

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

## Human Cytoskeleton Regulators

Cat. no. 330231 PAHS-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 Human 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  $-20^{\circ}\text{C}$ .

**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>	ACTR2	ACTR3	ARAP1	ARFIP2	ARHGAP6	ARHGDI8	ARHGEF11	ARPC1B	ARPC2	ARPC3	ARPC4	ARPC5
<b>B</b>	AURKA	AURKB	AURKC	BAIAP2	CALD1	CALM1	CASK	CCNA1	CCNB2	CDC42	CDC42BPA	CDC42EP2
<b>C</b>	CDC42EP3	CDK5	CDK5R1	CFL1	CIT	CLASP1	CLASP2	CLIP1	CLIP2	CRK	CTTN	CYFIP1
<b>D</b>	CYFIP2	DIAPH1	DSTN	EZR	FNBP1L	FSCN2	GSN	IQGAP1	IQGAP2	LIMK1	LIMK2	LLGL1
<b>E</b>	MACF1	MAP3K11	MAP4	MAPK13	MAPRE1	MAPRE2	MAPT	MARK2	MID1	MSN	MYLK	MYLK2
<b>F</b>	NCK1	NCK2	PAK1	PAK4	PFN2	PHLDB2	PIKFYVE	PPP1R12A	PPP1R12B	PPP3CA	PPP3CB	RAC1
<b>G</b>	RACGAP1	RDX	RHOA	ROCK1	SSH1	SSH2	STMN1	TIAM1	VASP	WAS	WASF1	WASL
<b>H</b>	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

## Gene table: RT<sup>2</sup> 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.75139	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	ARHGDI8	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

Position	UniGene	GenBank	Symbol	Description
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)
E10	Hs.87752	NM_002444	MSN	Moiesin
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, 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™ 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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