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

Human Mesenchymal Stem Cells

Cat. no. 330231 PAHS-082ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² 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
RT² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT² Profiler PCR Array, Format H	Fluidigm® BioMark™

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Description

The Human 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	ABCB1	ACTA2	ALCAM	ANPEP	ANXA5	BDNF	BGLAP	BMP2	BMP4	BMP6	BMP7	CASP3
B	CD44	COL1A1	CSF2	CSF3	CTNNB1	EGF	ENG	ERBB2	FGF10	FGF2	FUT1	FUT4
C	FZD9	GDF15	GDF5	GDF6	GDF7	GTF3A	HAT1	HDAC1	HGF	HNF1A	ICAM1	IFNG
D	IGF1	IL10	IL1B	IL6	INS	ITGA6	ITGAV	ITGAX	ITGB1	JAG1	KAT2B	KDR
E	KITLG	LIF	MCAM	MMP2	NES	NGFR	NOTCH1	NT5E	NUDT6	PDGFRB	PIGS	POU5F1
F	PPARG	PROM1	PTK2	PTPRC	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	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.489033	NM_000927	ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1
A02	Hs.500483	NM_001613	ACTA2	Actin, alpha 2, smooth muscle, aorta
A03	Hs.591293	NM_001627	ALCAM	Activated leukocyte cell adhesion molecule
A04	Hs.1239	NM_001150	ANPEP	Alanyl (membrane) aminopeptidase
A05	Hs.480653	NM_001154	ANXA5	Annexin A5
A06	Hs.502182	NM_001709	BDNF	Brain-derived neurotrophic factor
A07	Hs.654541	NM_199173	BGLAP	Bone gamma-carboxyglutamate (gla) protein
A08	Hs.73853	NM_001200	BMP2	Bone morphogenetic protein 2
A09	Hs.68879	NM_130851	BMP4	Bone morphogenetic protein 4
A10	Hs.285671	NM_001718	BMP6	Bone morphogenetic protein 6
A11	Hs.473163	NM_001719	BMP7	Bone morphogenetic protein 7
A12	Hs.141125	NM_004346	CASP3	Caspase 3, apoptosis-related cysteine peptidase
B01	Hs.502328	NM_000610	CD44	CD44 molecule (Indian blood group)
B02	Hs.172928	NM_000088	COL1A1	Collagen, type I, alpha 1
B03	Hs.1349	NM_000758	CSF2	Colony stimulating factor 2 (granulocyte-macrophage)
B04	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)
B05	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
B06	Hs.419815	NM_001963	EGF	Epidermal growth factor
B07	Hs.76753	NM_000118	ENG	Endoglin
B08	Hs.446352	NM_004448	ERBB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
B09	Hs.664499	NM_004465	FGF10	Fibroblast growth factor 10
B10	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)
B11	Hs.69747	NM_000148	FUT1	Fucosyltransferase 1 (galactoside 2-alpha-L-fucosyltransferase, H blood group)
B12	Hs.390420	NM_002033	FUT4	Fucosyltransferase 4 (alpha (1,3) fucosyltransferase, myeloid-specific)
C01	Hs.647029	NM_003508	FZD9	Frizzled family receptor 9
C02	Hs.616962	NM_004864	GDF15	Growth differentiation factor 15
C03	Hs.1573	NM_000557	GDF5	Growth differentiation factor 5
C04	Hs.492277	NM_001001557	GDF6	Growth differentiation factor 6
C05	Hs.447688	NM_182828	GDF7	Growth differentiation factor 7
C06	Hs.445977	NM_002097	GTF3A	General transcription factor IIIA
C07	Hs.632532	NM_003642	HAT1	Histone acetyltransferase 1
C08	Hs.88556	NM_004964	HDAC1	Histone deacetylase 1
C09	Hs.396530	NM_000601	HGF	Hepatocyte growth factor (hepapoietin A; scatter factor)
C10	Hs.654455	NM_000545	HNF1A	HNF1 homeobox A
C11	Hs.643447	NM_000201	ICAM1	Intercellular adhesion molecule 1
C12	Hs.856	NM_000619	IFNG	Interferon, gamma
D01	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
D02	Hs.193717	NM_000572	IL10	Interleukin 10
D03	Hs.126256	NM_000576	IL1B	Interleukin 1, beta
D04	Hs.654458	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
D05	Hs.654579	NM_000207	INS	Insulin
D06	Hs.133397	NM_000210	ITGA6	Integrin, alpha 6
D07	Hs.436873	NM_002210	ITGAV	Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)
D08	Hs.248472	NM_000887	ITGAX	Integrin, alpha X (complement component 3 receptor 4 subunit)

Position	UniGene	GenBank	Symbol	Description
D09	Hs.643813	NM_002211	ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)
D10	Hs.728907	NM_000214	JAG1	Jagged 1
D11	Hs.533055	NM_003884	KAT2B	K(lysine) acetyltransferase 2B
D12	Hs.479756	NM_002253	KDR	Kinase insert domain receptor (a type III receptor tyrosine kinase)
E01	Hs.1048	NM_003994	KITLG	KIT ligand
E02	Hs.2250	NM_002309	LIF	Leukemia inhibitory factor (cholinergic differentiation factor)
E03	Hs.599039	NM_006500	MCAM	Melanoma cell adhesion molecule
E04	Hs.513617	NM_004530	MMP2	Matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)
E05	Hs.527971	NM_006617	NES	Nestin
E06	Hs.415768	NM_002507	NGFR	Nerve growth factor receptor
E07	Hs.495473	NM_017617	NOTCH1	Notch 1
E08	Hs.153952	NM_002526	NT5E	5'-nucleotidase, ecto (CD73)
E09	Hs.558459	NM_007083	NUDT6	Nudix (nucleoside diphosphate linked moiety X)-type motif 6
E10	Hs.509067	NM_002609	PDGFRB	Platelet-derived growth factor receptor, beta polypeptide
E11	Hs.462550	NM_033198	PIGS	Phosphatidylinositol glycan anchor biosynthesis, class S
E12	Hs.249184	NM_002701	POU5F1	POU class 5 homeobox 1
F01	Hs.162646	NM_015869	PPARG	Peroxisome proliferator-activated receptor gamma
F02	Hs.614734	NM_006017	PROM1	Prominin 1
F03	Hs.395482	NM_005607	PTK2	PTK2 protein tyrosine kinase 2
F04	Hs.654514	NM_002838	PTPRC	Protein tyrosine phosphatase, receptor type, C
F05	Hs.247077	NM_001664	RHOA	Ras homolog gene family, member A
F06	Hs.535845	NM_004348	RUNX2	Runt-related transcription factor 2
F07	Hs.597422	NM_012434	SLC17A5	Solute carrier family 17 (anion/sugar transporter), member 5
F08	Hs.75862	NM_005359	SMAD4	SMAD family member 4
F09	Hs.189329	NM_020429	SMURF1	SMAD specific E3 ubiquitin protein ligase 1
F10	Hs.705442	NM_022739	SMURF2	SMAD specific E3 ubiquitin protein ligase 2
F11	Hs.518438	NM_003106	SOX2	SRY (sex determining region Y)-box 2
F12	Hs.647409	NM_000346	SOX9	SRY (sex determining region Y)-box 9
G01	Hs.381715	NM_181486	TBX5	T-box 5
G02	Hs.492203	NM_198253	TERT	Telomerase reverse transcriptase
G03	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G04	Hs.592317	NM_003239	TGFB3	Transforming growth factor, beta 3
G05	Hs.644697	NM_006288	THY1	Thy-1 cell surface antigen
G06	Hs.241570	NM_000594	TNF	Tumor necrosis factor
G07	Hs.109225	NM_001078	VCAM1	Vascular cell adhesion molecule 1
G08	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
G09	Hs.642813	NM_003380	VIM	Vimentin
G10	Hs.440848	NM_000552	VWF	Von Willebrand factor
G11	Hs.336930	NM_033131	WNT3A	Wingless-type MMTV integration site family, member 3A
G12	Hs.335787	NM_174900	ZFP42	Zinc finger protein 42 homolog (mouse)
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.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² 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
RT² 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
RT² 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.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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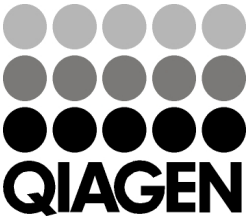

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