

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

Rat Stem Cell Transcription Factors

Cat. no. 330231 PARN-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 Rat 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	Dlx1	Dlx2	Dnmt3b	Egr3	Ep300	Esr1	Ezh2	Fos	Fosl1	Foxa1	Foxa2
B	Foxi2	Foxn1	Foxp1	Foxp3	Gata1	Gata6	Gbx2	Hand1	Hoxa1	Hoxa10	Hoxa2	Hoxa9
C	Hoxb13	Hoxb3	Hoxc10	Hoxc4	Hoxc5	Hoxc6	Hoxd10	Hoxd4	Htr7	Irx3	Irx4	Isl1
D	Jun	Klf2	Klf4	Klk10	Lif	Lin28	Lmx1b	Mx2	Myc	Nanog	Neurod1	Nkx2-2
E	Notch2	Nr2f2	Olig2	Pax1	Pax2	Pax6	Pax9	Pcna	Pitx2	Pitx3	Pou4f1	Pou4f2
F	Pparg	Rb1	Runx1	Runx2	Smad2	Sox14	Sox17	Sox2	Sox6	Sox9	Sp1	Stat1
G	Stat3	Tbx5	Tcf7l2	Tcf2a	Tdgf1	Terf	Vdr	Wt1	Xpc	Zfp12	Zic1	Zic2
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	Rn.64495	NM_023963	Cdx2	Caudal type homeo box 2
A02	Rn.59152	NM_001100531	Dlx1	Distal-less homeobox 1
A03	Rn.144853	XM_230986	Dlx2	Distal-less homeobox 2
A04	Rn.117353	NM_001003959	Dnmt3b	DNA (cytosine-5-)-methyltransferase 3 beta
A05	Rn.44371	NM_017086	Egr3	Early growth response 3
A06	Rn.12447	XM_576312	Ep300	E1A binding protein p300
A07	Rn.10595	NM_012689	Esr1	Estrogen receptor 1
A08	Rn.9027	NM_001134979	Ezh2	Enhancer of zeste homolog 2 (Drosophila)
A09	Rn.103750	NM_022197	Fos	FBJ osteosarcoma oncogene
A10	Rn.11306	NM_012953	Fosl1	Fos-like antigen 1
A11	Rn.10470	NM_012742	Foxa1	Forkhead box A1
A12	Rn.10948	NM_012743	Foxa2	Forkhead box A2
B01	Rn.92429	XM_341949	Foxi2	Forkhead box I2
B02	Rn.217924	NM_001100648	Foxn1	Forkhead box N1
B03	Rn.33321	NM_001034131	Foxp1	Forkhead box P1
B04	Rn.177272	NM_001108250	Foxp3	Forkhead box P3
B05	Rn.10024	NM_012764	Gata1	GATA binding protein 1
B06	Rn.8701	NM_019185	Gata6	GATA binding protein 6
B07	Rn.92363	NM_053708	Gbx2	Gastrulation brain homeobox 2
B08	Rn.39340	NM_021592	Hand1	Heart and neural crest derivatives expressed 1
B09	Rn.9780	NM_013075	Hoxa1	Homeo box A1
B10	Rn.852	NM_001129878	Hoxa10	Homeo box A10
B11	Rn.91077	NM_012581	Hoxa2	Homeo box A2
B12	Rn.85723	NM_001109233	Hoxa9	Homeobox A9
C01	Rn.83970	NM_001107041	Hoxb13	Homeo box B13
C02	Rn.208556	NM_001107042	Hoxb3	Homeo box B3
C03	Rn.58550	XM_235698	Hoxc10	Homeo box C10
C04	Rn.12051	NM_001109884	Hoxc4	Homeo box C4
C05	Rn.152771	NM_001108116	Hoxc5	Homeo box C5
C06	Rn.91646	XM_001069410	Hoxc6	Homeo box C6
C07	Rn.220197	NM_001107094	Hoxd10	Homeo box D10
C08	Rn.141410	NM_001105885	Hoxd4	Homeo box D4
C09	Rn.87132	NM_022938	Htr7	5-hydroxytryptamine (serotonin) receptor 7
C10	Rn.22133	NM_001107413	Irx3	Iroquois homeobox 3
C11	Rn.44726	NM_001107330	Irx4	Iroquois homeobox 4
C12	Rn.202645	NM_017339	Isl1	ISL LIM homeobox 1
D01	Rn.93714	NM_021835	Jun	Jun oncogene
D02	Rn.92653	NM_001007684	Klf2	Kruppel-like factor 2 (lung)
D03	Rn.7719	NM_053713	Klf4	Kruppel-like factor 4 (gut)
D04	Rn.78372	NM_001004100	Klk10	Kallikrein related-peptidase 10
D05	Rn.44379	NM_022196	Lif	Leukemia inhibitory factor
D06	Rn.147538	NM_001109269	Lin28	Lin-28 homolog (C. elegans)
D07	Rn.92364	XM_342419	Lmx1b	LIM homeobox transcription factor 1 beta
D08	Rn.10414	NM_012982	Mx2	Msh homeobox 2
D09	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene

Position	UniGene	GenBank	Symbol	Description
D10	Rn.124668	NM_001100781	Nanog	Nanog homeobox
D11	Rn.44289	NM_019218	Neurod1	Neurogenic differentiation 1
D12	Rn.32651	XM_345446	Nkx2-2	NK2 homeobox 2
E01	Rn.65930	NM_024358	Notch2	Notch homolog 2 (Drosophila)
E02	Rn.17815	NM_080778	Nr2f2	Nuclear receptor subfamily 2, group F, member 2
E03	Rn.22121	NM_001100557	Olig2	Oligodendrocyte lineage transcription factor 2
E04	Rn.40296	NM_001107787	Pax1	Paired box 1
E05	Rn.137112	NM_001106361	Pax2	Paired box 2
E06	Rn.89724	NM_013001	Pax6	Paired box 6
E07	Rn.82416	NM_001039539	Pax9	Paired box 9
E08	Rn.223	NM_022381	Pcna	Proliferating cell nuclear antigen
E09	Rn.17591	NM_019334	Pitx2	Paired-like homeodomain 2
E10	Rn.22092	NM_019247	Pitx3	Paired-like homeodomain 3
E11	Rn.198983	XM_341372	Pou4f1	POU class 4 homeobox 1
E12	Rn.92413	NM_134355	Pou4f2	POU class 4 homeobox 2
F01	Rn.23443	NM_013124	Pparg	Peroxisome proliferator-activated receptor gamma
F02	Rn.55115	NM_017045	Rb1	Retinoblastoma 1
F03	Rn.11201	NM_017325	Runx1	Runt-related transcription factor 1
F04	Rn.214214	NM_053470	Runx2	Runt-related transcription factor 2
F05	Rn.2755	NM_019191	Smad2	SMAD family member 2
F06	Rn.141574	NM_001106850	Sox14	SRY (sex determining region Y)-box 14
F07	Rn.7884	NM_001107902	Sox17	SRY (sex determining region Y)-box 17
F08	Rn.219221	NM_001109181	Sox2	SRY (sex determining region Y)-box 2
F09	Rn.76073	NM_001024751	Sox6	SRY (sex determining region Y)-box 6
F10	Rn.95086	XM_343981	Sox9	SRY-box containing gene 9
F11	Rn.44609	NM_012655	Sp1	Sp1 transcription factor
F12	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
G01	Rn.10247	NM_012747	Stat3	Signal transducer and activator of transcription 3
G02	Rn.6327	NM_001009964	Tbx5	T-box 5
G03	Rn.105849	XM_001054844	Tcf7l2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G04	Rn.10290	NM_133524	Tcf2a	Transcription factor E2a
G05	N/A	XM_001056317	Tgfb1	Teratocarcinoma-derived growth factor 1
G06	Rn.48802	NM_053423	Tert	Telomerase reverse transcriptase
G07	Rn.10911	NM_017058	Vdr	Vitamin D (1,25- dihydroxyvitamin D3) receptor
G08	Rn.92531	NM_031534	Wt1	Wilms tumor 1
G09	Rn.22820	NM_001107874	Xpc	Xeroderma pigmentosum, complementation group C
G10	Rn.135463	NM_001130501	Zfp2	Zinc finger protein, multitype 2
G11	Rn.161923	NM_022677	Zic1	Zic family member 1 (odd-paired homolog, Drosophila)
G12	Rn.64359	NM_001108392	Zic2	Zic family member 2 (odd-paired homolog, Drosophila)
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.
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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