

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

Mouse Cancer Stem Cells

Cat. no. 330231 PAMM-176ZA

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 Mouse Cancer Stem Cells RT² Profiler PCR array profiles the expression of 84 genes linked to cancer stem cells (CSCs). Cancer researchers have struggled with the vexing problem that although many cancer drugs dramatically reduce the size of the tumors, most cancers eventually relapse. Dynamic changes in cancer cell populations during treatment suggest that a small population of cells resistant to current therapies is ultimately responsible for the re-growth of tumors. Furthermore, studies imply that these cells may provide a reservoir for the generation and propagation of mutant cells providing further resistance to therapy. The cancer-stem-cell hypothesis posits that only a very rare population of cells within tumors has the capacity for limitless self-renewal. This concept has important therapeutic implications, and may explain why many cancers return even after treatment removes any detectable tumor cells. If current treatments do not eliminate cancer stem cells, then they may regenerate the tumor once treatment stops. Recently, advances in technology have allowed the prospective identification and purification of CSCs from various different types of cancers for further characterization. The genes profiled with this array include CSC molecular markers and genes regulating CSC proliferation, self-renewal, and pluripotency to help ensure the stability of CSC isolates in culture. Also included are genes involved in CSC asymmetric cell division, migration and metastasis, and relevant signal transduction pathways to help facilitate CSC characterization as well as the targets of therapeutics currently being tested. A set of controls present on each array enables data analysis using the $\Delta\Delta CT$ method of relative quantification and assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes related to cancer stem cells 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	Abcb5	Abcg2	Alcam	Aldh1a1	Atm	Atxn1	Axl	Bmi1	Bmp7	Cd24a	Cd34	Cd38
B	Cd44	Chek1	Dach1	Ddr1	Dkk1	Dll1	Dll4	Dnmt1	Egf	Eng	Epcam	Erb2
C	Efta	Fgfr2	Flot2	Foxa2	Foxp1	Fzd7	Gata3	Gsk3b	Hdac1	Id1	Ikbb	Itga2
D	Itga4	Itga6	Itgb1	Jag1	Jak2	Kit	Kitl	Klf17	Klf4	Lats1	Lin28a	Lin28b
E	Mam1	Merk	Ms4a1	Muc1	Myc	Mycn	Nanog	Nfkb1	Nos2	Notch1	Notch2	Pecam1
F	Plat	Plaur	Pou5f1	Prom1	Ptch1	Ptprc	Sav1	Sirt1	Smo	Snai1	Snai2	Sox2
G	Stat3	Taz	Tgfb1	Thy1	Twist1	Twist2	Wee1	Wnt1	Wwc1	Yap1	Zeb1	Zeb2
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.261496	NM_029961	Abcb5	ATP-binding cassette, sub-family B (MDR/TAP), member 5
A02	Mm.333096	NM_011920	Abcg2	ATP-binding cassette, sub-family G (WHITE), member 2
A03	Mm.288282	NM_009655	Alcam	Activated leukocyte cell adhesion molecule
A04	Mm.250866	NM_013467	Aldh1a1	Aldehyde dehydrogenase family 1, subfamily A1
A05	Mm.5088	NM_007499	Atm	Ataxia telangiectasia mutated homolog (human)
A06	Mm.342686	NM_009124	Atxn1	Ataxin 1
A07	Mm.4128	NM_009465	Axl	AXL receptor tyrosine kinase
A08	Mm.289584	NM_007552	Bmi1	Bmi1 polycomb ring finger oncogene
A09	Mm.392150	NM_007557	Bmp7	Bone morphogenetic protein 7
A10	Mm.29742	NM_009846	Cd24a	CD24a antigen
A11	Mm.29798	NM_133654	Cd34	CD34 antigen
A12	Mm.249873	NM_007646	Cd38	CD38 antigen
B01	Mm.423621	NM_009851	Cd44	CD44 antigen
B02	Mm.16753	NM_007691	Chek1	Checkpoint kinase 1 homolog (S. pombe)
B03	Mm.320593	NM_007826	Dach1	Dachshund 1 (Drosophila)
B04	Mm.5021	NM_007584	Ddr1	Discoidin domain receptor family, member 1
B05	Mm.214717	NM_010051	Dkk1	Dickkopf homolog 1 (Xenopus laevis)
B06	Mm.4875	NM_007865	Dll1	Delta-like 1 (Drosophila)
B07	Mm.143719	NM_019454	Dll4	Delta-like 4 (Drosophila)
B08	Mm.485562	NM_010066	Dnmt1	DNA methyltransferase (cytosine-5) 1
B09	Mm.252481	NM_010113	Egf	Epidermal growth factor
B10	Mm.225297	NM_007932	Eng	Endoglin
B11	Mm.4259	NM_008532	Epcam	Epithelial cell adhesion molecule
B12	Mm.290822	NM_001003817	Erb2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
C01	Mm.290853	NM_145615	Efta	Electron transferring flavoprotein, alpha polypeptide
C02	Mm.16340	NM_010207	Fgfr2	Fibroblast growth factor receptor 2
C03	Mm.130227	NM_008028	Flot2	Flotillin 2
C04	Mm.938	NM_010446	Foxa2	Forkhead box A2
C05	Mm.392884	NM_053202	Foxp1	Forkhead box P1
C06	Mm.297906	NM_008057	Fzd7	Frizzled homolog 7 (Drosophila)
C07	Mm.313866	NM_008091	Gata3	GATA binding protein 3
C08	Mm.394930	NM_019827	Gsk3b	Glycogen synthase kinase 3 beta
C09	Mm.391033	NM_008228	Hdac1	Histone deacetylase 1
C10	Mm.444	NM_010495	Id1	Inhibitor of DNA binding 1
C11	Mm.277886	NM_010546	Ikbb	Inhibitor of kappaB kinase beta
C12	Mm.5007	NM_008396	Itga2	Integrin alpha 2
D01	Mm.31903	NM_010576	Itga4	Integrin alpha 4
D02	Mm.225096	NM_008397	Itga6	Integrin alpha 6
D03	Mm.263396	NM_010578	Itgb1	Integrin beta 1 (fibronectin receptor beta)
D04	Mm.22398	NM_013822	Jag1	Jagged 1
D05	Mm.275839	NM_008413	Jak2	Janus kinase 2
D06	Mm.247073	NM_021099	Kit	Kit oncogene
D07	Mm.45124	NM_013598	Kitl	Kit ligand
D08	Mm.3848	NM_029416	Klf17	Kruppel-like factor 17

Position	UniGene	GenBank	Symbol	Description
D09	Mm.4325	NM_010637	Klf4	Kruppel-like factor 4 (gut)
D10	Mm.34083	NM_010690	Lats1	Large tumor suppressor
D11	Mm.302567	NM_145833	Lin28a	Lin-28 homolog A (C. elegans)
D12	Mm.440328	NM_001031772	Lin28b	Lin-28 homolog B (C. elegans)
E01	Mm.51116	NM_175334	Maml1	Mastermind like 1 (Drosophila)
E02	Mm.239655	NM_008587	Mertk	C-mer proto-oncogene tyrosine kinase
E03	Mm.4046	NM_007641	Ms4a1	Membrane-spanning 4-domains, subfamily A, member 1
E04	Mm.16193	NM_013605	Muc1	Mucin 1, transmembrane
E05	Mm.2444	NM_010849	Myc	Myelocytomatosis oncogene
E06	Mm.16469	NM_008709	Mycn	V-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)
E07	Mm.6047	NM_028016	Nanog	Nanog homeobox
E08	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
E09	Mm.2893	NM_010927	Nos2	Nitric oxide synthase 2, inducible
E10	Mm.290610	NM_008714	Notch1	Notch gene homolog 1 (Drosophila)
E11	Mm.485843	NM_010928	Notch2	Notch gene homolog 2 (Drosophila)
E12	Mm.343951	NM_008816	Pecam1	Platelet/endothelial cell adhesion molecule 1
F01	Mm.154660	NM_008872	Plat	Plasminogen activator, tissue
F02	Mm.1359	NM_011113	Plaur	Plasminogen activator, urokinase receptor
F03	Mm.17031	NM_013633	Pou5f1	POU domain, class 5, transcription factor 1
F04	Mm.6250	NM_008935	Prom1	Prominin 1
F05	Mm.488634	NM_008957	Ptch1	Patched homolog 1
F06	Mm.391573	NM_011210	Ptpcr	Protein tyrosine phosphatase, receptor type, C
F07	Mm.390480	NM_022028	Sav1	Salvador homolog 1 (Drosophila)
F08	Mm.351459	NM_019812	Sirt1	Sirtuin 1 (silent mating type information regulation 2, homolog) 1 (S. cerevisiae)
F09	Mm.29279	NM_176996	Smo	Smoothed homolog (Drosophila)
F10	Mm.2093	NM_011427	Snai1	Snail homolog 1 (Drosophila)
F11	Mm.4272	NM_011415	Snai2	Snail homolog 2 (Drosophila)
F12	Mm.65396	NM_011443	Sox2	SRY-box containing gene 2
G01	Mm.249934	NM_011486	Stat3	Signal transducer and activator of transcription 3
G02	Mm.268483	NM_181516	Taz	Tafazzin
G03	Mm.197552	NM_009370	Tgfb1	Transforming growth factor, beta receptor I
G04	Mm.3951	NM_009382	Thy1	Thymus cell antigen 1, theta
G05	Mm.3280	NM_011658	Twist1	Twist homolog 1 (Drosophila)
G06	Mm.9474	NM_007855	Twist2	Twist homolog 2 (Drosophila)
G07	Mm.287173	NM_009516	Wee1	WEE 1 homolog 1 (S. pombe)
G08	Mm.1123	NM_021279	Wnt1	Wingless-related MMTV integration site 1
G09	Mm.31267	NM_170779	Wwc1	WW, C2 and coiled-coil domain containing 1
G10	Mm.486262	NM_009534	Yap1	Yes-associated protein 1
G11	Mm.3929	NM_011546	Zeb1	Zinc finger E-box binding homeobox 1
G12	Mm.440702	NM_015753	Zeb2	Zinc finger E-box binding homeobox 2
H01	Mm.391967	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.304088	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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