

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

Dog Cellular Senescence PCR Array

Cat. no. 330231 PAFD-050Z

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 Dog 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	ATM	BMI1	CALR	CCNA1	CCNA2	CCNB1	CCND1	CCNE1	CD44	CDC25B
B	CDC25C	CDK2	CDK4	CDK6	CDKN1A	CDKN1B	CDKN2A	CDKN2B	CDKN2C	CDKN2D	CHEK1	CHEK2
C	COL1A1	COL3A1	CREG1	E2F1	E2F3	EGR1	ETS1	ETS2	FN1	GADD45A	GLB1	GSK3B
D	GSN	HRA5	ID1	IFNG	IGF1	IGF1R	IGFBP3	IGFBP5	IGFBP7	ING1	IRF3	IRF5
E	IRF7	MAP2K1	MAP2K3	MAP2K6	MAPK11	MAPK14	MDM2	MORC3	MYC	NFKB1	NOX4	PCNA
F	PIK3CA	PLAU	PRKCD	PTEN	RB1	RBL1	RBL2	SERPINB2	SERPINE1	SIRT1	SMAD3	SOD1
G	SOD2	SPARC	TBX2	TBX3	TERF2	TGFB1	TGFB111	THBS1	TP53	TP53BP1	TWIST1	VIM
H	ACTB	B2M	GAPDH	HPRT1	RPLP1	FGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	N/A	XM_548413	ABL1	C-abl oncogene 1, non-receptor tyrosine kinase
A02	N/A	XM_548000	AKT1	V-akt murine thymoma viral oncogene homolog 1
A03	Cfa.48507	NM_001130828	ATM	Ataxia telangiectasia mutated
A04	Cfa.47657	NM_001287063	BMI1	BMI1 polycomb ring finger oncogene
A05	N/A	XM_862217	CALR	Calreticulin
A06	N/A	XM_005635456	CCNA1	Cyclin A1
A07	N/A	XM_540965	CCNA2	Cyclin A2
A08	N/A	XM_845305	CCNB1	Cyclin B1
A09	Cfa.16248	NM_001005757	CCND1	Cyclin D1
A10	N/A	XM_005616902	CCNE1	Cyclin E1
A11	Cfa.3800	NM_001197022	CD44	CD44 molecule (Indian blood group)
A12	N/A	XM_542913	CDC25B	Cell division cycle 25 homolog B (S. pombe)
B01	N/A	XM_005626604	CDC25C	Cell division cycle 25 homolog C (S. pombe)
B02	N/A	XM_843254	CDK2	Cyclin-dependent kinase 2
B03	N/A	XM_844780	CDK4	Cyclin-dependent kinase 4
B04	N/A	XM_847267	CDK6	Cyclin-dependent kinase 6
B05	Cfa.48328	XM_532125	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
B06	Cfa.130	NM_001002957	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)
B07	Cfa.47616	XM_003431598	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)
B08	Cfa.47632	NM_001146269	CDKN2B	Cyclin-dependent kinase inhibitor 2B
B09	N/A	XM_005629013	CDKN2C	Cyclin-dependent kinase inhibitor 2C (p18, inhibits CDK4)
B10	N/A	XM_848853	CDKN2D	Cyclin-dependent kinase inhibitor 2D (p19, inhibits CDK4)
B11	N/A	XM_847098	CHEK1	CHK1 checkpoint homolog (S. pombe)
B12	N/A	XM_005636390	CHEK2	Checkpoint kinase 2
C01	Cfa.100	NM_001003090	COL1A1	Collagen, type I, alpha 1
C02	Cfa.3093	XM_845916	COL3A1	Collagen, type III, alpha 1
C03	N/A	XM_003434992	CREG1	Cellular repressor of E1A-stimulated genes 1
C04	N/A	XM_005634944	E2F1	E2F transcription factor 1
C05	N/A	XM_005640066	E2F3	E2F transcription factor 3
C06	N/A	XM_846145	EGR1	Early growth response 1
C07	Cfa.34332	XM_546405	ETS1	V-ets erythroblastosis virus E26 oncogene homolog 1 (avian)
C08	N/A	XM_544886	ETS2	V-ets erythroblastosis virus E26 oncogene homolog 2 (avian)
C09	Cfa.47867	XM_005640741	FN1	Fibronectin 1
C10	N/A	XM_003639101	GADD45A	Growth arrest and DNA damage-inducible protein GADD45 alpha-like
C11	Cfa.22721	NM_001037641	GLB1	Galactosidase, beta 1
C12	N/A	XM_535751	GSK3B	Glycogen synthase kinase 3 beta
D01	N/A	XM_005627007	GSN	Gelsolin
D02	Cfa.3599	XM_540523	HRA5	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog
D03	N/A	XM_847117	ID1	Inhibitor of DNA binding 1, dominant negative helix-loop-helix protein
D04	Cfa.3900	NM_001003174	IFNG	Interferon gamma
D05	Cfa.3888	XM_848024	IGF1	Insulin-like growth factor 1 (somatomedin C)
D06	Cfa.3911	XM_545828	IGF1R	Insulin-like growth factor 1 receptor
D07	N/A	XM_548740	IGFBP3	Insulin-like growth factor binding protein 3
D08	N/A	XM_847792	IGFBP5	Insulin-like growth factor binding protein 5
D09	N/A	XM_845177	IGFBP7	Insulin-like growth factor binding protein 7

Position	UniGene	GenBank	Symbol	Description
D10	N/A	XM_534185	ING1	Similar to inhibitor of growth family, member 1
D11	N/A	XM_005616307	IRF3	Interferon regulatory factor 3
D12	N/A	XM_005628408	IRF5	Interferon regulatory factor 5
E01	N/A	XM_540526	IRF7	Similar to Interferon regulatory factor 7 (IRF-7)
E02	Cfa.1354	NM_001048094	MAP2K1	Mitogen-activated protein kinase kinase 1
E03	N/A	XM_546666	MAP2K3	Mitogen-activated protein kinase kinase 3
E04	N/A	XM_005624291	MAP2K6	Mitogen-activated protein kinase kinase 6
E05	N/A	XM_005625711	MAPK11	Mitogen-activated protein kinase 11
E06	Cfa.2823	NM_001003206	MAPK14	Mitogen-activated protein kinase 14
E07	Cfa.702	NM_001003103	MDM2	Mdm2 p53 binding protein homolog (mouse)
E08	N/A	XM_005638899	MORC3	MORC family CW-type zinc finger 3
E09	Cfa.3786	NM_001003246	MYC	V-myc myelocytomatosis viral oncogene homolog (avian)
E10	Cfa.10766	NM_001003344	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E11	N/A	XM_005633778	NOX4	NADPH oxidase 4
E12	N/A	XM_534355	PCNA	Proliferating cell nuclear antigen
F01	N/A	XM_545208	PIK3CA	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F02	Cfa.127	NM_001194952	PLAU	Plasminogen activator, urokinase
F03	Cfa.16226	NM_001008716	PRKCD	Protein kinase C, delta
F04	Cfa.3695	NM_001003192	PTEN	Phosphatase and tensin homolog
F05	Cfa.3598	XM_534118	RB1	Retinoblastoma 1
F06	N/A	XM_005635022	RBL1	Retinoblastoma-like 1 (p107)
F07	N/A	XM_005617557	RBL2	Retinoblastoma-like 2 (p130)
F08	N/A	XM_846892	SERPINE2	Serpin peptidase inhibitor, clade B (ovalbumin), member 2
F09	Cfa.109	NM_001197095	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F10	N/A	XM_005618933	SIRT1	Sirtuin 1
F11	Cfa.43487	NM_001170829	SMAD3	SMAD family member 3
F12	Cfa.6360	NM_001003035	SOD1	Superoxide dismutase 1, soluble
G01	N/A	XM_533463	SOD2	Superoxide dismutase 2, mitochondrial
G02	N/A	XM_849889	SPARC	Secreted protein, acidic, cysteine-rich (osteonectin)
G03	Cfa.16322	NM_001005249	TBX2	T-box 2
G04	N/A	XM_005636514	TBX3	T-box 3
G05	N/A	XM_846135	TERF2	Telomeric repeat binding factor 2
G06	Cfa.3509	NM_001003309	TGFB1	Transforming growth factor, beta 1
G07	N/A	XM_005621228	TGFB1I1	Transforming growth factor beta 1 induced transcript 1
G08	N/A	XM_544610	THBS1	Thrombospondin 1
G09	Cfa.3658	NM_001003210	TP53	Tumor protein p53
G10	N/A	XM_005638338	TP53BP1	Tumor protein p53 binding protein 1
G11	N/A	XM_845879	TWIST1	Twist homolog 1 (Drosophila)
G12	Cfa.25093	NM_001287023	VIM	Vimentin
H01	Cfa.17735	NM_001195845	ACTB	Actin, beta
H02	N/A	XM_535458	B2M	Beta-2-microglobulin
H03	Cfa.39120	NM_001003142	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Cfa.4551	NM_001003357	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	N/A	XM_005638707	RPLP1	Ribosomal protein, large, P1
H06	N/A	SA_00130	FGDC	Dog 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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