

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

## Rat Signal Transduction PathwayFinder

Cat. no. 330231 PARN-014ZA

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™



## Description

The Rat Signal Transduction PathwayFinder RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes responsive to signal transduction pathway activation or inhibition. Cellular signaling forms a complex network of gene interactions involving multiple signal transduction pathways. Each pathway ultimately increases or decreases the expression of its target genes resulting in alteration of cellular processes. Changes in target gene expression suggest signaling pathway activation or inhibition. However, gene expression results in the same pathway vary widely, depending on model systems and experimental conditions. Therefore, multiple target genes from each pathway should be examined to ensure accurate signaling pathway identification in a variety of model systems. In addition, analyzing multiple pathways simultaneously tests for signaling pathway crosstalk. This array includes target genes for 10 commonly studied signal transduction pathways, including pathways important for developmental, immunological, metabolic, and stress-activated processes. Results obtained with this array can suggest pathways that are potentially activated or inhibited by an experimental stimulus for further follow-up studies. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in cellular signaling 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  $-20^{\circ}\text{C}$ .

**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>	Acsl3	Acsl4	Acsl5	Adm	Arnt	Ahf4	Axin2	Bax	Bbc3	Bcl2	Bcl2a1d	Bcl2l1
<b>B</b>	Birc3	Bmp2	Bmp4	Btg2	Car9	Ccl5	Ccnd1	Ccnd2	Cdkn1a	Cdkn1b	Cebpd	Cpt2
<b>C</b>	Csf1	Dab2	Egfr	Emp1	Epo	Fabp1	Fas	Fcer2	Fosl1	Fth1	Gadd45a	Gadd45b
<b>D</b>	Gata3	Gclc	Gclm	Gsr	Herpud1	Hes1	Hes5	Hey1	Hey2	Heyl	Hmox1	Icam1
<b>E</b>	Id1	Ifng	Ifrd1	Irf1	Jag1	Ldha	Lfng	Lrg1	Mcl1	Mmp7	Myc	Notch1
<b>F</b>	Nqo1	Olr1	Pcna	Ppard	Ptch1	Rb1	Serpine1	Slc27a4	Slc2a1	Socs3	Sorbs1	Sqstm1
<b>G</b>	Stat1	Tnf	Tnfrsf10	Txn1	Txnrd1	Vegfa	Wisp1	Wnt1	Wnt2b	Wnt3a	Wnt5a	Wnt6
<b>H</b>	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description
A01	Rn.54820	NM_057107	Acsl3	Acyl-CoA synthetase long-chain family member 3
A02	Rn.87821	NM_053623	Acsl4	Acyl-CoA synthetase long-chain family member 4
A03	Rn.105862	NM_053607	Acsl5	Acyl-CoA synthetase long-chain family member 5
A04	Rn.10232	NM_012715	Adm	Adrenomedullin
A05	Rn.10520	NM_012780	Arnt	Aryl hydrocarbon receptor nuclear translocator
A06	Rn.2423	NM_024403	Ahf4	Activating transcription factor 4 (tax-responsive enhancer element B67)
A07	Rn.162212	NM_024355	Axin2	Axin 2
A08	Rn.10668	NM_017059	Bax	Bcl2-associated X protein
A09	Rn.25176	NM_173837	Bbc3	Bcl-2 binding component 3
A10	Rn.9996	NM_016993	Bcl2	B-cell CLL/lymphoma 2
A11	Rn.19770	NM_133416	Bcl2a1d	B-cell leukemia/lymphoma 2 related protein A1d
A12	Rn.10323	NM_031535	Bcl2l1	Bcl2-like 1
B01	Rn.64578	NM_023987	Birc3	Baculoviral IAP repeat-containing 3
B02	Rn.90931	NM_017178	Bmp2	Bone morphogenetic protein 2
B03	Rn.10318	NM_012827	Bmp4	Bone morphogenetic protein 4
B04	Rn.27923	NM_017259	Btg2	BTG family, member 2
B05	Rn.162391	NM_001107956	Car9	Carbonic anhydrase 9
B06	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
B07	Rn.22279	NM_171992	Ccnd1	Cyclin D1
B08	Rn.96083	NM_022267	Ccnd2	Cyclin D2
B09	Rn.10089	NM_080782	Cdkn1a	Cyclin-dependent kinase inhibitor 1A
B10	Rn.29897	NM_031762	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
B11	Rn.202620	NM_013154	Cebpd	CCAAT/enhancer binding protein (C/EBP), delta
B12	Rn.11389	NM_012930	Cpt2	Carnitine palmitoyltransferase 2
C01	Rn.83632	NM_023981	Csf1	Colony stimulating factor 1 (macrophage)
C02	Rn.161784	NM_024159	Dab2	Disabled homolog 2 (Drosophila)
C03	Rn.37227	NM_031507	Egfr	Epidermal growth factor receptor
C04	Rn.19723	NM_012843	Emp1	Epithelial membrane protein 1
C05	Rn.11365	NM_017001	Epo	Erythropoietin
C06	Rn.36412	NM_012556	Fabp1	Fatty acid binding protein 1, liver
C07	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
C08	Rn.10326	NM_133550	Fcer2	Fc fragment of IgE, low affinity II, receptor for (CD23)
C09	Rn.11306	NM_012953	Fosl1	Fos-like antigen 1
C10	Rn.54447	NM_012848	Fth1	Ferritin, heavy polypeptide 1
C11	Rn.10250	NM_024127	Gadd45a	Growth arrest and DNA-damage-inducible, alpha
C12	Rn.35886	NM_001008321	Gadd45b	Growth arrest and DNA-damage-inducible, beta
D01	Rn.92350	NM_133293	Gata3	GATA binding protein 3
D02	Rn.8365	NM_012815	Gclc	Glutamate-cysteine ligase, catalytic subunit
D03	Rn.2460	NM_017305	Gclm	Glutamate-cysteine ligase, modifier subunit
D04	Rn.19721	NM_053906	Gsr	Glutathione reductase
D05	Rn.4028	NM_053523	Herpud1	Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1
D06	Rn.19727	NM_024360	Hes1	Hairy and enhancer of split 1 (Drosophila)
D07	Rn.22422	NM_024383	Hes5	Hairy and enhancer of split 5 (Drosophila)
D08	Rn.98202	XM_342216	Hey1	Hairy/enhancer-of-split related with YRPW motif 1

Position	UniGene	GenBank	Symbol	Description
D09	Rn.58672	NM_130417	Hey2	Hairy/enhancer-of-split related with YRPW motif 2
D10	Rn.22252	NM_001107977	Heyl	Hairy/enhancer-of-split related with YRPW motif-like
D11	Rn.3160	NM_012580	Hmox1	Heme oxygenase (decycling) 1
D12	Rn.12	NM_012967	Icam1	Intercellular adhesion molecule 1
E01	Rn.2113	NM_012797	Id1	Inhibitor of DNA binding 1
E02	Rn.10795	NM_138880	Ifnf	Interferon gamma
E03	Rn.3723	NM_019242	Ifrd1	Interferon-related developmental regulator 1
E04	Rn.6396	NM_012591	Irf1	Interferon regulatory factor 1
E05	Rn.88804	NM_019147	Jag1	Jagged 1
E06	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
E07	Rn.127809	NM_133393	Lfng	LFNG O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase
E08	Rn.17847	NM_001009717	Lrg1	Leucine-rich alpha-2-glycoprotein 1
E09	Rn.129914	NM_021846	Mcl1	Myeloid cell leukemia sequence 1
E10	Rn.10282	NM_012864	Mmp7	Matrix metalloproteinase 7
E11	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene
E12	Rn.25046	NM_001105721	Notch1	Notch homolog 1, translocation-associated (Drosophila)
F01	Rn.11234	NM_017000	Nqo1	NAD(P)H dehydrogenase, quinone 1
F02	Rn.87449	NM_133306	Olr1	Oxidized low density lipoprotein (lectin-like) receptor 1
F03	Rn.223	NM_022381	Pcna	Proliferating cell nuclear antigen
F04	Rn.96181	NM_013141	Ppard	Peroxisome proliferator-activated receptor delta
F05	Rn.105585	NM_053566	Ptch1	Patched homolog 1 (Drosophila)
F06	Rn.55115	NM_017045	Rb1	Retinoblastoma 1
F07	Rn.29367	NM_012620	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F08	Rn.145068	XM_231115	Slc27a4	Solute carrier family 27 (fatty acid transporter), member 4
F09	Rn.3205	NM_138827	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
F10	Rn.127801	NM_053565	Socs3	Suppressor of cytokine signaling 3
F11	Rn.110441	XM_001066536	Sorbs1	Sorbin and SH3 domain containing 1
F12	Rn.107103	NM_181550	Sqstm1	Sequestosome 1
G01	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
G02	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G03	Rn.83627	NM_145681	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G04	Rn.29777	NM_053800	Txn1	Thioredoxin 1
G05	Rn.67581	NM_031614	Txnrd1	Thioredoxin reductase 1
G06	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
G07	Rn.63486	NM_031716	Wisp1	WNT1 inducible signaling pathway protein 1
G08	Rn.138108	NM_001105714	Wnt1	Wingless-type MMTV integration site family, member 1
G09	Rn.17219	XM_342308	Wnt2b	Wingless-type MMTV integration site family, member 2B
G10	Rn.218621	XM_220546	Wnt3a	Wingless-type MMTV integration site family, member 3A
G11	Rn.48749	NM_022631	Wnt5a	Wingless-type MMTV integration site family, member 5A
G12	Rn.22149	NM_001108226	Wnt6	Wingless-type MMTV integration site family, member 6
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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