

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

Mouse Mesenchymal Stem Cells

Cat. no. 330231 PAMM-082ZA

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 Mesenchymal Stem Cell RT² Profiler PCR Array profiles the expression of 84 key genes involved in maintaining pluripotency and self-renewal status. Mesenchymal stem cells (MSC) are multipotent adult stem cells able to differentiate into a variety of cell types such as osteoblasts, chondrocytes, myocytes, adipocytes, and beta-pancreatic islets cells. Because MSC can easily be isolated from a variety of tissues and expanded in vitro, they may serve as a valuable resource for regenerative medicine. However, diverse MSC isolation protocols make it difficult to compare results between laboratories. Examining gene expression profiles with this PCR Array may help you better interpret the nature of the initial MSC isolates and their behavior afterwards. The array includes genes that define the "stemness" of these cells and that maintain their pluripotency and self-renewal characteristics. The array has a collection of genes shown to be MSC-specific markers that distinguish them from embryonic stem cells (ESC). The array also includes differentiation markers that can be used to monitor early MSC differentiation events. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in mesenchymal stem cell 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	Abcb1a	Alcam	Anpep	Anxa5	Bdnf	Bglap	Bmp2	Bmp4	Bmp6	Bmp7	Casp3	Cd44
B	Col1a1	Csf2	Csf3	Ctnnb1	Egf	Eng	ErbB2	Fgf10	Fgf2	Fut1	Fut4	Fzd9
C	Gdf15	Gdf5	Gdf6	Gdf7	Gtf3a	Hat1	Hdac1	Hgf	Hnf1a	Icam1	Ifng	Igf1
D	Il10	Il1b	Il6	Ins2	Itga6	Itgav	Itgax	Itgb1	Jag1	Kat2b	Kdr	Kitl
E	Lif	Mcam	Mif	Mmp2	Nes	Ngfr	Notch1	Nt5e	Nudt6	Pdgfrb	Pigs	Pou5f1
F	Pparg	Prom1	Plk2	Plprc	Rhoa	Runx2	Slc17a5	Smad4	Smurf1	Smurf2	Sox2	Sox9
G	Tbx5	Tert	Tgfb1	Tgfb3	Thy1	Tnf	Vcam1	Vegfa	Vim	Vwf	Wnt3a	Zfp42
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.207354	NM_011076	Abcb1a	ATP-binding cassette, sub-family B (MDR/TAP), member 1A
A02	Mm.288282	NM_009655	Alcam	Activated leukocyte cell adhesion molecule
A03	Mm.4487	NM_008486	Anpep	Alanyl (membrane) aminopeptidase
A04	Mm.1620	NM_009673	Anxa5	Annexin A5
A05	Mm.1442	NM_007540	Bdnf	Brain derived neurotrophic factor
A06	Mm.389459	NM_007541	Bglap	Bone gamma carboxyglutamate protein
A07	Mm.103205	NM_007553	Bmp2	Bone morphogenetic protein 2
A08	Mm.6813	NM_007554	Bmp4	Bone morphogenetic protein 4
A09	Mm.385759	NM_007556	Bmp6	Bone morphogenetic protein 6
A10	Mm.595	NM_007557	Bmp7	Bone morphogenetic protein 7
A11	Mm.34405	NM_009810	Casp3	Caspase 3
A12	Mm.423621	NM_009851	Cd44	CD44 antigen
B01	Mm.277735	NM_007742	Col1a1	Collagen, type I, alpha 1
B02	Mm.4922	NM_009969	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
B03	Mm.1238	NM_009971	Csf3	Colony stimulating factor 3 (granulocyte)
B04	Mm.291928	NM_007614	Ctnnb1	Catenin (cadherin associated protein), beta 1
B05	Mm.252481	NM_010113	Egf	Epidermal growth factor
B06	Mm.225297	NM_007932	Eng	Endoglin
B07	Mm.290822	NM_001003817	ErbB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
B08	Mm.317323	NM_008002	Fgf10	Fibroblast growth factor 10
B09	Mm.473689	NM_008006	Fgf2	Fibroblast growth factor 2
B10	Mm.56933	NM_008051	Fut1	Fucosyltransferase 1
B11	Mm.63450	NM_010242	Fut4	Fucosyltransferase 4
B12	Mm.6256	NM_010246	Fzd9	Frizzled homolog 9 (Drosophila)
C01	Mm.31325	NM_011819	Gdf15	Growth differentiation factor 15
C02	Mm.4744	NM_008109	Gdf5	Growth differentiation factor 5
C03	Mm.302555	NM_013526	Gdf6	Growth differentiation factor 6
C04	Mm.271308	NM_013527	Gdf7	Growth differentiation factor 7
C05	Mm.358698	NM_025652	Gtf3a	General transcription factor III A
C06	Mm.272472	NM_026115	Hat1	Histone aminotransferase 1
C07	Mm.202504	NM_008228	Hdac1	Histone deacetylase 1
C08	Mm.267078	NM_010427	Hgf	Hepatocyte growth factor
C09	Mm.332607	NM_009327	Hnf1a	HNF1 homeobox A
C10	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule 1
C11	Mm.240327	NM_008337	Ifng	Interferon gamma
C12	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1
D01	Mm.874	NM_010548	Il10	Interleukin 10
D02	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D03	Mm.1019	NM_031168	Il6	Interleukin 6
D04	Mm.4946	NM_008387	Ins2	Insulin II
D05	Mm.225096	NM_008397	Itga6	Integrin alpha 6
D06	Mm.227	NM_008402	Itgav	Integrin alpha V
D07	Mm.22378	NM_021334	Itgax	Integrin alpha X
D08	Mm.263396	NM_010578	Itgb1	Integrin beta 1 (fibronectin receptor beta)

Position	UniGene	GenBank	Symbol	Description
D09	Mm.22398	NM_013822	Jag1	Jagged 1
D10	Mm.255025	NM_020005	Kat2b	K(lysine) acetyltransferase 2B
D11	Mm.285	NM_010612	Kdr	Kinase insert domain protein receptor
D12	Mm.45124	NM_013598	Kitl	Kit ligand
E01	Mm.4964	NM_008501	Lif	Leukemia inhibitory factor
E02	Mm.275003	NM_023061	Mcam	Melanoma cell adhesion molecule
E03	Mm.333284	NM_008601	Mitf	Microphthalmia-associated transcription factor
E04	Mm.29564	NM_008610	Mmp2	Matrix metalloproteinase 2
E05	Mm.331129	NM_016701	Nes	Nestin
E06	Mm.283893	NM_033217	Ngfr	Nerve growth factor receptor (TNFR superfamily, member 16)
E07	Mm.290610	NM_008714	Notch1	Notch gene homolog 1 (Drosophila)
E08	Mm.244235	NM_011851	Nt5e	5' nucleotidase, ecto
E09	Mm.436967	NM_153561	Nudt6	Nudix (nucleoside diphosphate linked moiety X)-type motif 6
E10	Mm.4146	NM_008809	Pdgfrb	Platelet derived growth factor receptor, beta polypeptide
E11	Mm.295908	NM_201406	Pigs	Phosphatidylinositol glycan anchor biosynthesis, class S
E12	Mm.17031	NM_013633	Pou5f1	POU domain, class 5, transcription factor 1
F01	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F02	Mm.6250	NM_008935	Prom1	Prominin 1
F03	Mm.254494	NM_007982	Plk2	PTK2 protein tyrosine kinase 2
F04	Mm.391573	NM_011210	Plpnc	Protein tyrosine phosphatase, receptor type, C
F05	Mm.757	NM_016802	Rhoa	Ras homolog gene family, member A
F06	Mm.391013	NM_009820	Runx2	Runt related transcription factor 2
F07	Mm.46932	NM_172773	Slc17a5	Solute carrier family 17 (anion/sugar transporter), member 5
F08	Mm.100399	NM_008540	Smad4	MAD homolog 4 (Drosophila)
F09	Mm.27735	NM_029438	Smurf1	SMAD specific E3 ubiquitin protein ligase 1
F10	Mm.340955	NM_025481	Smurf2	SMAD specific E3 ubiquitin protein ligase 2
F11	Mm.65396	NM_011443	Sox2	SRY-box containing gene 2
F12	Mm.286407	NM_011448	Sox9	SRY-box containing gene 9
G01	Mm.103636	NM_011537	Tbx5	T-box 5
G02	Mm.10109	NM_009354	Tert	Telomerase reverse transcriptase
G03	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
G04	Mm.3992	NM_009368	Tgfb3	Transforming growth factor, beta 3
G05	Mm.3951	NM_009382	Thy1	Thymus cell antigen 1, theta
G06	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G07	Mm.76649	NM_011693	Vcam1	Vascular cell adhesion molecule 1
G08	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
G09	Mm.268000	NM_011701	Vim	Vimentin
G10	Mm.22339	NM_011708	Vwf	Von Willebrand factor homolog
G11	Mm.1367	NM_009522	Wnt3a	Wingless-related MMTV integration site 3A
G12	Mm.285848	NM_009556	Zfp42	Zinc finger protein 42
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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