell-matrix junctions, cytokinesis, cytoplasmic streaming, and muscle contraction. Intermediate filaments seem to not only share roles with microfilaments, but also arrange the three-dimensional cell structure by anchoring organelles in place. The dynamics of microtubules, the core component of mitotic spindles and the axonemes of eukaryotic cilia and flagella, control both vesicular transport and chromosomal segregation during cell division. The cytoskeletal regulatory genes represented by this array include calmodulin and calcineurin, kinases and phosphatases, and relevant ARF and RHO G-protein family members as well as their key regulatory factors. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes that regulate cytoskeleton dynamics 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.



Sample & Assay Technologies

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 | Hs.728857 | NM_005722 | ACTR2 | ARP2 actin-related protein 2 homolog (yeast) |
| A02 | Hs.433512 | NM_005721 | ACTR3 | ARP3 actin-related protein 3 homolog (yeast) |
| A03 | Hs.503165 | NM_015242 | ARAP1 | ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 1 |
| A04 | Hs.751139 | NM_012402 | ARFIP2 | ADP-ribosylation factor interacting protein 2 |
| A05 | Hs.435291 | NM_013423 | ARHGAP6 | Rho GTPase activating protein 6 |
| A06 | Hs.504877 | NM_001175 | ARHGDIIB | Rho GDP dissociation inhibitor (GDI) beta |
| A07 | Hs.516954 | NM_198236 | ARHGEF11 | Rho guanine nucleotide exchange factor (GEF) 11 |
| A08 | Hs.489284 | NM_005720 | ARPC1B | Actin related protein 2/3 complex, subunit 1B, 41kDa |
| A09 | Hs.529303 | NM_005731 | ARPC2 | Actin related protein 2/3 complex, subunit 2, 34kDa |
| A10 | Hs.524741 | NM_005719 | ARPC3 | Actin related protein 2/3 complex, subunit 3, 21kDa |
| A11 | Hs.323342 | NM_005718 | ARPC4 | Actin related protein 2/3 complex, subunit 4, 20kDa |
| A12 | Hs.518609 | NM_005717 | ARPC5 | Actin related protein 2/3 complex, subunit 5, 16kDa |
| B01 | Hs.250822 | NM_003600 | AURKA | Aurora kinase A |
| B02 | Hs.442658 | NM_004217 | AURKB | Aurora kinase B |
| B03 | Hs.98338 | NM_003160 | AURKC | Aurora kinase C |
| B04 | Hs.128316 | NM_006340 | BAIAP2 | BAI1-associated protein 2 |
| B05 | Hs.490203 | NM_004342 | CALD1 | Caldesmon 1 |
| B06 | Hs.282410 | NM_006888 | CALM1 | Calmodulin 1 (phosphorylase kinase, delta) |
| B07 | Hs.495984 | NM_003688 | CASK | Calcium/calmodulin-dependent serine protein kinase (MAGUK family) |
| B08 | Hs.417050 | NM_003914 | CCNA1 | Cyclin A1 |
| B09 | Hs.194698 | NM_004701 | CCNB2 | Cyclin B2 |
| B10 | Hs.690198 | NM_001791 | CDC42 | Cell division cycle 42 (GTP binding protein, 25kDa) |
| B11 | Hs.35433 | NM_003607 | CDC42BPA | CDC42 binding protein kinase alpha (DMPK-like) |
| B12 | Hs.343380 | NM_006779 | CDC42EP2 | CDC42 effector protein (Rho GTPase binding) 2 |
| C01 | Hs.369574 | NM_006449 | CDC42EP3 | CDC42 effector protein (Rho GTPase binding) 3 |
| C02 | Hs.647078 | NM_004935 | CDK5 | Cyclin-dependent kinase 5 |
| C03 | Hs.500015 | NM_003885 | CDK5R1 | Cyclin-dependent kinase 5, regulatory subunit 1 (p35) |
| C04 | Hs.170622 | NM_005507 | CFL1 | Cofilin 1 (non-muscle) |
| C05 | Hs.119594 | NM_007174 | CIT | Citron (rho-interacting, serine/threonine kinase 21) |
| C06 | Hs.469840 | NM_015282 | CLASP1 | Cytoplasmic linker associated protein 1 |
| C07 | Hs.108614 | NM_015097 | CLASP2 | Cytoplasmic linker associated protein 2 |
| C08 | Hs.524809 | NM_002956 | CLIP1 | CAP-GLY domain containing linker protein 1 |
| C09 | Hs.647018 | NM_003388 | CLIP2 | CAP-GLY domain containing linker protein 2 |
| C10 | Hs.638121 | NM_016823 | CRK | V-crk sarcoma virus CT10 oncogene homolog (avian) |
| C11 | Hs.596164 | NM_005231 | CTTN | Cortactin |
| C12 | Hs.26704 | NM_014608 | CYFIP1 | Cytoplasmic FMR1 interacting protein 1 |
| D01 | Hs.519702 | NM_014376 | CYFIP2 | Cytoplasmic FMR1 interacting protein 2 |
| D02 | Hs.529451 | NM_005219 | DIAPH1 | Diaphanous homolog 1 (Drosophila) |
| D03 | Hs.304192 | NM_006870 | DSTN | Destrin (actin depolymerizing factor) |
| D04 | Hs.487027 | NM_003379 | EZR | Ezrin |
| D05 | Hs.134060 | NM_017737 | FNBP1L | Formin binding protein 1-like |
| D06 | Hs.118555 | NM_012418 | FSCN2 | Fascin homolog 2, actin-bundling protein, retinal (Strongylocentrotus purpuratus) |
| D07 | Hs.522373 | NM_000177 | GSN | Gelsolin |
| D08 | Hs.430551 | NM_003870 | IQGAP1 | IQ motif containing GTPase activating protein 1 |
| D09 | Hs.291030 | NM_006633 | IQGAP2 | IQ motif containing GTPase activating protein 2 |
| D10 | Hs.647035 | NM_002314 | LIMK1 | LIM domain kinase 1 |
| D11 | Hs.474596 | NM_005569 | LIMK2 | LIM domain kinase 2 |
| D12 | Hs.513983 | NM_004140 | LLGL1 | Lethal giant larvae homolog 1 (Drosophila) |
| E01 | Hs.580782 | NM_012090 | MACF1 | Microtubule-actin crosslinking factor 1 |
| E02 | Hs.502872 | NM_002419 | MAP3K11 | Mitogen-activated protein kinase kinase kinase 11 |
| E03 | Hs.517949 | NM_002375 | MAP4 | Microtubule-associated protein 4 |
| E04 | Hs.178695 | NM_002754 | MAPK13 | Mitogen-activated protein kinase 13 |
| E05 | Hs.472437 | NM_012325 | MAPRE1 | Microtubule-associated protein, RP/EB family, member 1 |
| E06 | Hs.532824 | NM_014268 | MAPRE2 | Microtubule-associated protein, RP/EB family, member 2 |
| E07 | Hs.101174 | NM_005910 | MAPT | Microtubule-associated protein tau |
| E08 | Hs.567261 | NM_004954 | MARK2 | MAP/microtubule affinity-regulating kinase 2 |
| E09 | Hs.27695 | NM_000381 | MID1 | Midline 1 (Opitz/BBB syndrome) |

| Position | UniGene | GenBank | Symbol | Description |
|----------|-----------|-----------|----------|---|
| E10 | Hs.87752 | NM_002444 | MSN | Moesin |
| E11 | Hs.477375 | NM_053025 | MYLK | Myosin light chain kinase |
| E12 | Hs.86092 | NM_033118 | MYLK2 | Myosin light chain kinase 2 |
| F01 | Hs.477693 | NM_006153 | NCK1 | NCK adaptor protein 1 |
| F02 | Hs.529244 | NM_003581 | NCK2 | NCK adaptor protein 2 |
| F03 | Hs.435714 | NM_002576 | PAK1 | P21 protein (Cdc42/Rac)-activated kinase 1 |
| F04 | Hs.20447 | NM_005884 | PAK4 | P21 protein (Cdc42/Rac)-activated kinase 4 |
| F05 | Hs.91747 | NM_002628 | PFN2 | Profilin 2 |
| F06 | Hs.477114 | NM_145753 | PHLDB2 | Pleckstrin homology-like domain, family B, member 2 |
| F07 | Hs.173939 | NM_015040 | PIKFYVE | Phosphoinositide kinase, FYVE finger containing |
| F08 | Hs.49582 | NM_002480 | PPP1R12A | Protein phosphatase 1, regulatory (inhibitor) subunit 12A |
| F09 | Hs.444403 | NM_002481 | PPP1R12B | Protein phosphatase 1, regulatory (inhibitor) subunit 12B |
| F10 | Hs.435512 | NM_000944 | PPP3CA | Protein phosphatase 3, catalytic subunit, alpha isozyme |
| F11 | Hs.500067 | NM_021132 | PPP3CB | Protein phosphatase 3, catalytic subunit, beta isozyme |
| F12 | Hs.413812 | NM_006908 | RAC1 | Ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1) |
| G01 | Hs.505469 | NM_013277 | RACGAP1 | Rac GTPase activating protein 1 |
| G02 | Hs.263671 | NM_002906 | RDX | Radixin |
| G03 | Hs.247077 | NM_001664 | RHOA | Ras homolog gene family, member A |
| G04 | Hs.306307 | NM_005406 | ROCK1 | Rho-associated, coiled-coil containing protein kinase 1 |
| G05 | Hs.199763 | NM_018984 | SSH1 | Slingshot homolog 1 (Drosophila) |
| G06 | Hs.654754 | NM_033389 | SSH2 | Slingshot homolog 2 (Drosophila) |
| G07 | Hs.209983 | NM_005563 | STMN1 | Stathmin 1 |
| G08 | Hs.517228 | NM_003253 | TIAM1 | T-cell lymphoma invasion and metastasis 1 |
| G09 | Hs.515469 | NM_003370 | VASP | Vasodilator-stimulated phosphoprotein |
| G10 | Hs.2157 | NM_000377 | WAS | Wiskott-Aldrich syndrome (eczema-thrombocytopenia) |
| G11 | Hs.75850 | NM_003931 | WASF1 | WAS protein family, member 1 |
| G12 | Hs.143728 | NM_003941 | WASL | Wiskott-Aldrich syndrome-like |
| H01 | Hs.520640 | NM_001101 | ACTB | Actin, beta |
| H02 | Hs.534255 | NM_004048 | B2M | Beta-2-microglobulin |
| H03 | Hs.592355 | NM_002046 | GAPDH | Glyceraldehyde-3-phosphate dehydrogenase |
| H04 | Hs.412707 | NM_000194 | HPRT1 | Hypoxanthine phosphoribosyltransferase 1 |
| H05 | Hs.546285 | NM_001002 | RPLP0 | Ribosomal protein, large, P0 |
| H06 | N/A | SA_00105 | HGDC | Human 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. |
|---|--|-----------------|
| RT ² First Strand Kit (12) | Enzymes and reagents for cDNA synthesis | 330401 |
| RT ² 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.

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