

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene® Format)

## Chinese Hamster Ovary (CHO) Cell Cellular Senescence

Cat. no. 330231 PAJJ-050ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

### Description

The Chinese Hamster Ovary (CHO) Cell Cellular Senescence RT<sup>2</sup> 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 *RT<sup>2</sup> Profiler PCR Array Handbook*.



## **Shipping and storage**

RT<sup>2</sup> Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°C.

**Note:** Ensure that you have the correct RT<sup>2</sup> 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**

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

---

## Gene table: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
1	N/A	XM_007619944	Abl1	C-abl oncogene 1, non-receptor tyrosine kinase
2	N/A	XM_003498742	Akt1	V-akt murine thymoma viral oncogene homolog 1
3	N/A	XM_003499401	Aldh1a3	Aldehyde dehydrogenase family 1, subfamily A3
4	N/A	XM_003508793	Atm	Serine-protein kinase ATM-like
5	N/A	XM_007610411	Bmi1	Polycomb complex protein BMI-1-like
6	N/A	NM_001244122	Calr	Calreticulin
7	N/A	XM_007636699	Ccna2	Cyclin-A2-like
8	N/A	XM_003506270	Ccnb1	Cyclin B1
9	N/A	NM_001244048	Ccnd1	Cyclin D1
10	N/A	XM_007618498	Ccne1	Cyclin E1
11	N/A	XM_003497447	Cd44	CD44 antigen
12	N/A	NM_001292058	Cdc25b	Cell division cycle 25 homolog B ( <i>S. pombe</i> )
13	N/A	XM_003502519	Cdc25c	Cell division cycle 25C
14	N/A	NM_001244027	Cdk2	Cyclin-dependent kinase 2 (CDK2)
15	N/A	XM_007633021	Cdk4	Cyclin-dependent kinase 4-like
16	N/A	XM_007654566	Cdk6	Cyclin-dependent kinase 6-like
17	N/A	XM_003504146	Cdkn1a	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
18	N/A	NM_001246825	Cdkn1b	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)
19	N/A	XM_007648722	Cdkn1c	Cyclin-dependent kinase inhibitor 1C (p57, Kip2)
20	N/A	XM_003496487	Cdkn2c	Cyclin-dependent kinase 4 inhibitor C-like
21	N/A	XM_003511033	Chek1	Serine/threonine-protein kinase Chk1-like
22	N/A	XM_007627884	Chek2	Checkpoint kinase 2
23	N/A	XM_007633315	Cited2	Uncharacterized LOC100773955
24	N/A	XM_003503960	Col1a1	Collagen, type I, alpha 1
25	N/A	XM_003515418	Col3a1	Collagen alpha-1(III) chain-like
26	N/A	XM_003502285	Creg1	Protein CREG1-like
27	N/A	XM_007620632	E2f1	E2F transcription factor 1
28	N/A	XM_003496779	E2f3	E2F transcription factor 3
29	N/A	XM_003502541	Egr1	Early growth response 1
30	N/A	XM_003515969	Ets1	Protein C-ets-1-like
31	N/A	XM_003508728	Ets2	Protein C-ets-2-like
32	N/A	XM_003509268	Fn1	Fibronectin 1
33	N/A	XM_007615877	Glb1	Galactosidase, beta 1
34	N/A	XM_007622006	Gsk3b	Glycogen synthase kinase 3 beta
35	N/A	XM_003509750	Hras	GTPase HRas-like
36	N/A	XM_007620575	Id1	Uncharacterized LOC100774183
37	N/A	XM_007608042	Ifng	Interferon, gamma
38	N/A	XM_003499709	Igfl	Insulin-like growth factor I-like

Position	UniGene	GenBank	Symbol	Description
39	N/A	XM_007610145	Igflr	Insulin-like growth factor I receptor
40	N/A	XM_003504388	Igfbp3	Insulin-like growth factor-binding protein 3-like
41	N/A	XM_003498997	Igfbp5	Insulin-like growth factor-binding protein 5-like
42	N/A	XM_003511486	Igfbp7	Insulin-like growth factor-binding protein 7-like
43	N/A	XM_007649824	Ing1	Inhibitor of growth protein 1-like
44	N/A	XM_007625176	Irf3	Interferon regulatory factor 3-like
45	N/A	XM_003497527	Irf5	Interferon regulatory factor 5
46	N/A	XM_003509775	Irf7	Interferon regulatory factor 7
47	N/A	XM_003516006	LOC100758352	Myc proto-oncogene protein-like
48	N/A	XM_003508832	Cdkn2a	Cyclin dependent kinase inhibitor 2A
49	N/A	XM_003515791	Nfkb1	Nuclear factor kappa B subunit 1
50	N/A	XM_007609277	LOC103159266	Growth arrest and DNA damage-inducible protein GADD45 alpha
51	N/A	NM_001246827	Map2k1	Mitogen-activated protein kinase kinase 1
52	N/A	XM_007618883	Map2k3	Dual specificity mitogen-activated protein kinase kinase 3-like
53	N/A	XM_007631850	Map2k6	Dual specificity mitogen-activated protein kinase kinase 6-like
54	N/A	XM_007618706	Mapk14	Mitogen-activated protein kinase 14
55	N/A	XM_003497139	Mdm2	E3 ubiquitin-protein ligase Mdm2-like
56	N/A	XM_007636548	Morc3	MORC family CW-type zinc finger protein 3-like
57	N/A	XM_003505393	Nbn	Nibrin-like
58	N/A	XM_003508429	Necdin	Necdin-like
59	N/A	XM_007628481	Nox4	NADPH oxidase 4
60	N/A	NM_001246768	Pcna	Proliferating cell nuclear antigen
61	N/A	XM_003509075	Pik3ca	Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide
62	N/A	XM_003496727	Plau	Plasminogen activator, urokinase
63	N/A	XM_003496116	Prkcd	Protein kinase C, delta
64	N/A	XM_003510310	Pten	Phosphatase and tensin homolog
65	N/A	XM_007620007	Rb1	Retinoblastoma-associated protein-like
66	N/A	XM_003497094	Rbl1	Retinoblastoma-like 1 (p107)
67	N/A	XM_003498010	Rbl2	Retinoblastoma-like 2
68	N/A	XM_003501951	Serpinb2	Serine (or cysteine) peptidase inhibitor, clade B, member 2
69	N/A	XM_007624216	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
70	N/A	XM_007620983	Sirt1	NAD-dependent deacetylase sirtuin-1-like
71	N/A	XM_007621104	Sod1	Superoxide dismutase [Cu-Zn]-like
72	N/A	XM_003507569	Sod2	Superoxide dismutase [Mn], mitochondrial-like
73	N/A	XM_007617884	Sparc	SPARC-like
74	N/A	XM_007633726	Tbx2	T-box transcription factor TBX2-like
75	N/A	XM_003495899	Tbx3	T-box transcription factor TBX3-like
76	N/A	XM_007627346	Terf2	Telomeric repeat-binding factor 2-like
77	N/A	XM_003515019	Tert	Telomerase reverse transcriptase
78	N/A	XM_007616689	Tgfb1	Transforming growth factor beta-1-like

<b>Position</b>	<b>UniGene</b>	<b>GenBank</b>	<b>Symbol</b>	<b>Description</b>
79	N/A	XM_003514789	Tgfb1i1	Transforming growth factor beta 1 induced transcript 1
80	N/A	XM_003503414	Thbs1	Thrombospondin 1
81	N/A	NM_001243976	Tp53	Tumor protein p53
82	N/A	XM_007621707	Tp53bp1	Transformation related protein 53 binding protein 1
83	N/A	XM_007639107	Twist1	Twist family bHLH transcription factor 1
84	N/A	XM_003503379	Vim	Vimentin
85	N/A	NM_001244575	Actb	Actin, beta
86	N/A	XM_007607973	Actr5	ARP5 actin-related protein 5 homolog (yeast)
87	N/A	NM_001246674	B2m	Beta-2 microglobulin
88	N/A	NM_001244854	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
89	N/A	XM_007623161	Hprt1	Hypoxanthine-guanine phosphoribosyltransferase-like
90	N/A	SA_00519	JGDC	Hamster Genomic DNA Contamination
91	N/A	SA_00104	RTC	Reverse Transcription Control
92	N/A	SA_00104	RTC	Reverse Transcription Control
93	N/A	SA_00104	RTC	Reverse Transcription Control
94	N/A	SA_00103	PPC	Positive PCR Control
95	N/A	SA_00103	PPC	Positive PCR Control
96	N/A	SA_00103	PPC	Positive PCR Control

## Related products

For optimal performance, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT2 SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> SYBR Green ROX <sup>™</sup> FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

\* Larger kit sizes available; please inquire.

RT<sup>2</sup> Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

Trademarks: QIAGEN<sup>®</sup>, Rotor-Gene<sup>®</sup>, Rotor-Disc<sup>™</sup> (QIAGEN Group); ROX<sup>™</sup> (Applera Corporation or its subsidiaries); SYBR<sup>®</sup> (Molecular Probes, Inc.).

1067688 03/2011 © 2011 QIAGEN, all rights reserved.

<b>www.qiagen.com</b>	<b>Canada</b> • 800-572-9613	<b>Ireland</b> • 1800 555 049	<b>Norway</b> • 800-18859
	<b>China</b> • 8621-3865-3865	<b>Italy</b> • 800-787980	<b>Singapore</b> • 1800-742-4368
	<b>Denmark</b> • 80-885945	<b>Japan</b> • 03-6890-7300	<b>Spain</b> • 91-630-7050
<b>Australia</b> • 1-800-243-800	<b>Finland</b> • 0800-914416	<b>Korea (South)</b> • 080-000-7145	<b>Sweden</b> • 020-790282
<b>Austria</b> • 0800/281010	<b>France</b> • 01-60-920-930	<b>Luxembourg</b> • 8002 2076	<b>Switzerland</b> • 055-254-22-11
<b>Belgium</b> • 0800-79612	<b>Germany</b> • 02103-29-12000	<b>Mexico</b> • 01-800-7742-436	<b>UK</b> • 01293-422-911
<b>Brazil</b> • 0800-557779	<b>Hong Kong</b> • 800 933 965	<b>The Netherlands</b> • 0800 0229592	<b>USA</b> • 800-426-8157



Sample & Assay Technologies