

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

Chinese Hamster Ovary (CHO) Cell Cellular Senescence

Cat. no. 330231 PAJJ-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 Chinese Hamster Ovary (CHO) cell 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	Cdc25b
B	Cdc25c	Cdk2	Cdk4	Cdk6	Cdkn1a	Cdkn1b	Cdkn1c	Cdkn2c	Chek1	Chek2	Cited2	Col1a1
C	Col3a1	Creg1	E2f1	E2f3	Egr1	Ets1	Ets2	Fn1	Glb1	Gsk3b	Hras	Id1
D	Ifng	Igf1	Igf1r	Igfbp3	Igfbp5	Igfbp7	Ing1	Irf3	Irf5	Irf7	LOC100758352	Cdkn2a
E	Nfkb1	LOC103159266	Map2k1	Map2k3	Map2k6	Mapk14	Mdm2	Morc3	Nbn	Necdin	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	Actr5	B2m	Gapdh	Hprt1	JGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	N/A	XM_007619944	Abl1	C-abl oncogene 1, non-receptor tyrosine kinase	PPJ14040A
A02	N/A	XM_003498742	Akt1	V-akt murine thymoma viral oncogene homolog 1	PPJ14680A
A03	N/A	XM_003499401	Aldh1a3	Aldehyde dehydrogenase family 1, subfamily A3	PPJ03905A
A04	N/A	XM_003508793	Atm	Serine-protein kinase ATM-like	PPJ07292A
A05	N/A	XM_007610411	Bmi1	Polycomb complex protein BML-1-like	PPJ07517A
A06	N/A	NM_001244122	Calr	Calreticulin	PPJ00089A
A07	N/A	XM_007636699	Ccna2	Cyclin-A2-like	PPJ10016A
A08	N/A	XM_003506270	Ccnb1	Cyclin B1	PPJ04400A
A09	N/A	NM_001244048	Ccnd1	Cyclin D1	PPJ00061A
A10	N/A	XM_007618498	Ccne1	Cyclin E1	PPJ06822A
A11	N/A	XM_003497447	Cd44	CD44 antigen	PPJ00386A
A12	N/A	NM_001292058	Cdc25b	Cell division cycle 25 homolog B (S. pombe)	PPJ03383A
B01	N/A	XM_003502519	Cdc25c	Cell division cycle 25C	PPJ17218A
B02	N/A	NM_001244027	Cdk2	Cyclin-dependent kinase 2 (CDK2)	PPJ00039A
B03	N/A	XM_007633021	Cdk4	Cyclin-dependent kinase 4-like	PPJ10253A
B04	N/A	XM_007654566	Cdk6	Cyclin-dependent kinase 6-like	PPJ12374A
B05	N/A	XM_003504146	Cdkn1a	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)	PPJ00100A
B06	N/A	NM_001246825	Cdkn1b	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)	PPJ05226A
B07	N/A	XM_007648722	Cdkn1c	Cyclin-dependent kinase inhibitor 1C (p57, Kip2)	PPJ17219A
B08	N/A	XM_003496487	Cdkn2c	Cyclin-dependent kinase 4 inhibitor C-like	PPJ17028A
B09	N/A	XM_003511033	Chek1	Serine/threonine-protein kinase Chk1-like	PPJ05665A
B10	N/A	XM_007627884	Chek2	Checkpoint kinase 2	PPJ04101A
B11	N/A	XM_007633315	Cited2	Uncharacterized LOC100773955	PPJ16694A
B12	N/A	XM_003503960	Col1a1	Collagen, type I, alpha 1	PPJ10095A
C01	N/A	XM_003515418	Col3a1	Collagen alpha-1(III) chain-like	PPJ06939A
C02	N/A	XM_003502285	Creg1	Protein CREG1-like	PPJ13787A
C03	N/A	XM_007620632	E2f1	E2F transcription factor 1	PPJ17222A
C04	N/A	XM_003496779	E2f3	E2F transcription factor 3	PPJ01210A
C05	N/A	XM_003502541	Egr1	Early growth response 1	PPJ08137A
C06	N/A	XM_003515969	Ets1	Protein C-ets-1-like	PPJ13738A
C07	N/A	XM_003508728	Ets2	Protein C-ets-2-like	PPJ16888A
C08	N/A	XM_003509268	Fn1	Fibronectin 1	PPJ00498A
C09	N/A	XM_007615877	Glb1	Galactosidase, beta 1	PPJ03747A
C10	N/A	XM_007622006	Gsk3b	Glycogen synthase kinase 3 beta	PPJ10627A
C11	N/A	XM_003509750	Hras	GTPase HRas-like	PPJ16594A
C12	N/A	XM_007620575	Id1	Uncharacterized LOC100774183	PPJ16791A
D01	N/A	XM_007608042	Ifng	Interferon, gamma	PPJ14221A
D02	N/A	XM_003499709	Igf1	Insulin-like growth factor I-like	PPJ05965B
D03	N/A	XM_007610145	Igf1r	Insulin-like growth factor I receptor	PPJ03963A
D04	N/A	XM_003504388	Igfbp3	Insulin-like growth factor-binding protein 3-like	PPJ12537A
D05	N/A	XM_003498997	Igfbp5	Insulin-like growth factor-binding protein 5-like	PPJ07631A

Position	UniGene	GenBank	Symbol	Description	Assay
D06	N/A	XM_003511486	Igfbp7	Insulin-like growth factor-binding protein 7-like	PPJ08890A
D07	N/A	XM_007649824	Ing1	Inhibitor of growth protein 1-like	PPJ13894A
D08	N/A	XM_007625176	Irf3	Interferon regulatory factor 3-like	PPJ12915A
D09	N/A	XM_003497527	Irf5	Interferon regulatory factor 5	PPJ00983A
D10	N/A	XM_003509775	Irf7	Interferon regulatory factor 7	PPJ01469A
D11	N/A	XM_003516006	LOC100758352	Myc proto-oncogene protein-like	PPJ09376A
D12	N/A	XM_003508832	Cdkn2a	Cyclin dependent kinase inhibitor 2A	PPJ12597A
E01	N/A	XM_003515791	Nfkb1	Nuclear factor kappa B subunit 1	PPJ04340A
E02	N/A	XM_007609277	LOC103159266	Growth arrest and DNA damage-inducible protein GADD45 alpha	PPJ17214A
E03	N/A	NM_001246827	Map2k1	Mitogen-activated protein kinase kinase 1	PPJ05228A
E04	N/A	XM_007618883	Map2k3	Dual specificity mitogen-activated protein kinase kinase 3-like	PPJ08619A
E05	N/A	XM_007631850	Map2k6	Dual specificity mitogen-activated protein kinase kinase 6-like	PPJ15744A
E06	N/A	XM_007618706	Mapk14	Mitogen-activated protein kinase 14	PPJ00096A
E07	N/A	XM_003497139	Mdm2	E3 ubiquitin-protein ligase Mdm2-like	PPJ15001A
E08	N/A	XM_007636548	Morc3	MORC family CW-type zinc finger protein 3-like	PPJ06859A
E09	N/A	XM_003505393	Nbn	Nibrin-like	PPJ05493A
E10	N/A	XM_003508429	Necdin	Necdin-like	PPJ04277A
E11	N/A	XM_007628481	Nox4	NADPH oxidase 4	PPJ01205A
E12	N/A	NM_001246768	Pcna	Proliferating cell nuclear antigen	PPJ00213A
F01	N/A	XM_003509075	Pik3ca	Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide	PPJ00151A
F02	N/A	XM_003496727	Plau	Plasminogen activator, urokinase	PPJ09878A
F03	N/A	XM_003496116	Prkcd	Protein kinase C, delta	PPJ05062A
F04	N/A	XM_003510310	Pten	Phosphatase and tensin homolog	PPJ03153A
F05	N/A	XM_007620007	Rb1	Retinoblastoma-associated protein-like	PPJ06601A
F06	N/A	XM_003497094	Rbl1	Retinoblastoma-like 1 (p107)	PPJ01451A
F07	N/A	XM_003498010	Rbl2	Retinoblastoma-like 2	PPJ04269A
F08	N/A	XM_003501951	Serpib2	Serine (or cysteine) peptidase inhibitor, clade B, member 2	PPJ04670A
F09	N/A	XM_007624216	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	PPJ10041A
F10	N/A	XM_007620983	Sirt1	NAD-dependent deacetylase sirtuin-1-like	PPJ11797A
F11	N/A	XM_007621104	Sod1	Superoxide dismutase [Cu-Zn]-like	PPJ12650B
F12	N/A	XM_003507569	Sod2	Superoxide dismutase [Mn], mitochondrial-like	PPJ10353A
G01	N/A	XM_007617884	Sparc	SPARC-like	PPJ10238A
G02	N/A	XM_007633726	Tbx2	T-box transcription factor TBX2-like	PPJ12433A
G03	N/A	XM_003495899	Tbx3	T-box transcription factor TBX3-like	PPJ05770A
G04	N/A	XM_007627346	Terf2	Telomeric repeat-binding factor 2-like	PPJ11437A
G05	N/A	XM_003515019	Tert	Telomerase reverse transcriptase	PPJ05092A
G06	N/A	XM_007616689	Tgfb1	Transforming growth factor beta-1-like	PPJ16433A
G07	N/A	XM_003514789	Tgfb1i1	Transforming growth factor beta 1 induced transcript 1	PPJ04588A
G08	N/A	XM_003503414	Thbs1	Thrombospondin 1	PPJ02495A
G09	N/A	NM_001243976	Tp53	Tumor protein p53	PPJ00002A
G10	N/A	XM_007621707	Tp53bp1	Transformation related protein 53 binding protein 1	PPJ03813A
G11	N/A	XM_007639107	Twist1	Twist family bHLH transcription factor 1	PPJ17236A
G12	N/A	XM_003503379	Vim	Vimentin	PPJ00091A
H01	N/A	NM_001244575	Actb	Actin, beta	PPJ00318A
H02	N/A	XM_007607973	Actr5	ARP5 actin-related protein 5 homolog (yeast)	PPJ03378A
H03	N/A	NM_001246674	B2m	Beta-2 microglobulin	PPJ00271A
H04	N/A	NM_001244854	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase	PPJ00327A
H05	N/A	XM_007623161	Hprt1	Hypoxanthine-guanine phosphoribosyltransferase-like	PPJ14829A
H06	N/A	SA_00519	JGDC	Hamster Genomic DNA Contamination	PPJ00001A
H07	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H08	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H09	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H10	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H11	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H12	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A

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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