

RT² Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

Human Stem Cell Signaling

Cat. no. 330231 PAHS-047ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² 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 ² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT ² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT ² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT ² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT ² Profiler PCR Array, Format H	Fluidigm® BioMark™



Sample & Assay Technologies

Description

The Human Stem Cell Signaling RT² Profiler PCR Array profiles the expression of 84 key genes involved in signal transduction pathways important for embryonic stem cell (ESC) and induced pluripotent stem cell (iPSC) maintenance and differentiation. A variety of growth factors maintains pluripotent status and directs differentiation of ESC and iPSC cells. If an initial stem cell line lacks the corresponding signaling effectors recognizing those growth factors, precious time and resources would be wasted attempting to differentiate unresponsive cells. Therefore, evaluating the expression of signaling genes in pluripotent and multipotent stem cells helps researchers screen clones for the presence of the differentiation signaling machinery. The array represents the receptors and transcription factors of the major signaling pathways involved in pluripotent cell maintenance and differentiation, including Fibroblast Growth Factor, Hedgehog, Notch, TGF β and WNT. Monitoring the expression of receptors and co-receptors insures that stem cells can recognize the necessary growth factors or other receptor ligands. Monitoring the expression of transcription factors and co-factors insures that the activated signaling pathway can successfully regulate gene transcription for the desired differentiation program. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of signaling genes involved in ESC and iPSC maintenance and differentiation with this array.

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

Shipping and storage

RT² 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. RT² 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 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 (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT² Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACVR1	ACVR1B	ACVR1C	ACVR2A	ACVR2B	ACVRL1	AMHR2	BCL9	BCL9L	BMPR1A	BMPR1B	BMPR2
B	CDX2	CREBBP	CTNNA1	E2F5	ENG	EP300	FGFR1	FGFR2	FGFR3	FGFR4	FZD1	FZD2
C	FZD3	FZD4	FZD5	FZD6	FZD7	FZD8	FZD9	GLI1	GLI2	GLI3	IL6ST	LEF1
D	LIFR	LRP5	LRP6	LTBP1	LTBP2	LTBP3	LTBP4	NCSTN	NFAT5	NFATC1	NFATC2	NFATC3
E	NFATC4	NOTCH1	NOTCH2	NOTCH3	NOTCH4	PSEN1	PSEN2	PSENE1	PTCH1	PTCH2	PYGO2	RBL1
F	RBL2	RBPIL	RGMA	SMAD1	SMAD2	SMAD3	SMAD4	SMAD5	SMAD6	SMAD7	SMAD9	SMO
G	SP1	STAT3	SUFU	TCF7	TCF7L1	TCF7L2	TGFB1	TGFB2	TGFB3	TGFB3BP1	VANGL2	ZEB2
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.470316	NM_001105	ACVR1	Activin A receptor, type I
A02	Hs.438918	NM_004302	ACVR1B	Activin A receptor, type IB
A03	Hs.562901	NM_145259	ACVR1C	Activin A receptor, type IC
A04	Hs.470174	NM_001616	ACVR2A	Activin A receptor, type IIA
A05	Hs.174273	NM_001106	ACVR2B	Activin A receptor, type IIB
A06	Hs.591026	NM_000020	ACVRL1	Activin A receptor type II-like 1
A07	Hs.659889	NM_020547	AMHR2	Anti-Mullerian hormone receptor, type II
A08	Hs.415209	NM_004326	BCL9	B-cell CLL/lymphoma 9
A09	Hs.414740	NM_182557	BCL9L	B-cell CLL/lymphoma 9-like
A10	Hs.524477	NM_004329	BMPR1A	Bone morphogenetic protein receptor, type IA
A11	Hs.598475	NM_001203	BMPR1B	Bone morphogenetic protein receptor, type IB
A12	Hs.471119	NM_001204	BMPR2	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
B01	Hs.174249	NM_001265	CDX2	Caudal type homeobox 2
B02	Hs.459759	NM_004380	CREBBP	CREB binding protein
B03	Hs.476018	NM_001904	CTNNA1	Catenin (cadherin-associated protein), beta 1, 88kDa
B04	Hs.445758	NM_001951	E2F5	E2F transcription factor 5, p130-binding
B05	Hs.76753	NM_000118	ENG	Endoglin
B06	Hs.517517	NM_001429	EP300	E1A binding protein p300
B07	Hs.264887	NM_015850	FGFR1	Fibroblast growth factor receptor 1
B08	Hs.533683	NM_000141	FGFR2	Fibroblast growth factor receptor 2
B09	Hs.1420	NM_000142	FGFR3	Fibroblast growth factor receptor 3
B10	Hs.165950	NM_002011	FGFR4	Fibroblast growth factor receptor 4
B11	Hs.94234	NM_003505	FZD1	Frizzled family receptor 1
B12	Hs.142912	NM_001466	FZD2	Frizzled family receptor 2
C01	Hs.40735	NM_017412	FZD3	Frizzled family receptor 3
C02	Hs.19545	NM_012193	FZD4	Frizzled family receptor 4
C03	Hs.17631	NM_003468	FZD5	Frizzled family receptor 5
C04	Hs.591863	NM_003506	FZD6	Frizzled family receptor 6
C05	Hs.173859	NM_003507	FZD7	Frizzled family receptor 7
C06	Hs.302634	NM_031866	FZD8	Frizzled family receptor 8
C07	Hs.647029	NM_003508	FZD9	Frizzled family receptor 9
C08	Hs.632702	NM_005269	GLI1	GLI family zinc finger 1
C09	Hs.111867	NM_005270	GLI2	GLI family zinc finger 2
C10	Hs.21509	NM_000168	GLI3	GLI family zinc finger 3
C11	Hs.532082	NM_002184	IL6ST	Interleukin 6 signal transducer (gp130, oncostatin M receptor)
C12	Hs.555947	NM_016269	LEF1	Lymphoid enhancer-binding factor 1
D01	Hs.133421	NM_002310	LIFR	Leukemia inhibitory factor receptor alpha
D02	Hs.6347	NM_002335	LRP5	Low density lipoprotein receptor-related protein 5
D03	Hs.584775	NM_002336	LRP6	Low density lipoprotein receptor-related protein 6
D04	Hs.713533	NM_000627	LTBP1	Latent transforming growth factor beta binding protein 1
D05	Hs.512776	NM_000428	LTBP2	Latent transforming growth factor beta binding protein 2
D06	Hs.289019	NM_021070	LTBP3	Latent transforming growth factor beta binding protein 3
D07	Hs.466766	NM_003573	LTBP4	Latent transforming growth factor beta binding protein 4
D08	Hs.517249	NM_015331	NCSTN	Nicastrin
D09	Hs.371987	NM_006599	NFAT5	Nuclear factor of activated T-cells 5, tonicity-responsive

Position	UniGene	GenBank	Symbol	Description
D10	Hs.534074	NM_172390	NFATC1	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1
D11	Hs.713650	NM_012340	NFATC2	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
D12	Hs.632209	NM_004555	NFATC3	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3
E01	Hs.77810	NM_004554	NFATC4	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4
E02	Hs.495473	NM_017617	NOTCH1	Notch 1
E03	Hs.487360	NM_024408	NOTCH2	Notch 2
E04	Hs.8546	NM_000435	NOTCH3	Notch 3
E05	Hs.436100	NM_004557	NOTCH4	Notch 4
E06	Hs.3260	NM_000021	PSEN1	Presenilin 1
E07	Hs.25363	NM_000447	PSEN2	Presenilin 2 (Alzheimer disease 4)
E08	Hs.534465	NM_172341	PSENE1	Presenilin enhancer 2 homolog (C. elegans)
E09	Hs.494538	NM_000264	PTCH1	Patched 1
E10	Hs.202355	NM_020780	PTCHD2	Patched domain containing 2
E11	Hs.533597	NM_138300	PYGO2	Pygopus homolog 2 (Drosophila)
E12	Hs.207745	NM_002895	RBL1	Retinoblastoma-like 1 (p107)
F01	Hs.513609	NM_005611	RBL2	Retinoblastoma-like 2 (p130)
F02	Hs.248217	NM_014276	RBPJL	Recombination signal binding protein for immunoglobulin kappa J region-like
F03	Hs.271277	NM_020211	RGMA	RGM domain family, member A
F04	Hs.604588	NM_005900	SMAD1	SMAD family member 1
F05	Hs.12253	NM_005901	SMAD2	SMAD family member 2
F06	Hs.714621	NM_005902	SMAD3	SMAD family member 3
F07	Hs.75862	NM_005359	SMAD4	SMAD family member 4
F08	Hs.167700	NM_005903	SMAD5	SMAD family member 5
F09	Hs.153863	NM_005585	SMAD6	SMAD family member 6
F10	Hs.465087	NM_005904	SMAD7	SMAD family member 7
F11	Hs.123119	NM_005905	SMAD9	SMAD family member 9
F12	Hs.437846	NM_005631	SMO	Smoothed, frizzled family receptor
G01	Hs.620754	NM_138473	SP1	Sp1 transcription factor
G02	Hs.463059	NM_003150	STAT3	Signal transducer and activator of transcription 3 (acute-phase response factor)
G03	Hs.404089	NM_016169	SUFU	Suppressor of fused homolog (Drosophila)
G04	Hs.573153	NM_003202	TCF7	Transcription factor 7 (T-cell specific, HMG-box)
G05	Hs.516297	NM_031283	TCF7L1	Transcription factor 7-like 1 (T-cell specific, HMG-box)
G06	Hs.593995	NM_030756	TCF7L2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G07	Hs.494622	NM_004612	TGFBR1	Transforming growth factor, beta receptor 1
G08	Hs.604277	NM_003242	TGFBR2	Transforming growth factor, beta receptor II (70/80kDa)
G09	Hs.482390	NM_003243	TGFBR3	Transforming growth factor, beta receptor III
G10	Hs.446350	NM_004257	TGFBRAP1	Transforming growth factor, beta receptor associated protein 1
G11	Hs.99477	NM_020335	VANGL2	Vang-like 2 (van gogh, Drosophila)
G12	Hs.34871	NM_014795	ZEB2	Zinc finger E-box binding homeobox 2
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 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 ² 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 ² 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.

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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