

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

Rat Cellular Senescence

Cat. no. 330231 PARN-050ZA

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 Cellular Senescence RT² Profiler PCR Array profiles the expression of 84 key genes involved in the initiation and progression of the biological process causing cells to lose the ability to divide. Senescent cells acquire a large and flat cellular appearance, decrease contacts with other cells, and increase adhesion to the extracellular matrix. Molecularly, the cellular senescence program activates p53 and pRb signaling leading to withdrawal from the cell cycle. In normal replicative senescence, the cell simply enters senescence after a certain number of replications. However, stress-induced senescence causes cells to initiate senescence prematurely due to a variety of stresses, including DNA damage, oxidative stress, interferon-related responses, and signaling via either insulin growth factors (IGF) or mitogen activated protein kinases (MAPK). In fact, some hypothesize that the senescence program originally evolved as an antiviral mechanism. Due to cellular senescence activation in early stage cancers and its dysregulation in late stage cancers, understanding the process and controlling it holds therapeutic promise. This burgeoning field may also yield other important clues about the cellular biology of aging. This array includes genes involved in the primary senescence program and known stresses that cause premature senescence. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in cellular senescence 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	Abl1	Akt1	Aldh1a3	Atm	Bmi1	Calr	Ccna2	Ccnb1	Ccnd1	Ccne1	Cd44	Cdc25c
B	Cdk2	Cdk4	Cdk6	Cdkn1a	Cdkn1b	Cdkn1c	Cdkn2a	Cdkn2b	Cdkn2c	Cdkn2d	Chek1	Chek2
C	Cited2	Col1a1	Col3a1	Creg1	E2f1	E2f3	Egr1	Ets1	Ets2	Fn1	Gadd45a	Glb1
D	Gsk3b	Hras	Id1	Ifng	Igf1	Igf1r	Igfbp3	Igfbp5	Igfbp7	Ing1	Irf3	Irf5
E	Irf7	Map2k1	Map2k3	Map2k6	Mapk14	Mdm2	Morc3	Myc	Nbn	Nrk1	Nox4	Pcna
F	Plk3ca	Plau	Prkcd	Pten	Rb1	Rbl1	Rbl2	Serpib2	Serpine1	Sirt1	Sod1	Sod2
G	Sparc	Tbx2	Tbx3	Terf2	Tert	Tgfb1	Tgfb1i1	Thbs1	Tp53	Tp53bp1	Twist1	Vim
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.3105	NM_001100850	Abl1	C-abl oncogene 1, receptor tyrosine kinase
A02	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1
A03	Rn.8297	NM_153300	Aldh1a3	Aldehyde dehydrogenase 1 family, member A3
A04	Rn.214048	NM_001106821	Atm	Ataxia telangiectasia mutated homolog (human)
A05	Rn.220522	NM_001107368	Bmi1	Bmi1 polycomb ring finger oncogene
A06	Rn.974	NM_022399	Calr	Calreticulin
A07	Rn.13094	NM_053702	Ccna2	Cyclin A2
A08	Rn.9232	NM_171991	Ccnb1	Cyclin B1
A09	Rn.22279	NM_171992	Ccnd1	Cyclin D1
A10	Rn.15455	NM_001100821	Ccne1	Cyclin E1
A11	Rn.1120	NM_012924	Cd44	Cd44 molecule
A12	Rn.162298	NM_001107396	Cdc25c	Cell division cycle 25 homolog C (S. pombe)
B01	Rn.104460	NM_199501	Cdk2	Cyclin dependent kinase 2
B02	Rn.6115	NM_053593	Cdk4	Cyclin-dependent kinase 4
B03	Rn.162731	XM_342638	Cdk6	Cyclin-dependent kinase 6
B04	Rn.10089	NM_080782	Cdkn1a	Cyclin-dependent kinase inhibitor 1A
B05	Rn.29897	NM_031762	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
B06	Rn.162507	NM_182735	Cdkn1c	Cyclin-dependent kinase inhibitor 1C
B07	Rn.48717	NM_031550	Cdkn2a	Cyclin-dependent kinase inhibitor 2A
B08	Rn.105626	NM_130812	Cdkn2b	Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)
B09	Rn.63865	NM_131902	Cdkn2c	Cyclin-dependent kinase inhibitor 2C (p18, inhibits CDK4)
B10	Rn.185816	NM_001009719	Cdkn2d	Similar to cyclin-dependent kinase inhibitor 2D
B11	Rn.33267	NM_080400	Chek1	CHK1 checkpoint homolog (S. pombe)
B12	Rn.163213	NM_053677	Chek2	CHK2 checkpoint homolog (S. pombe)
C01	Rn.31765	NM_053698	Cited2	Cbp/p300-interacting transactivator, with Glu/Asp-rich carboxy-terminal domain, 2
C02	Rn.2953	NM_053304	Col1a1	Collagen, type I, alpha 1
C03	Rn.3247	NM_032085	Col3a1	Collagen, type III, alpha 1
C04	Rn.8051	NM_001105966	Creg1	Cellular repressor of E1A-stimulated genes 1
C05	Rn.72471	NM_001100778	E2f1	E2F transcription factor 1
C06	Rn.73967	NM_001137626	E2f3	E2F transcription factor 3
C07	Rn.9096	NM_012551	Egr1	Early growth response 1
C08	Rn.88756	NM_012555	Ets1	V-ets erythroblastosis virus E26 oncogene homolog 1 (avian)
C09	Rn.164554	NM_001107107	Ets2	V-ets erythroblastosis virus E26 oncogene homolog 2 (avian)
C10	Rn.1604	NM_019143	Fn1	Fibronectin 1
C11	Rn.10250	NM_024127	Gadd45a	Growth arrest and DNA-damage-inducible, alpha
C12	Rn.4187	NM_001108192	Glb1	Galactosidase, beta 1
D01	Rn.10426	NM_032080	Gsk3b	Glycogen synthase kinase 3 beta
D02	Rn.102180	NM_001098241	Hras	Harvey rat sarcoma virus oncogene
D03	Rn.2113	NM_012797	Id1	Inhibitor of DNA binding 1
D04	Rn.10795	NM_138880	Ifng	Interferon gamma
D05	Rn.6282	NM_178866	Igf1	Insulin-like growth factor 1
D06	Rn.10957	NM_052807	Igf1r	Insulin-like growth factor 1 receptor
D07	Rn.26369	NM_012588	Igfbp3	Insulin-like growth factor binding protein 3
D08	Rn.1593	NM_012817	Igfbp5	Insulin-like growth factor binding protein 5

Position	UniGene	GenBank	Symbol	Description
D09	Rn.203012	NM_001013048	Igfbp7	Insulin-like growth factor binding protein 7
D10	Rn.145491	NM_001038591	Ing1	Inhibitor of growth family, member 1
D11	Rn.1499	NM_001006969	Irf3	Interferon regulatory factor 3
D12	Rn.203787	NM_001106586	Irf5	Interferon regulatory factor 5
E01	Rn.101159	NM_001033691	Irf7	Interferon regulatory factor 7
E02	Rn.5850	NM_031643	Map2k1	Mitogen activated protein kinase kinase 1
E03	Rn.100064	NM_001100674	Map2k3	Mitogen activated protein kinase kinase 3
E04	Rn.17256	NM_053703	Map2k6	Mitogen-activated protein kinase kinase 6
E05	Rn.88085	NM_031020	Mapk14	Mitogen activated protein kinase 14
E06	Rn.91829	NM_001108099	Mdm2	Mdm2 p53 binding protein homolog (mouse)
E07	Rn.17121	NM_001107109	Morc3	MORC family CW-type zinc finger 3
E08	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene
E09	Rn.25214	NM_138873	Nbn	Nibrin
E10	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E11	Rn.14744	NM_053524	Nox4	NADPH oxidase 4
E12	Rn.223	NM_022381	Pcna	Proliferating cell nuclear antigen
F01	Rn.44193	NM_133399	Pik3ca	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F02	Rn.6064	NM_013085	Plau	Plasminogen activator, urokinase
F03	Rn.98279	NM_133307	Prkcd	Protein kinase C, delta
F04	Rn.22158	NM_031606	Pten	Phosphatase and tensin homolog
F05	Rn.55115	NM_017045	Rb1	Retinoblastoma 1
F06	Rn.208977	XM_001055763	Rbl1	Retinoblastoma-like 1 (p107)
F07	Rn.11020	NM_031094	Rbl2	Retinoblastoma-like 2
F08	Rn.42912	NM_021696	Serpib2	Serpin peptidase inhibitor, clade B (ovalbumin), member 2
F09	Rn.29367	NM_012620	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F10	Rn.219976	NM_001107627	Sirt1	Sirtuin (silent mating type information regulation 2 homolog) 1 (S. cerevisiae)
F11	Rn.6059	NM_017050	Sod1	Superoxide dismutase 1, soluble
F12	Rn.10488	NM_017051	Sod2	Superoxide dismutase 2, mitochondrial
G01	Rn.98989	NM_012656	Sparc	Secreted protein, acidic, cysteine-rich (osteonectin)
G02	Rn.38282	NM_001107033	Tbx2	T-box 2
G03	Rn.162144	NM_181638	Tbx3	T-box 3
G04	Rn.35087	NM_001108448	Terf2	Telomeric repeat binding factor 2
G05	Rn.48802	NM_053423	Tert	Telomerase reverse transcriptase
G06	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G07	Rn.103260	XM_341934	Tgfb1i1	Transforming growth factor beta 1 induced transcript 1
G08	Rn.185771	NM_001013062	Thbs1	Thrombospondin 1
G09	Rn.54443	NM_030989	Tp53	Tumor protein p53
G10	Rn.221896	NM_001106501	Tp53bp1	Tumor protein p53 binding protein 1
G11	Rn.161904	NM_053530	Twist1	Twist homolog 1 (Drosophila)
G12	Rn.2710	NM_031140	Vim	Vimentin
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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