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

Rat Cancer Stem Cells

Cat. no. 330231 PARN-176ZA

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 Rat 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 ΔΔCT 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	Cd24	Cd34	Cd38
B	Cd44	Chek1	Ddr1	Dkk1	Dll1	Dll4	Dnmt1	Egf	Eng	Epcam	Erbb2	Etfa
C	Fgfr2	Flot2	Foxa2	Foxp1	Fzd7	Gata3	Gata4	Gsk3b	Hdac1	Id1	Ikbkb	Itga2
D	Itga4	Itga6	Itgb1	Jag1	Jak2	Kit	Kitlg	Klf17	Klf4	Lats1	Lin28a	Lin28b
E	Maml1	Mertk	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	Tgfbr1	Thy1	Twist1	Twist2	Wee1	Wnt1	Wwc1	Yap1	Zeb1	Zeb2
H	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	N/A	XM_006225905	Abcb5	ATP-binding cassette, subfamily B (MDR/TAP), member 5
A02	Rn.13131	NM_181381	Abcg2	ATP-binding cassette, subfamily G (WHITE), member 2
A03	Rn.5789	NM_031753	Alcam	Activated leukocyte cell adhesion molecule
A04	Rn.6132	NM_022407	Aldh1a1	Aldehyde dehydrogenase 1 family, member A1
A05	Rn.214048	NM_001106821	Atm	Ataxia telangiectasia mutated homolog (human)
A06	Rn.88438	NM_012726	Atxn1	Ataxin 1
A07	Rn.161805	NM_001013147	Axl	Axl receptor tyrosine kinase
A08	Rn.220522	NM_001107368	Bmi1	Bmi1 polycomb ring finger oncogene
A09	Rn.18030	NM_001191856	Bmp7	Bone morphogenetic protein 7
A10	Rn.6007	NM_012752	Cd24	CD24 molecule
A11	Rn.219720	NM_001107202	Cd34	CD34 molecule
A12	Rn.11414	NM_013127	Cd38	CD38 molecule
B01	Rn.1120	NM_012924	Cd44	Cd44 molecule
B02	Rn.33267	NM_080400	Chek1	CHK1 checkpoint homolog (S. pombe)
B03	Rn.7807	NM_013137	Ddr1	Discoidin domain receptor tyrosine kinase 1
B04	Rn.214343	NM_001106350	Dkk1	Dickkopf homolog 1 (Xenopus laevis)
B05	Rn.10628	NM_032063	Dll1	Delta-like 1 (Drosophila)
B06	Rn.147393	NM_001107760	Dll4	Delta-like 4 (Drosophila)
B07	Rn.6955	NM_053354	Dnmt1	DNA (cytosine-5-)-methyltransferase 1
B08	Rn.6075	NM_012842	Egf	Epidermal growth factor
B09	Rn.187025	NM_001010968	Eng	Endoglin
B10	Rn.106481	NM_138541	Epcam	Epithelial cell adhesion molecule
B11	Rn.93966	NM_017003	Erbb2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
B12	Rn.32496	NM_001009668	Etfa	Electron-transfer-flavoprotein, alpha polypeptide
C01	Rn.12732	NM_001109892	Fgfr2	Fibroblast growth factor receptor 2
C02	Rn.2105	NM_031830	Flot2	Flotillin 2
C03	Rn.10948	NM_012743	Foxa2	Forkhead box A2
C04	Rn.35036	NM_001034131	Foxp1	Forkhead box P1
C05	N/A	XM_006226838	Fzd7	Frizzled family receptor 7
C06	Rn.229174	NM_133293	Gata3	GATA binding protein 3
C07	Rn.26251	NM_144730	Gata4	GATA binding protein 4
C08	Rn.10426	NM_032080	Gsk3b	Glycogen synthase kinase 3 beta
C09	Rn.1863	NM_001025409	Hdac1	Histone deacetylase 1
C10	Rn.2113	NM_012797	Id1	Inhibitor of DNA binding 1
C11	Rn.19222	NM_053355	Ikbkb	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
C12	Rn.83597	XM_345156	Itga2	Integrin, alpha 2
D01	Rn.12704	NM_001107737	Itga4	Integrin, alpha 4
D02	Rn.22382	NM_053725	Itga6	Integrin, alpha 6
D03	Rn.25733	NM_017022	Itgb1	Integrin, beta 1
D04	Rn.88804	NM_019147	Jag1	Jagged 1
D05	Rn.18909	NM_031514	Jak2	Janus kinase 2
D06	Rn.54004	NM_022264	Kit	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog
D07	Rn.44216	NM_021843	Kitlg	KIT ligand
D08	Rn.159750	XM_233437	Klf17	Kruppel-like factor 17

Position	UniGene	GenBank	Symbol	Description
D09	Rn.7719	NM_053713	Klf4	Kruppel-like factor 4 (gut)
D10	Rn.29152	NM_001134543	Lats1	LATS, large tumor suppressor, homolog 1 (Drosophila)
D11	Rn.147538	NM_001109269	Lin28a	Lin-28 homolog (C. elegans)
D12	N/A	XM_001069344	Lin28b	Lin-28 homolog B (C. elegans)
E01	Rn.2394	NM_001106997	Maml1	Mastermind like 1 (Drosophila)
E02	Rn.48789	NM_022943	Mertk	C-mer proto-oncogene tyrosine kinase
E03	Rn.16385	NM_001107578	Ms4a1	Membrane-spanning 4-domains, subfamily A, member 1
E04	Rn.10779	NM_012602	Muc1	Mucin 1, cell surface associated
E05	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene
E06	Rn.81116	NM_001013096	Mycn	V-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)
E07	Rn.124668	NM_001100781	Nanog	Nanog homeobox
E08	Rn.2411	NM_001276711	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E09	Rn.10400	NM_012611	Nos2	Nitric oxide synthase 2, inducible
E10	Rn.25046	NM_001105721	Notch1	Notch homolog 1, translocation-associated (Drosophila)
E11	Rn.65930	NM_024358	Notch2	Notch homolog 2 (Drosophila)
E12	Rn.1878	NM_031591	Pecam1	Platelet/endothelial cell adhesion molecule 1
F01	Rn.107102	NM_013151	Plat	Plasminogen activator, tissue
F02	Rn.82711	NM_017350	Plaur	Plasminogen activator, urokinase receptor
F03	Rn.161748	NM_001009178	Pou5f1	POU class 5 homeobox 1
F04	Rn.144589	NM_021751	Prom1	Prominin 1
F05	Rn.102312	NM_053566	Ptch1	Patched homolog 1 (Drosophila)
F06	Rn.90166	NM_001109887	Ptprc	Protein tyrosine phosphatase, receptor type, C
F07	Rn.14087	NM_001097581	Sav1	Salvador homolog 1 (Drosophila)
F08	N/A	NM_001107627	Sirt1	Sirtuin (silent mating type information regulation 2 homolog) 1 (S. cerevisiae)
F09	Rn.44429	NM_012807	Smo	Smoothened homolog (Drosophila)
F10	Rn.8008	NM_053805	Snai1	Snail homolog 1 (Drosophila)
F11	Rn.43117	NM_013035	Snai2	Snail homolog 2 (Drosophila)
F12	Rn.17369	NM_001109181	Sox2	SRY (sex determining region Y)-box 2
G01	Rn.10247	NM_012747	Stat3	Signal transducer and activator of transcription 3
G02	Rn.7267	NM_001025748	Taz	Tafazzin
G03	Rn.44402	NM_012775	Tgfbr1	Transforming growth factor, beta receptor 1
G04	Rn.108198	NM_012673	Thy1	Thy-1 cell surface antigen
G05	Rn.161904	NM_053530	Twist1	Twist homolog 1 (Drosophila)
G06	Rn.16279	NM_021691	Twist2	Twist homolog 2 (Drosophila)
G07	Rn.208255	NM_001012742	Wee1	Wee 1 homolog (S. pombe)
G08	Rn.138108	NM_001105714	Wnt1	Wingless-type MMTV integration site family, member 1
G09	Rn.101912	XM_002727761	Wwc1	WW and C2 domain containing 1
G10	Rn.162978	NM_001034002	Yap1	Yes-associated protein 1
G11	Rn.10600	NM_013164	Zeb1	Zinc finger E-box binding homeobox 1
G12	Rn.59710	NM_001033701	Zeb2	Zinc finger E-box binding homeobox 2
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat 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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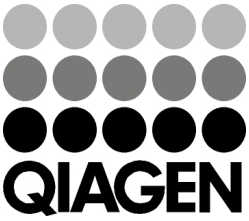

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