

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

## Rat Cytoskeleton Regulators

Cat. no. 330231 PARN-088ZA

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 Rat Cytoskeleton Regulators RT<sup>2</sup> 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 *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           |
|----------|-----------------|-----------------|-----------------|---------------|----------------|----------------|----------------|-----------------|-----------------|---------------|---------------|--------------|
| <b>A</b> | <i>Actr2</i>    | <i>Actr3</i>    | <i>Arap1</i>    | <i>Arfp2</i>  | <i>Arhgap5</i> | <i>Arhgdib</i> | <i>Arhgef1</i> | <i>Arhgef11</i> | <i>Arpc1b</i>   | <i>Arpc2</i>  | <i>Arpc3</i>  | <i>Arpc4</i> |
| <b>B</b> | <i>Arpc5</i>    | <i>Aurka</i>    | <i>Aurkb</i>    | <i>Aurkc</i>  | <i>Baiap2</i>  | <i>Cald1</i>   | <i>Calm1</i>   | <i>Cask</i>     | <i>Ccna1</i>    | <i>Ccnb1</i>  | <i>Ccnb2</i>  | <i>Cdc42</i> |
| <b>C</b> | <i>Cdc42bpa</i> | <i>Cdc42ep2</i> | <i>Cdc42ep3</i> | <i>Cdk5</i>   | <i>Cdk5r1</i>  | <i>Clf1</i>    | <i>Cit</i>     | <i>Clasp1</i>   | <i>Clasp2</i>   | <i>Clip1</i>  | <i>Clip2</i>  | <i>Crk</i>   |
| <b>D</b> | <i>Cttn</i>     | <i>Cyfp1</i>    | <i>Cyfp2</i>    | <i>Diaph1</i> | <i>Dstn</i>    | <i>Ezr</i>     | <i>Fnbp1l</i>  | <i>Fscn2</i>    | <i>Gsn</i>      | <i>Igap1</i>  | <i>Limk1</i>  | <i>Limk2</i> |
| <b>E</b> | <i>Ulg1</i>     | <i>Macf1</i>    | <i>Map3k11</i>  | <i>Map4</i>   | <i>Map6</i>    | <i>Mapk13</i>  | <i>Mapre1</i>  | <i>Mapt</i>     | <i>Mark2</i>    | <i>Mid1</i>   | <i>Msn</i>    | <i>Mylk</i>  |
| <b>F</b> | <i>Mylk2</i>    | <i>Nck1</i>     | <i>Nck2</i>     | <i>Pak1</i>   | <i>Pak4</i>    | <i>Pfn2</i>    | <i>Phldb2</i>  | <i>Ppp1r12a</i> | <i>Ppp1r12b</i> | <i>Ppp3ca</i> | <i>Ppp3cb</i> | <i>Rac1</i>  |
| <b>G</b> | <i>Racgap1</i>  | <i>Rdx</i>      | <i>Rhoa</i>     | <i>Rock1</i>  | <i>Sh3f1</i>   | <i>Ssh2</i>    | <i>Stmn1</i>   | <i>Tiam1</i>    | <i>Vasp</i>     | <i>Was</i>    | <i>Wasf1</i>  | <i>Wasl</i>  |
| <b>H</b> | <i>Actb</i>     | <i>B2m</i>      | <i>Hprt1</i>    | <i>Ldha</i>   | <i>Rplp1</i>   | <i>RGDC</i>    | <i>RTC</i>     | <i>RTC</i>      | <i>RTC</i>      | <i>PPC</i>    | <i>PPC</i>    | <i>PPC</i>   |

## Gene table: RT<sup>2</sup> Profiler PCR Array

| Position | UniGene   | GenBank      | Symbol          | Description                                                                       |
|----------|-----------|--------------|-----------------|-----------------------------------------------------------------------------------|
| A01      | Rn.102249 | NM_001009268 | <i>Actr2</i>    | ARP2 actin-related protein 2 homolog (yeast)                                      |
| A02      | Rn.103326 | NM_031068    | <i>Actr3</i>    | ARP3 actin-related protein 3 homolog (yeast)                                      |
| A03      | Rn.41376  | XM_341895    | <i>Arap1</i>    | ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 1                         |
| A04      | Rn.73878  | NM_001004222 | <i>Arfp2</i>    | ADP-ribosylation factor interacting protein 2                                     |
| A05      | Rn.20898  | NM_001047869 | <i>Arhgap5</i>  | Rho GTPase activating protein 5                                                   |
| A06      | Rn.15842  | NM_001009600 | <i>Arhgdib</i>  | Rho, GDP dissociation inhibitor (GDI) beta                                        |
| A07      | Rn.64481  | NM_021694    | <i>Arhgef1</i>  | Rho guanine nucleotide exchange factor (GEF) 1                                    |
| A08      | Rn.160580 | NM_023982    | <i>Arhgef11</i> | Rho guanine nucleotide exchange factor (GEF) 11                                   |
| A09      | Rn.2090   | NM_019289    | <i>Arpc1b</i>   | Actin related protein 2/3 complex, subunit 1B                                     |
| A10      | Rn.93317  | NM_001106919 | <i>Arpc2</i>    | Actin related protein 2/3 complex, subunit 2                                      |
| A11      | Rn.4233   | NM_001105933 | <i>Arpc3</i>    | Actin related protein 2/3 complex, subunit 3                                      |
| A12      | Rn.198683 | NM_001106615 | <i>Arpc4</i>    | Actin related protein 2/3 complex, subunit 4                                      |
| B01      | Rn.1639   | NM_001025717 | <i>Arpc5</i>    | Actin related protein 2/3 complex, subunit 5                                      |
| B02      | Rn.161874 | NM_153296    | <i>Aurka</i>    | Aurora kinase A                                                                   |
| B03      | Rn.10865  | NM_053749    | <i>Aurkb</i>    | Aurora kinase B                                                                   |
| B04      | Rn.41092  | NM_001106221 | <i>Aurkc</i>    | Aurora kinase C                                                                   |
| B05      | Rn.95155  | NM_057196    | <i>Baiap2</i>   | BAI1-associated protein 2                                                         |
| B06      | Rn.204926 | NM_013146    | <i>Cald1</i>    | Caldesmon 1                                                                       |
| B07      | Rn.4166   | NM_031969    | <i>Calm1</i>    | Calmodulin 1                                                                      |
| B08      | Rn.72627  | NM_022184    | <i>Cask</i>     | Calcium/calmodulin-dependent serine protein kinase (MAGUK family)                 |
| B09      | Rn.102823 | NM_001011949 | <i>Ccna1</i>    | Cyclin A1                                                                         |
| B10      | Rn.9232   | NM_171991    | <i>Ccnb1</i>    | Cyclin B1                                                                         |
| B11      | Rn.6743   | NM_001009470 | <i>Ccnb2</i>    | Cyclin B2                                                                         |
| B12      | Rn.60067  | NM_171994    | <i>Cdc42</i>    | Cell division cycle 42 (GTP binding protein)                                      |
| C01      | Rn.10871  | NM_053657    | <i>Cdc42bpa</i> | CDC42 binding protein kinase alpha                                                |
| C02      | Rn.17464  | NM_001009689 | <i>Cdc42ep2</i> | CDC42 effector protein (Rho GTPase binding) 2                                     |
| C03      | Rn.4040   | NM_001048044 | <i>Cdc42ep3</i> | CDC42 effector protein (Rho GTPase binding) 3                                     |
| C04      | Rn.10749  | NM_080885    | <i>Cdk5</i>     | Cyclin-dependent kinase 5                                                         |
| C05      | Rn.11213  | NM_053891    | <i>Cdk5r1</i>   | Cyclin-dependent kinase 5, regulatory subunit 1                                   |
| C06      | Rn.11675  | NM_017147    | <i>Clf1</i>     | Cofilin 1, non-muscle                                                             |
| C07      | Rn.89069  | NM_001029911 | <i>Cit</i>      | Citron                                                                            |
| C08      | Rn.105840 | XM_001053715 | <i>Clasp1</i>   | Cytoplasmic linker associated protein 1                                           |
| C09      | Rn.19943  | NM_053722    | <i>Clasp2</i>   | Cytoplasmic linker associated protein 2                                           |
| C10      | Rn.22069  | NM_031745    | <i>Clip1</i>    | CAP-GLY domain containing linker protein 1                                        |
| C11      | Rn.10893  | NM_021997    | <i>Clip2</i>    | CAP-GLY domain containing linker protein 2                                        |
| C12      | Rn.163154 | NM_019302    | <i>Crk</i>      | V-crk sarcoma virus CT10 oncogene homolog (avian)                                 |
| D01      | Rn.107869 | NM_021868    | <i>Cttn</i>     | Cortactin                                                                         |
| D02      | Rn.143776 | NM_001107517 | <i>Cyfp1</i>    | Cytoplasmic FMR1 interacting protein 1                                            |
| D03      | Rn.44008  | NM_001106996 | <i>Cyfp2</i>    | Cytoplasmic FMR1 interacting protein 2                                            |
| D04      | Rn.3004   | NM_001107393 | <i>Diaph1</i>   | Diaphanous homolog 1 (Drosophila)                                                 |
| D05      | Rn.102412 | NM_001033666 | <i>Dstn</i>     | Destrin                                                                           |
| D06      | Rn.773    | NM_019357    | <i>Ezr</i>      | Ezrin                                                                             |
| D07      | Rn.213503 | NM_001039609 | <i>Fnbp1l</i>   | Formin binding protein 1-like                                                     |
| D08      | Rn.138713 | NM_001107072 | <i>Fscn2</i>    | Fascin homolog 2, actin-bundling protein, retinal (Strongylocentrotus purpuratus) |
| D09      | Rn.103770 | NM_001004080 | <i>Gsn</i>      | Gelsolin                                                                          |

| Position | UniGene   | GenBank      | Symbol   | Description                                               |
|----------|-----------|--------------|----------|-----------------------------------------------------------|
| D10      | Rn.106939 | NM_001108489 | Iqgap1   | IQ motif containing GTPase activating protein 1           |
| D11      | Rn.11250  | NM_031727    | Limk1    | LIM domain kinase 1                                       |
| D12      | Rn.11013  | NM_024135    | Limk2    | LIM domain kinase 2                                       |
| E01      | Rn.122316 | NM_152844    | Llg1     | Lethal giant larvae homolog 1 (Drosophila)                |
| E02      | Rn.201800 | NM_001135758 | Macf1    | Microtubule-actin crosslinking factor 1                   |
| E03      | Rn.28235  | NM_001013150 | Map3k11  | Mitogen-activated protein kinase kinase kinase 11         |
| E04      | Rn.203122 | NM_001024278 | Map4     | Microtubule-associated protein 4                          |
| E05      | Rn.37490  | NM_017204    | Map6     | Microtubule-associated protein 6                          |
| E06      | Rn.207195 | NM_019231    | Mapk13   | Mitogen activated protein kinase 13                       |
| E07      | Rn.7652   | NM_138509    | Mapre1   | Microtubule-associated protein, RP/EB family, member 1    |
| E08      | Rn.2455   | NM_017212    | Mapt     | Microtubule-associated protein tau                        |
| E09      | Rn.42926  | NM_021699    | Mark2    | MAP/microtubule affinity-regulating kinase 2              |
| E10      | Rn.15169  | NM_022927    | Mid1     | Midline 1                                                 |
| E11      | Rn.2762   | NM_030863    | Msn      | Moesin                                                    |
| E12      | Rn.203004 | NM_001105874 | Mylk     | Myosin light chain kinase                                 |
| F01      | Rn.81191  | NM_057209    | Mylk2    | Myosin light chain kinase 2                               |
| F02      | Rn.8768   | NM_001106851 | Nck1     | NCK adaptor protein 1                                     |
| F03      | Rn.9067   | NM_001108216 | Nck2     | NCK adaptor protein 2                                     |
| F04      | Rn.9149   | NM_017198    | Pak1     | P21 protein (Cdc42/Rac)-activated kinase 1                |
| F05      | Rn.18543  | NM_001106238 | Pak4     | P21 protein (Cdc42/Rac)-activated kinase 4                |
| F06      | Rn.203100 | NM_030873    | Pfn2     | Profilin 2                                                |
| F07      | Rn.201706 | XM_001064525 | Phldb2   | Pleckstrin homology-like domain, family B, member 2       |
| F08      | Rn.162937 | NM_053890    | Ppp1r12a | Protein phosphatase 1, regulatory (inhibitor) subunit 12A |
| F09      | Rn.68116  | NM_001107178 | Ppp1r12b | Protein phosphatase 1, regulatory (inhibitor) subunit 12B |
| F10      | Rn.6866   | NM_017041    | Ppp3ca   | Protein phosphatase 3, catalytic subunit, alpha isoform   |
| F11      | Rn.11063  | NM_017042    | Ppp3cb   | Protein phosphatase 3, catalytic subunit, beta isoform    |
| F12      | Rn.29157  | NM_134366    | Rac1     | Ras-related C3 botulinum toxin substrate 1                |
| G01      | Rn.101301 | NM_001108112 | Racgap1  | Rac GTPase-activating protein 1                           |
| G02      | Rn.203261 | NM_001005889 | Rdx      | Radixin                                                   |
| G03      | Rn.107401 | NM_057132    | Rhoa     | Ras homolog gene family, member A                         |
| G04      | Rn.89756  | NM_031098    | Rock1    | Rho-associated coiled-coil containing protein kinase 1    |
| G05      | Rn.163325 | NM_198764    | Sh3rf1   | SH3 domain containing ring finger 1                       |
| G06      | Rn.113532 | NM_001107024 | Ssh2     | Slingshot homolog 2 (Drosophila)                          |
| G07      | Rn.555    | NM_017166    | Stmn1    | Stathmin 1                                                |
| G08      | Rn.204561 | NM_001100558 | Tiam1    | T-cell lymphoma invasion and metastasis 1                 |
| G09      | Rn.98750  | NM_001108475 | Vasp     | Vasodilator-stimulated phosphoprotein                     |
| G10      | Rn.207069 | NM_001108248 | Was      | Wiskott-Aldrich syndrome homolog (human)                  |
| G11      | Rn.7692   | NM_001025114 | Wasf1    | WAS protein family, member 1                              |
| G12      | Rn.216426 | NM_001110365 | Wasl     | Wiskott-Aldrich syndrome-like                             |
| 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, 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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