

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

Rat Stem Cell Signaling

Cat. no. 330231 PARN-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™



Description

The Rat 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	<i>Acvr1</i>	<i>Acvr1b</i>	<i>Acvr1c</i>	<i>Acvr2a</i>	<i>Acvr2b</i>	<i>Acvr11</i>	<i>Amhr2</i>	<i>Bcl9</i>	<i>Bcl9l</i>	<i>Bmpr1a</i>	<i>Bmpr1b</i>	<i>Bmpr2</i>
B	<i>Cdx2</i>	<i>Crebbp</i>	<i>Ctnnb1</i>	<i>E2f5</i>	<i>Eng</i>	<i>Ep300</i>	<i>Fgfr1</i>	<i>Fgfr2</i>	<i>Fgfr3</i>	<i>Fgfr4</i>	<i>Fzd1</i>	<i>Fzd2</i>
C	<i>Fzd3</i>	<i>Fzd4</i>	<i>Fzd5</i>	<i>Fzd6</i>	<i>Fzd7</i>	<i>Fzd8</i>	<i>Fzd9</i>	<i>Gli1</i>	<i>Gli2</i>	<i>Gli3</i>	<i>Il6st</i>	<i>Lef1</i>
D	<i>Lifr</i>	<i>Lrp5</i>	<i>Lrp6</i>	<i>Ltbp1</i>	<i>Ltbp2</i>	<i>Ltbp3</i>	<i>Ltbp4</i>	<i>Ncstn</i>	<i>Nfat5</i>	<i>Nfatc2</i>	<i>Nfatc3</i>	<i>Nfatc4</i>
E	<i>Notch1</i>	<i>Notch2</i>	<i>Notch3</i>	<i>Notch4</i>	<i>Psen1</i>	<i>Psen2</i>	<i>Psenen</i>	<i>Ptch1</i>	<i>Ptchd2</i>	<i>Pygo2</i>	<i>Rbl1</i>	<i>Rbl2</i>
F	<i>Rbpjl</i>	RGD1560225	<i>Rgma</i>	<i>Smad1</i>	<i>Smad2</i>	<i>Smad3</i>	<i>Smad4</i>	<i>Smad5</i>	<i>Smad6</i>	<i>Smad7</i>	<i>Smad9</i>	<i>Smo</i>
G	<i>Sp1</i>	<i>Stat3</i>	<i>Sufu</i>	<i>Tcf3</i>	<i>Tcf7</i>	<i>Tcf7l2</i>	<i>Tgfb1</i>	<i>Tgfb2</i>	<i>Tgfb3</i>	<i>Tgfb3p1</i>	<i>Vangl2</i>	<i>Zeb2</i>
H	<i>Actb</i>	<i>B2m</i>	<i>Hprt1</i>	<i>Ldha</i>	<i>Rplp1</i>	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.87899	NM_024486	<i>Acvr1</i>	Activin A receptor, type I
A02	Rn.214018	NM_199230	<i>Acvr1b</i>	Activin A receptor, type IB
A03	Rn.10580	NM_139090	<i>Acvr1c</i>	Activin A receptor, type IC
A04	Rn.161783	NM_031571	<i>Acvr2a</i>	Activin A receptor, type IIA
A05	Rn.24240	NM_031554	<i>Acvr2b</i>	Activin A receptor, type IIB
A06	Rn.10631	NM_022441	<i>Acvr11</i>	Activin A receptor type II-like 1
A07	Rn.10165	NM_030998	<i>Amhr2</i>	Anti-Mullerian hormone receptor, type II
A08	Rn.264	NM_001107703	<i>Bcl9</i>	B-cell CLL/lymphoma 9
A09	Rn.32447	NM_001106817	<i>Bcl9l</i>	B-cell CLL/lymphoma 9-like
A10	Rn.88925	NM_030849	<i>Bmpr1a</i>	Bone morphogenetic protein receptor, type IA
A11	Rn.215592	NM_001024259	<i>Bmpr1b</i>	Bone morphogenetic protein receptor, type IB
A12	Rn.59276	NM_080407	<i>Bmpr2</i>	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
B01	Rn.64495	NM_023963	<i>Cdx2</i>	Caudal type homeo box 2
B02	Rn.108128	NM_133381	<i>Crebbp</i>	CREB binding protein
B03	Rn.112601	NM_053357	<i>Ctnnb1</i>	Catenin (cadherin associated protein), beta 1
B04	Rn.52317	XM_574892	<i>E2f5</i>	E2F transcription factor 5
B05	Rn.187025	NM_001010968	<i>Eng</i>	Endoglin
B06	Rn.12447	XM_576312	<i>Ep300</i>	E1A binding protein p300
B07	Rn.9797	NM_024146	<i>Fgfr1</i>	Fibroblast growth factor receptor 1
B08	Rn.12732	NM_001109892	<i>Fgfr2</i>	Fibroblast growth factor receptor 2
B09	Rn.23671	NM_053429	<i>Fgfr3</i>	Fibroblast growth factor receptor 3
B10	Rn.24104	NM_001109904	<i>Fgfr4</i>	Fibroblast growth factor receptor 4
B11	Rn.6575	NM_021266	<i>Fzd1</i>	Frizzled homolog 1 (Drosophila)
B12	Rn.92324	NM_172035	<i>Fzd2</i>	Frizzled homolog 2 (Drosophila)
C01	Rn.178695	NM_153474	<i>Fzd3</i>	Frizzled homolog 3 (Drosophila)
C02	Rn.48736	NM_022623	<i>Fzd4</i>	Frizzled homolog 4 (Drosophila)
C03	Rn.24792	NM_173838	<i>Fzd5</i>	Frizzled homolog 5 (Drosophila)
C04	Rn.2740	NM_001130536	<i>Fzd6</i>	Frizzled homolog 6 (Drosophila)
C05	Rn.1806	XM_237191	<i>Fzd7</i>	Frizzled homolog 7 (Drosophila)
C06	Rn.199029	NM_001044251	<i>Fzd8</i>	Frizzled homolog 8 (Drosophila)
C07	Rn.96335	NM_153305	<i>Fzd9</i>	Frizzled homolog 9 (Drosophila)
C08	Rn.219157	XM_345832	<i>Gli1</i>	GLI family zinc finger 1
C09	Rn.38778	NM_001107169	<i>Gli2</i>	GLI family zinc finger 2
C10	Rn.199034	NM_080405	<i>Gli3</i>	GLI-Kruppel family member GLI3
C11	Rn.12138	NM_001008725	<i>Il6st</i>	Interleukin 6 signal transducer
C12	Rn.21926	NM_130429	<i>Lef1</i>	Lymphoid enhancer binding factor 1
D01	Rn.14529	NM_031048	<i>Lifr</i>	Leukemia inhibitory factor receptor alpha
D02	Rn.12698	NM_001106321	<i>Lrp5</i>	Low density lipoprotein receptor-related protein 5
D03	Rn.32960	NM_001107892	<i>Lrp6</i>	Low density lipoprotein receptor-related protein 6
D04	Rn.40942	NM_021587	<i>Ltbp1</i>	Latent transforming growth factor beta binding protein 1
D05	Rn.40921	NM_021586	<i>Ltbp2</i>	Latent transforming growth factor beta binding protein 2
D06	Rn.202129	NM_001191561	<i>Ltbp3</i>	Latent transforming growth factor beta binding protein 3
D07	Rn.7961	NM_001170336	<i>Ltbp4</i>	Latent transforming growth factor beta binding protein 4
D08	Rn.51975	NM_174864	<i>Ncstn</i>	Nicastrin
D09	Rn.22934	NM_001107425	<i>Nfat5</i>	Nuclear factor of activated T-cells 5

Position	UniGene	GenBank	Symbol	Description
D10	Rn.214090	NM_001107805	Nfatc2	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
D11	Rn.217507	NM_001108447	Nfatc3	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3
D12	Rn.23727	NM_001107264	Nfatc4	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4
E01	Rn.25046	NM_001105721	Notch1	Notch homolog 1, translocation-associated (Drosophila)
E02	Rn.65930	NM_024358	Notch2	Notch homolog 2 (Drosophila)
E03	Rn.53876	NM_020087	Notch3	Notch homolog 3 (Drosophila)
E04	Rn.12967	NM_001002827	Notch4	Notch homolog 4 (Drosophila)
E05	Rn.44440	NM_019163	Psen1	Presenilin 1
E06	Rn.11045	NM_031087	Psen2	Presenilin 2
E07	Rn.1240	NM_001008764	Psenen	Presenilin enhancer 2 homolog (C. elegans)
E08	Rn.105585	NM_053566	Ptch1	Patched homolog 1 (Drosophila)
E09	Rn.103010	NM_001107992	Ptchd2	Patched domain containing 2
E10	Rn.24988	NM_001106447	Pygo2	Pygopus 2
E11	Rn.208977	XM_001055763	Rbl1	Retinoblastoma-like 1 (p107)
E12	Rn.11020	NM_031094	Rbl2	Retinoblastoma-like 2
F01	Rn.219869	NM_001108604	Rbpjl	Recombination signal binding protein for immunoglobulin kappa J region-like
F02	N/A	XM_001058445	RGD1560225	Similar to nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1
F03	Rn.22326	NM_001107524	Rgma	RGM domain family, member A
F04	Rn.10635	NM_013130	Smad1	SMAD family member 1
F05	Rn.2755	NM_019191	Smad2	SMAD family member 2
F06	Rn.10636	NM_013095	Smad3	SMAD family member 3
F07	Rn.9774	NM_019275	Smad4	SMAD family member 4
F08	Rn.146857	NM_021692	Smad5	SMAD family member 5
F09	Rn.42472	NM_001109002	Smad6	SMAD family member 6
F10	Rn.29980	NM_030858	Smad7	SMAD family member 7
F11	Rn.10862	NM_138872	Smad9	SMAD family member 9
F12	Rn.44429	NM_012807	Smo	Smoothed homolog (Drosophila)
G01	Rn.44609	NM_012655	Sp1	Sp1 transcription factor
G02	Rn.10247	NM_012747	Stat3	Signal transducer and activator of transcription 3
G03	Rn.211670	NM_001024899	Sufu	Suppressor of fused homolog (Drosophila)
G04	Rn.33103	NM_001107865	Tcf3	Transcription factor 3
G05	Rn.106335	XM_343891	Tcf7	Transcription factor 7, T-cell specific
G06	Rn.105849	XM_001054844	Tcf7l2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G07	Rn.44402	NM_012775	Tgfb1	Transforming growth factor, beta receptor 1
G08	Rn.9954	NM_031132	Tgfb2	Transforming growth factor, beta receptor II
G09	Rn.9953	NM_017256	Tgfb3	Transforming growth factor, beta receptor III
G10	Rn.12953	NM_001106907	Tgfbrap1	Transforming growth factor, beta receptor associated protein 1
G11	Rn.198958	NM_001105969	Vangl2	Vang-like 2 (van gogh, Drosophila)
G12	Rn.59710	NM_001033701	Zeb2	Zinc finger E-box binding homeobox 2
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, 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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