

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

Mouse Stem Cell Transcription Factors

Cat. no. 330231 PAMM-501ZA

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 Transcription Factors RT² Profiler PCR Array profiles the expression of 84 key genes associated with stem cell differentiation and development. During development, a few key transcription factors (NANOG, POU5F1, and SOX2) drive embryonic stem cell maintenance. These genes activate or repress other key transcription factors represented by this array that are necessary for development and differentiation, forming a transcriptional regulatory network. For example, embryonic stem cell maintenance requires POU5F1 (OCT4), whereas trophoblast development requires CDX2. These two genes repress each other, forming a regulatory network that either delays development or allows it to proceed as signaled. Understanding these regulatory loops is essential to decipher developmental transcriptional networks and ultimately elucidate differentiation mechanisms. This array includes key transcription factors necessary for stem cell maintenance, as well as transcription factors and cofactors involved in and regulated during developmental processes. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of transcription factors involved in stem cell differentiation and development 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	Cdx2	Dach1	Dlx1	Dlx2	Dnmt3b	Egr3	Esr1	Ezh2	Foxa1	Foxa2	Foxp1	Foxp2
B	Foxp3	Gata1	Gata6	Gli2	Hand1	Hoxa10	Hoxa11	Hoxa2	Hoxa3	Hoxa7	Hoxa9	Hoxb1
C	Hoxb13	Hoxb3	Hoxb5	Hoxb8	Hoxc10	Hoxc12	Hoxc4	Hoxc5	Hoxc6	Hoxc9	Hoxd1	Hoxd10
D	Hoxd4	Htr7	Irx4	Isl1	Jun	Klf2	Klf4	Lin28b	Lmx1b	Mx2	Myc	Nanog
E	Neurod1	Nfya1	Nlx2-2	Notch2	Nr2f2	Olig2	Pax1	Pax5	Pax6	Pax9	Pcna	Pitx2
F	Pitx3	Pou4f1	Pou4f2	Pou5f1	Pparg	Rb1	Runt1	Six2	Smad2	Sox2	Sox6	Sox9
G	Sp1	Stat1	Stat3	Tbx5	Tdglf1	Tert	Tbx3	Vdr	Wtn	Wt1	Zfpn2	Zic1
H	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.20358	NM_007673	Cdx2	Caudal type homeobox 2
A02	Mm.320593	NM_007826	Dach1	Dachshund 1 (Drosophila)
A03	Mm.4543	NM_010053	Dlx1	Distal-less homeobox 1
A04	Mm.3896	NM_010054	Dlx2	Distal-less homeobox 2
A05	Mm.89772	NM_010068	Dnmt3b	DNA methyltransferase 3B
A06	Mm.103737	NM_018781	Egr3	Early growth response 3
A07	Mm.9213	NM_007956	Esr1	Estrogen receptor 1 (alpha)
A08	Mm.246688	NM_007971	Ezh2	Enhancer of zeste homolog 2 (Drosophila)
A09	Mm.4578	NM_008259	Foxa1	Forkhead box A1
A10	Mm.938	NM_010446	Foxa2	Forkhead box A2
A11	Mm.234965	NM_053202	Foxp1	Forkhead box P1
A12	Mm.332919	NM_053242	Foxp2	Forkhead box P2
B01	Mm.182291	NM_054039	Foxp3	Forkhead box P3
B02	Mm.335973	NM_008089	Gata1	GATA binding protein 1
B03	Mm.329287	NM_010258	Gata6	GATA binding protein 6
B04	Mm.273292	NM_001081125	Gli2	GLI-Kruppel family member GLI2
B05	Mm.4746	NM_008213	Hand1	Heart and neural crest derivatives expressed transcript 1
B06	Mm.5	NM_008263	Hoxa10	Homeobox A10
B07	Mm.26954	NM_010450	Hoxa11	Homeobox A11
B08	Mm.131	NM_010451	Hoxa2	Homeobox A2
B09	Mm.159945	NM_010452	Hoxa3	Homeobox A3
B10	Mm.294826	NM_010455	Hoxa7	Homeobox A7
B11	Mm.4694	NM_010456	Hoxa9	Homeobox A9
B12	Mm.890	NM_008266	Hoxb1	Homeobox B1
C01	Mm.57221	NM_008267	Hoxb13	Homeobox B13
C02	Mm.342481	NM_010458	Hoxb3	Homeobox B3
C03	Mm.207	NM_008268	Hoxb5	Homeobox B5
C04	Mm.4822	NM_010461	Hoxb8	Homeobox B8
C05	Mm.31665	NM_010462	Hoxc10	Homeobox C10
C06	Mm.221179	NM_010463	Hoxc12	Homeobox C12
C07	Mm.1351	NM_013553	Hoxc4	Homeobox C4
C08	Mm.103825	NM_175730	Hoxc5	Homeobox C5
C09	Mm.4444	NM_010465	Hoxc6	Homeobox C6
C10	Mm.4765	NM_008272	Hoxc9	Homeobox C9
C11	Mm.4932	NM_010467	Hoxd1	Homeobox D1
C12	Mm.24420	NM_013554	Hoxd10	Homeobox D10
D01	Mm.482194	NM_010469	Hoxd4	Homeobox D4
D02	Mm.254266	NM_008315	Htr7	5-hydroxytryptamine (serotonin) receptor 7
D03	Mm.103784	NM_018885	Irx4	Iroquois related homeobox 4 (Drosophila)
D04	Mm.42242	NM_021459	Isl1	ISL1 transcription factor, LIM/homeodomain
D05	Mm.275071	NM_010591	Jun	Jun oncogene
D06	Mm.26938	NM_008452	Klf2	Kruppel-like factor 2 (lung)
D07	Mm.4325	NM_010637	Klf4	Kruppel-like factor 4 (gut)
D08	Mm.440328	NM_001031772	Lin28b	Lin-28 homolog B (C. elegans)
D09	Mm.39825	NM_010725	Lmx1b	LIM homeobox transcription factor 1 beta

Position	UniGene	GenBank	Symbol	Description
D10	Mm.1763	NM_013601	Msx2	Homeobox, msh-like 2
D11	Mm.2444	NM_010849	Myc	Myelocytomatosis oncogene
D12	Mm.485537	NM_028016	Nanog	Nanog homeobox
E01	Mm.4636	NM_010894	Neurod1	Neurogenic differentiation 1
E02	Mm.329560	NM_016791	Nfatc1	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1
E03	Mm.330639	NM_010919	Nkx2-2	NK2 transcription factor related, locus 2 (Drosophila)
E04	Mm.254017	NM_010928	Notch2	Notch gene homolog 2 (Drosophila)
E05	Mm.158143	NM_009697	Nr2f2	Nuclear receptor subfamily 2, group F, member 2
E06	Mm.37289	NM_016967	Olig2	Oligodendrocyte transcription factor 2
E07	Mm.315502	NM_008780	Pax1	Paired box gene 1
E08	Mm.439659	NM_008782	Pax5	Paired box gene 5
E09	Mm.3608	NM_013627	Pax6	Paired box gene 6
E10	Mm.5035	NM_011041	Pax9	Paired box gene 9
E11	Mm.7141	NM_011045	Pcna	Proliferating cell nuclear antigen
E12	Mm.246804	NM_011098	Pitx2	Paired-like homeodomain transcription factor 2
F01	Mm.6255	NM_008852	Pitx3	Paired-like homeodomain transcription factor 3
F02	Mm.246550	NM_011143	Pou4f1	POU domain, class 4, transcription factor 1
F03	Mm.234261	NM_138944	Pou4f2	POU domain, class 4, transcription factor 2
F04	Mm.17031	NM_013633	Pou5f1	POU domain, class 5, transcription factor 1
F05	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F06	Mm.273862	NM_009029	Rb1	Retinoblastoma 1
F07	Mm.4081	NM_009821	Runx1	Runt related transcription factor 1
F08	Mm.5039	NM_011380	Six2	Sine oculis-related homeobox 2 homolog (Drosophila)
F09	Mm.391091	NM_010754	Smad2	MAD homolog 2 (Drosophila)
F10	Mm.65396	NM_011443	Sox2	SRY-box containing gene 2
F11	Mm.323365	NM_011445	Sox6	SRY-box containing gene 6
F12	Mm.286407	NM_011448	Sox9	SRY-box containing gene 9
G01	Mm.4618	NM_013672	Sp1	Trans-acting transcription factor 1
G02	Mm.277406	NM_009283	Stat1	Signal transducer and activator of transcription 1
G03	Mm.249934	NM_011486	Stat3	Signal transducer and activator of transcription 3
G04	Mm.103636	NM_011537	Tbx5	T-box 5
G05	Mm.5090	NM_011562	Tgfb1	Teratocarcinoma-derived growth factor 1
G06	Mm.10109	NM_009354	Tert	Telomerase reverse transcriptase
G07	Mm.25362	NM_019916	Tlx3	T-cell leukemia, homeobox 3
G08	Mm.245084	NM_009504	Vdr	Vitamin D receptor
G09	Mm.228805	NM_011721	Wrn	Werner syndrome homolog (human)
G10	Mm.389339	NM_144783	Wt1	Wilms tumor 1 homolog
G11	Mm.39496	NM_011766	Zfpn2	Zinc finger protein, multitype 2
G12	Mm.335350	NM_009573	Zic1	Zinc finger protein of the cerebellum 1
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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