

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

Human Apoptosis

Cat. no. 330231 PAHS-012ZA

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 Human Apoptosis RT² Profiler PCR Array profiles the expression of 84 key genes involved in programmed cell death. Apoptosis plays a critical role in normal biological processes requiring cell removal including differentiation, development, and homeostasis. Stress responses (such as heat shock, ischemia, unfolded proteins, and viral infection) cause badly damaged cells to undergo apoptosis. In cell culture, growth factor withdrawal and many known experimental compounds have a similar effect. An acquired defect in apoptosis activation often leads to uncontrolled cell growth, oncogenesis, and cancer. Ligand-bound tumor necrosis factor (TNF) receptors initiate apoptosis by recruiting FADD and other death domain adaptor proteins that then recruit and activate caspases. Environmental stresses trigger BCL2 protein oligomerization and insertion into the mitochondrial membrane, releasing APAF1 and other CARD family members that also oligomerize to recruit and activate caspases. Caspases promote a proteolysis cascade that degrades cellular protein targets, while the IAP protein family directly inhibits caspases. This array includes TNF ligands and their receptors, members of the bcl-2, caspase, IAP, TRAF, CARD, death domain, death effector domain, and CIDE families, as well as genes involved in the p53 and DNA damage pathways. Monitoring the expression of these genes helps determine the mechanisms behind programmed cell death in your model system and the propensity of a cell type to undergo apoptosis normally. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to apoptosis 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	AIFM1	AKT1	APAF1	BAD	BAG1	BAG3	BAK1	BAX	BCL10	BCL2	BCL2A1
B	BCL2L1	BCL2L10	BCL2L11	BCL2L2	BFAR	BID	BIK	BIRC2	BIRC3	BIRC5	BIRC6	BNIP2
C	BNIP3	BNIP3L	BRAF	CASP1	CASP10	CASP14	CASP2	CASP3	CASP4	CASP5	CASP6	CASP7
D	CASP8	CASP9	CD27	CD40	CD40LG	CD70	CFLAR	CIDEA	CIDEB	CRADD	CYCS	DAPK1
E	DFFA	DIABLO	FADD	FAS	FASLG	GADD45A	HRK	IGF1R	IL10	LTA	LTBR	MCL1
F	NAIP	NFKB1	NOD1	NOL3	PYCARD	RIPK2	TNF	TNFRSF10A	TNFRSF10B	TNFRSF11B	TNFRSF1A	TNFRSF1B
G	TNFRSF21	TNFRSF25	TNFRSF9	TNFSF10	TNFSF8	TP53	TP53BP2	TP73	TRADD	TRAF2	TRAF3	XIAP
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.424932	NM_004208	AIFM1	Apoptosis-inducing factor, mitochondrion-associated, 1
A03	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A04	Hs.728891	NM_001160	APAF1	Apoptotic peptidase activating factor 1
A05	Hs.370254	NM_004322	BAD	BCL2-associated agonist of cell death
A06	Hs.377484	NM_004323	BAG1	BCL2-associated athanogene
A07	Hs.523309	NM_004281	BAG3	BCL2-associated athanogene 3
A08	Hs.485139	NM_001188	BAK1	BCL2-antagonist/killer 1
A09	Hs.624291	NM_004324	BAX	BCL2-associated X protein
A10	Hs.193516	NM_003921	BCL10	B-cell CLL/lymphoma 10
A11	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A12	Hs.227817	NM_004049	BCL2A1	BCL2-related protein A1
B01	Hs.516966	NM_138578	BCL2L1	BCL2-like 1
B02	Hs.283672	NM_020396	BCL2L10	BCL2-like 10 (apoptosis facilitator)
B03	Hs.469658	NM_006538	BCL2L11	BCL2-like 11 (apoptosis facilitator)
B04	Hs.410026	NM_004050	BCL2L2	BCL2-like 2
B05	Hs.435556	NM_016561	BFAR	Bifunctional apoptosis regulator
B06	Hs.591054	NM_001196	BID	BH3 interacting domain death agonist
B07	Hs.475055	NM_001197	BIK	BCL2-interacting killer (apoptosis-inducing)
B08	Hs.696238	NM_001166	BIRC2	Baculoviral IAP repeat containing 2
B09	Hs.127799	NM_001165	BIRC3	Baculoviral IAP repeat containing 3
B10	Hs.728893	NM_001168	BIRC5	Baculoviral IAP repeat containing 5
B11	Hs.150107	NM_016252	BIRC6	Baculoviral IAP repeat containing 6
B12	Hs.646490	NM_004330	BNIP2	BCL2/adenovirus E1B 19kDa interacting protein 2
C01	Hs.144873	NM_004052	BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3
C02	Hs.131226	NM_004331	BNIP3L	BCL2/adenovirus E1B 19kDa interacting protein 3-like
C03	Hs.550061	NM_004333	BRAF	V-raf murine sarcoma viral oncogene homolog B1
C04	Hs.2490	NM_033292	CASP1	Caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)
C05	Hs.5353	NM_001230	CASP10	Caspase 10, apoptosis-related cysteine peptidase
C06	Hs.466057	NM_012114	CASP14	Caspase 14, apoptosis-related cysteine peptidase
C07	Hs.368982	NM_032982	CASP2	Caspase 2, apoptosis-related cysteine peptidase
C08	Hs.141125	NM_004346	CASP3	Caspase 3, apoptosis-related cysteine peptidase
C09	Hs.138378	NM_001225	CASP4	Caspase 4, apoptosis-related cysteine peptidase
C10	Hs.213327	NM_004347	CASP5	Caspase 5, apoptosis-related cysteine peptidase
C11	Hs.654616	NM_032992	CASP6	Caspase 6, apoptosis-related cysteine peptidase
C12	Hs.9216	NM_001227	CASP7	Caspase 7, apoptosis-related cysteine peptidase
D01	Hs.599762	NM_001228	CASP8	Caspase 8, apoptosis-related cysteine peptidase
D02	Hs.329502	NM_001229	CASP9	Caspase 9, apoptosis-related cysteine peptidase
D03	Hs.355307	NM_001242	CD27	CD27 molecule
D04	Hs.472860	NM_001250	CD40	CD40 molecule, TNF receptor superfamily member 5
D05	Hs.592244	NM_000074	CD40LG	CD40 ligand
D06	Hs.501497	NM_001252	CD70	CD70 molecule
D07	Hs.390736	NM_003879	CFLAR	CASP8 and FADD-like apoptosis regulator
D08	Hs.249129	NM_001279	CIDEA	Cell death-inducing DFFA-like effector a
D09	Hs.642693	NM_014430	CIDEB	Cell death-inducing DFFA-like effector b

Position	UniGene	GenBank	Symbol	Description
D10	Hs.38533	NM_003805	CRADD	CASP2 and RIPK1 domain containing adaptor with death domain
D11	Hs.437060	NM_018947	CYCS	Cytochrome c, somatic
D12	Hs.380277	NM_004938	DAPK1	Death-associated protein kinase 1
E01	Hs.484782	NM_004401	DFFA	DNA fragmentation factor, 45kDa, alpha polypeptide
E02	Hs.169611	NM_019887	DIABLO	Diablo, IAP-binding mitochondrial protein
E03	Hs.86131	NM_003824	FADD	Fas (TNFRSF6)-associated via death domain
E04	Hs.244139	NM_000043	FAS	Fas (TNF receptor superfamily, member 6)
E05	Hs.2007	NM_000639	FASLG	Fas ligand (TNF superfamily, member 6)
E06	Hs.80409	NM_001924	GADD45A	Growth arrest and DNA-damage-inducible, alpha
E07	Hs.87247	NM_003806	HRK	Harakiri, BCL2 interacting protein (contains only BH3 domain)
E08	Hs.643120	NM_000875	IGF1R	Insulin-like growth factor 1 receptor
E09	Hs.193717	NM_000572	IL10	Interleukin 10
E10	Hs.36	NM_000595	LTA	Lymphotoxin alpha (TNF superfamily, member 1)
E11	Hs.1116	NM_002342	LTBR	Lymphotoxin beta receptor (TNFR superfamily, member 3)
E12	Hs.632486	NM_021960	MCL1	Myeloid cell leukemia sequence 1 (BCL2-related)
F01	Hs.710305	NM_004536	NAIP	NLR family, apoptosis inhibitory protein
F02	Hs.654408	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F03	Hs.405153	NM_006092	NOD1	Nucleotide-binding oligomerization domain containing 1
F04	Hs.513667	NM_003946	NOL3	Nucleolar protein 3 (apoptosis repressor with CARD domain)
F05	Hs.499094	NM_013258	PYCARD	PYD and CARD domain containing
F06	Hs.103755	NM_003821	RIPK2	Receptor-interacting serine-threonine kinase 2
F07	Hs.241570	NM_000594	TNF	Tumor necrosis factor
F08	Hs.591834	NM_003844	TNFRSF10A	Tumor necrosis factor receptor superfamily, member 10a
F09	Hs.521456	NM_003842	TNFRSF10B	Tumor necrosis factor receptor superfamily, member 10b
F10	Hs.81791	NM_002546	TNFRSF11B	Tumor necrosis factor receptor superfamily, member 11b
F11	Hs.279594	NM_001065	TNFRSF1A	Tumor necrosis factor receptor superfamily, member 1A
F12	Hs.256278	NM_001066	TNFRSF1B	Tumor necrosis factor receptor superfamily, member 1B
G01	Hs.443577	NM_014452	TNFRSF21	Tumor necrosis factor receptor superfamily, member 21
G02	Hs.462529	NM_003790	TNFRSF25	Tumor necrosis factor receptor superfamily, member 25
G03	Hs.654459	NM_001561	TNFRSF9	Tumor necrosis factor receptor superfamily, member 9
G04	Hs.478275	NM_003810	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10
G05	Hs.654445	NM_001244	TNFSF8	Tumor necrosis factor (ligand) superfamily, member 8
G06	Hs.654481	NM_000546	TP53	Tumor protein p53
G07	Hs.523968	NM_005426	TP53BP2	Tumor protein p53 binding protein, 2
G08	Hs.697294	NM_005427	TP73	Tumor protein p73
G09	Hs.460996	NM_003789	TRADD	TNFRSF1A-associated via death domain
G10	Hs.522506	NM_021138	TRAF2	TNF receptor-associated factor 2
G11	Hs.510528	NM_003300	TRAF3	TNF receptor-associated factor 3
G12	Hs.356076	NM_001167	XIAP	X-linked inhibitor of apoptosis
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.
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.

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 or can be requested from QIAGEN Technical Services or your local distributor.

Trademarks: QIAGEN® (QIAGEN Group); Applied Biosystems®, ViiA™, StepOnePlus™, ROX™ (Applied Biosystems Corporation or its subsidiaries); Bio-Rad®, iCycler®, iQ™, MyiQ™, Chromo4™, CFX96™, DNA Engine Opticon®, CFX384™ (Bio-Rad Laboratories, Inc.); Stratagene®, Mx3005P®, Mx3000P®, Mx4000® (Stratagene); Eppendorf®, Mastercycler® (Eppendorf AG); Roche®, LightCycler® (Roche Group); Fluidigm® BioMark™ (Fluidigm Corporation); SYBR® (Molecular Probes, Inc.).

1066029 03/2011 © 2011 QIAGEN, all rights reserved.

www.qiagen.com

Canada ■ 800-572-9613

Ireland ■ 1800 555 049

Norway ■ 800-18859

China ■ 8621-3865-3865

Italy ■ 800-787980

Singapore ■ 1800-742-4368

Denmark ■ 80-885945

Japan ■ 03-6890-7300

Spain ■ 91-630-7050

Australia ■ 1-800-243-800

Finland ■ 0800-914416

Korea (South) ■ 080-000-7145

Sweden ■ 020-790282

Austria ■ 0800/281010

France ■ 01-60-920-930

Luxembourg ■ 8002 2076

Switzerland ■ 055-254-22-11

Belgium ■ 0800-79612

Germany ■ 02103-29-12000

Mexico ■ 01-800-7742-436

UK ■ 01293-422-911

Brazil ■ 0800-557779

Hong Kong ■ 800 933 965

The Netherlands ■ 0800 0229592

USA ■ 800-426-8157



Sample & Assay Technologies