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

Human Cellular Senescence

Cat. no. 330231 PAHS-050ZA

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 Human 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	NFKB1	NOX4	PCNA
F	PIK3CA	PLAU	PRKCD	PTEN	RB1	RBL1	RBL2	SERPINB2	SERPINE1	SIRT1	SOD1	SOD2
G	SPARC	TBX2	TBX3	TERF2	TERT	TGFB1	TGFB1I1	THBS1	TP53	TP53BP1	TWIST1	VIM
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.431048	NM_005157	ABL1	C-abl oncogene 1, non-receptor tyrosine kinase
A02	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A03	Hs.459538	NM_000693	ALDH1A3	Aldehyde dehydrogenase 1 family, member A3
A04	Hs.367437	NM_000051	ATM	Ataxia telangiectasia mutated
A05	Hs.380403	NM_005180	BMI1	BMI1 polycomb ring finger oncogene
A06	Hs.515162	NM_004343	CALR	Calreticulin
A07	Hs.58974	NM_001237	CCNA2	Cyclin A2
A08	Hs.23960	NM_031966	CCNB1	Cyclin B1
A09	Hs.523852	NM_053056	CCND1	Cyclin D1
A10	Hs.244723	NM_001238	CCNE1	Cyclin E1
A11	Hs.502328	NM_000610	CD44	CD44 molecule (Indian blood group)
A12	Hs.656	NM_001790	CDC25C	Cell division cycle 25 homolog C (S. pombe)
B01	Hs.19192	NM_001798	CDK2	Cyclin-dependent kinase 2
B02	Hs.95577	NM_000075	CDK4	Cyclin-dependent kinase 4
B03	Hs.119882	NM_001259	CDK6	Cyclin-dependent kinase 6
B04	Hs.370771	NM_000389	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
B05	Hs.238990	NM_004064	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)
B06	Hs.106070	NM_000076	CDKN1C	Cyclin-dependent kinase inhibitor 1C (p57, Kip2)
B07	Hs.512599	NM_000077	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)
B08	Hs.72901	NM_004936	CDKN2B	Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)
B09	Hs.728783	NM_078626	CDKN2C	Cyclin-dependent kinase inhibitor 2C (p18, inhibits CDK4)
B10	Hs.435051	NM_001800	CDKN2D	Cyclin-dependent kinase inhibitor 2D (p19, inhibits CDK4)
B11	Hs.24529	NM_001274	CHEK1	CHK1 checkpoint homolog (S. pombe)
B12	Hs.291363	NM_007194	CHEK2	CHK2 checkpoint homolog (S. pombe)
C01	Hs.82071	NM_006079	CITED2	Cbp/p300-interacting transactivator, with Glu/Asp-rich carboxy-terminal domain, 2
C02	Hs.172928	NM_000088	COL1A1	Collagen, type I, alpha 1
C03	Hs.443625	NM_000090	COL3A1	Collagen, type III, alpha 1
C04	Hs.5710	NM_003851	CREG1	Cellular repressor of E1A-stimulated genes 1
C05	Hs.654393	NM_005225	E2F1	E2F transcription factor 1
C06	Hs.269408	NM_001949	E2F3	E2F transcription factor 3
C07	Hs.326035	NM_001964	EGR1	Early growth response 1
C08	Hs.369438	NM_005238	ETS1	V-ets erythroblastosis virus E26 oncogene homolog 1 (avian)
C09	Hs.644231	NM_005239	ETS2	V-Ets erythroblastosis virus E26 oncogene homolog 2 (avian)
C10	Hs.203717	NM_002026	FN1	Fibronectin 1
C11	Hs.80409	NM_001924	GADD45A	Growth arrest and DNA-damage-inducible, alpha
C12	Hs.443031	NM_000404	GLB1	Galactosidase, beta 1
D01	Hs.445733	NM_002093	GSK3B	Glycogen synthase kinase 3 beta
D02	Hs.37003	NM_005343	HRAS	V-Ha-ras Harvey rat sarcoma viral oncogene homolog
D03	Hs.504609	NM_002165	ID1	Inhibitor of DNA binding 1, dominant negative helix-loop-helix protein
D04	Hs.856	NM_000619	IFNG	Interferon, gamma
D05	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
D06	Hs.643120	NM_000875	IGF1R	Insulin-like growth factor 1 receptor
D07	Hs.450230	NM_000598	IGFBP3	Insulin-like growth factor binding protein 3
D08	Hs.607212	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5

Position	UniGene	GenBank	Symbol	Description
D09	Hs.479808	NM_001553	IGFBP7	Insulin-like growth factor binding protein 7
D10	Hs.46700	NM_005537	ING1	Inhibitor of growth family, member 1
D11	Hs.75254	NM_001571	IRF3	Interferon regulatory factor 3
D12	Hs.521181	NM_001098629	IRF5	Interferon regulatory factor 5
E01	Hs.166120	NM_001572	IRF7	Interferon regulatory factor 7
E02	Hs.145442	NM_002755	MAP2K1	Mitogen-activated protein kinase kinase 1
E03	Hs.514012	NM_002756	MAP2K3	Mitogen-activated protein kinase kinase 3
E04	Hs.463978	NM_002758	MAP2K6	Mitogen-activated protein kinase kinase 6
E05	Hs.485233	NM_001315	MAPK14	Mitogen-activated protein kinase 14
E06	Hs.484551	NM_002392	MDM2	Mdm2 p53 binding protein homolog (mouse)
E07	Hs.421150	NM_015358	MORC3	MORC family CW-type zinc finger 3
E08	Hs.202453	NM_002467	MYC	V-myc myelocytomatosis viral oncogene homolog (avian)
E09	Hs.492208	NM_002485	NBN	Nibrin
E10	Hs.654408	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E11	Hs.371036	NM_016931	NOX4	NADPH oxidase 4
E12	Hs.728886	NM_182649	PCNA	Proliferating cell nuclear antigen
F01	Hs.553498	NM_006218	PIK3CA	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F02	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase
F03	Hs.155342	NM_006254	PRKCD	Protein kinase C, delta
F04	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog
F05	Hs.408528	NM_000321	RB1	Retinoblastoma 1
F06	Hs.207745	NM_002895	RBL1	Retinoblastoma-like 1 (p107)
F07	Hs.513609	NM_005611	RBL2	Retinoblastoma-like 2 (p130)
F08	Hs.594481	NM_002575	SERPINB2	Serpin peptidase inhibitor, clade B (ovalbumin), member 2
F09	Hs.414795	NM_000602	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F10	Hs.369779	NM_012238	SIRT1	Sirtuin 1
F11	Hs.443914	NM_000454	SOD1	Superoxide dismutase 1, soluble
F12	Hs.487046	NM_000636	SOD2	Superoxide dismutase 2, mitochondrial
G01	Hs.111779	NM_003118	SPARC	Secreted protein, acidic, cysteine-rich (osteonectin)
G02	Hs.531085	NM_005994	TBX2	T-box 2
G03	Hs.714737	NM_016569	TBX3	T-box 3
G04	Hs.63335	NM_005652	TERF2	Telomeric repeat binding factor 2
G05	Hs.492203	NM_198253	TERT	Telomerase reverse transcriptase
G06	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G07	Hs.513530	NM_015927	TGFB1I1	Transforming growth factor beta 1 induced transcript 1
G08	Hs.164226	NM_003246	THBS1	Thrombospondin 1
G09	Hs.654481	NM_000546	TP53	Tumor protein p53
G10	Hs.440968	NM_005657	TP53BP1	Tumor protein p53 binding protein 1
G11	Hs.66744	NM_000474	TWIST1	Twist homolog 1 (Drosophila)
G12	Hs.642813	NM_003380	VIM	Vimentin
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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.

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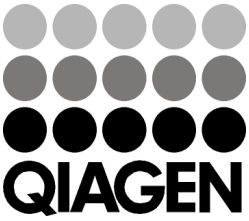

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