

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

Mouse Stem Cell Signaling

Cat. no. 330231 PAMM-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 Mouse 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>Acvr1l</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>Ncatn</i>	<i>Nfat5</i>	<i>Nfatc1</i>	<i>Nfatc2</i>	<i>Nfatc3</i>
E	<i>Nfatc4</i>	<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>Ptch2</i>	<i>Pygo2</i>	<i>Rbl1</i>
F	<i>Rbl2</i>	<i>Rbpil</i>	<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>Tcf7</i>	<i>Tcf7l1</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>Gapdh</i>	<i>Gusb</i>	<i>Hsp90ab1</i>	<i>MGDC</i>	<i>RTC</i>	<i>RTC</i>	<i>RTC</i>	<i>PPC</i>	<i>PPC</i>	<i>PPC</i>

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.689	NM_007394	<i>Acvr1</i>	Activin A receptor, type 1
A02	Mm.308467	NM_007395	<i>Acvr1b</i>	Activin A receptor, type 1B
A03	Mm.77751	NM_001033369	<i>Acvr1c</i>	Activin A receptor, type 1C
A04	Mm.314338	NM_007396	<i>Acvr2a</i>	Activin receptor 1IA
A05	Mm.390239	NM_007397	<i>Acvr2b</i>	Activin receptor 1IB
A06	Mm.279542	NM_009612	<i>Acvr1l</i>	Activin A receptor, type II-like 1
A07	Mm.60331	NM_144547	<i>Amhr2</i>	Anti-Mullerian hormone type 2 receptor
A08	Mm.226175	NM_029933	<i>Bcl9</i>	B-cell CLL/lymphoma 9
A09	Mm.370270	NM_030256	<i>Bcl9l</i>	B-cell CLL/lymphoma 9-like
A10	Mm.237825	NM_009758	<i>Bmpr1a</i>	Bone morphogenetic protein receptor, type 1A
A11	Mm.39089	NM_007560	<i>Bmpr1b</i>	Bone morphogenetic protein receptor, type 1B
A12	Mm.7106	NM_007561	<i>Bmpr2</i>	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
B01	Mm.20358	NM_007673	<i>Cdx2</i>	Caudal type homeobox 2
B02	Mm.132238	NM_001025432	<i>Crebbp</i>	CREB binding protein
B03	Mm.291928	NM_007614	<i>Ctnnb1</i>	Catenin (cadherin associated protein), beta 1
B04	Mm.153415	NM_007892	<i>E2f5</i>	E2F transcription factor 5
B05	Mm.225297	NM_007932	<i>Eng</i>	Endoglin
B06	Mm.258397	NM_177821	<i>Ep300</i>	E1A binding protein p300
B07	Mm.265716	NM_010206	<i>Fgfr1</i>	Fibroblast growth factor receptor 1
B08	Mm.16340	NM_010207	<i>Fgfr2</i>	Fibroblast growth factor receptor 2
B09	Mm.6904	NM_008010	<i>Fgfr3</i>	Fibroblast growth factor receptor 3
B10	Mm.276715	NM_008011	<i>Fgfr4</i>	Fibroblast growth factor receptor 4
B11	Mm.246003	NM_021457	<i>Fzd1</i>	Frizzled homolog 1 (Drosophila)
B12	Mm.36416	NM_020510	<i>Fzd2</i>	Frizzled homolog 2 (Drosophila)
C01	Mm.214687	NM_021458	<i>Fzd3</i>	Frizzled homolog 3 (Drosophila)
C02	Mm.86755	NM_008055	<i>Fzd4</i>	Frizzled homolog 4 (Drosophila)
C03	Mm.150813	NM_022721	<i>Fzd5</i>	Frizzled homolog 5 (Drosophila)
C04	Mm.4769	NM_008056	<i>Fzd6</i>	Frizzled homolog 6 (Drosophila)
C05	Mm.297906	NM_008057	<i>Fzd7</i>	Frizzled homolog 7 (Drosophila)
C06	Mm.184289	NM_008058	<i>Fzd8</i>	Frizzled homolog 8 (Drosophila)
C07	Mm.6256	NM_010246	<i>Fzd9</i>	Frizzled homolog 9 (Drosophila)
C08	Mm.391450	NM_010296	<i>Gli1</i>	GLI-Kruppel family member GLI1
C09	Mm.273292	NM_001081125	<i>Gli2</i>	GLI-Kruppel family member GLI2
C10	Mm.5098	NM_008130	<i>Gli3</i>	GLI-Kruppel family member GLI3
C11	Mm.4364	NM_010560	<i>Il6st</i>	Interleukin 6 signal transducer
C12	Mm.255219	NM_010703	<i>Lef1</i>	Lymphoid enhancer binding factor 1
D01	Mm.149720	NM_013584	<i>Lifr</i>	Leukemia inhibitory factor receptor
D02	Mm.274581	NM_008513	<i>Lrp5</i>	Low density lipoprotein receptor-related protein 5
D03	Mm.321990	NM_008514	<i>Lrp6</i>	Low density lipoprotein receptor-related protein 6
D04	Mm.269747	NM_019919	<i>Ltbp1</i>	Latent transforming growth factor beta binding protein 1
D05	Mm.3900	NM_013589	<i>Ltbp2</i>	Latent transforming growth factor beta binding protein 2
D06	Mm.182396	NM_008520	<i>Ltbp3</i>	Latent transforming growth factor beta binding protein 3
D07	Mm.272251	NM_175641	<i>Ltbp4</i>	Latent transforming growth factor beta binding protein 4
D08	Mm.218203	NM_021607	<i>Ncatn</i>	Nicastrin
D09	Mm.390057	NM_018823	<i>Nfat5</i>	Nuclear factor of activated T-cells 5

Position	UniGene	GenBank	Symbol	Description
D10	Mm.329560	NM_016791	Nfatc1	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1
D11	Mm.116802	NM_010899	Nfatc2	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
D12	Mm.383185	NM_010901	Nfatc3	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3
E01	Mm.27908	NM_023699	Nfatc4	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4
E02	Mm.290610	NM_008714	Notch1	Notch gene homolog 1 (Drosophila)
E03	Mm.254017	NM_010928	Notch2	Notch gene homolog 2 (Drosophila)
E04	Mm.439741	NM_008716	Notch3	Notch gene homolog 3 (Drosophila)
E05	Mm.173813	NM_010929	Notch4	Notch gene homolog 4 (Drosophila)
E06	Mm.998	NM_008943	Psen1	Presenilin 1
E07	Mm.330850	NM_011183	Psen2	Presenilin 2
E08	Mm.86557	NM_025498	Psenen	Presenilin enhancer 2 homolog (C. elegans)
E09	Mm.228798	NM_008957	Ptch1	Patched homolog 1
E10	Mm.33873	NM_001083342	Ptchd2	Patched domain containing 2
E11	Mm.22521	NM_026869	Pygo2	Pygopus 2
E12	Mm.244671	NM_011249	Rbl1	Retinoblastoma-like 1 (p107)
F01	Mm.235580	NM_011250	Rbl2	Retinoblastoma-like 2
F02	Mm.473794	NM_009036	Rbpj	Recombination signal binding protein for immunoglobulin kappa J region-like
F03	Mm.333943	NM_177740	Rgma	RGM domain family, member A
F04	Mm.223717	NM_008539	Smad1	MAD homolog 1 (Drosophila)
F05	Mm.391091	NM_010754	Smad2	MAD homolog 2 (Drosophila)
F06	Mm.7320	NM_016769	Smad3	MAD homolog 3 (Drosophila)
F07	Mm.100399	NM_008540	Smad4	MAD homolog 4 (Drosophila)
F08	Mm.272920	NM_008541	Smad5	MAD homolog 5 (Drosophila)
F09	Mm.325757	NM_008542	Smad6	MAD homolog 6 (Drosophila)
F10	Mm.34407	NM_001042660	Smad7	MAD homolog 7 (Drosophila)
F11	Mm.244353	NM_019483	Smad9	MAD homolog 9 (Drosophila)
F12	Mm.29279	NM_176996	Smo	Smoothened homolog (Drosophila)
G01	Mm.4618	NM_013672	Sp1	Trans-acting transcription factor 1
G02	Mm.249934	NM_011486	Stat3	Signal transducer and activator of transcription 3
G03	Mm.41210	NM_015752	Sufu	Suppressor of fused homolog (Drosophila)
G04	Mm.31630	NM_009331	Tcf7	Transcription factor 7, T-cell specific
G05	Mm.440067	NM_009332	Tcf7l1	Transcription factor 7-like 1 (T-cell specific, HMG box)
G06	Mm.139815	NM_009333	Tcf7l2	Transcription factor 7-like 2, T-cell specific, HMG-box
G07	Mm.197552	NM_009370	Tgfbr1	Transforming growth factor, beta receptor I
G08	Mm.172346	NM_009371	Tgfbr2	Transforming growth factor, beta receptor II
G09	Mm.200775	NM_011578	Tgfbr3	Transforming growth factor, beta receptor III
G10	Mm.246069	NM_001013025	Tgfbrap1	Transforming growth factor, beta receptor associated protein 1
G11	Mm.36148	NM_033509	Vangl2	Vang-like 2 (van gogh, Drosophila)
G12	Mm.440702	NM_015753	Zeb2	Zinc finger E-box binding homeobox 2
H01	Mm.328431	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
H06	N/A	SA_00106	MGDC	Mouse 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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