

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

## Pig Apoptosis

Cat. no. 330231 PASS-012ZR

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 Pig Apoptosis RT<sup>2</sup> 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. A set of controls present on each array enables data analysis using the  $\Delta\Delta\text{CT}$  method of relative quantification and assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze expression of a focused panel of genes related to apoptosis with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

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## 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 cyclers (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
A01	N/A	XM_005660524	ABL1	C-abl oncogene 1, non-receptor tyrosine kinase
A02	Ssc.48416	XM_003135370	AIFM1	Apoptosis-inducing factor, mitochondrion-associated, 1
A03	N/A	XM_003132995	AIFM3	Apoptosis-inducing factor, mitochondrion-associated, 3
A04	Ssc.19672	NM_001159776	AKT1	V-akt murine thymoma viral oncogene homolog 1
A05	N/A	XM_003481742	APAF1	Apoptotic peptidase activating factor 1
A06	Ssc.80634	XM_003122573	BAD	BCL2-associated agonist of cell death
A07	Ssc.13649	XM_001929000	BAG3	BCL2-associated athanogene 3
A08	Ssc.16343	XM_001928147	BAK	Bak protein
A09	Ssc.23470	XM_003355975	BAX	BCL2-associated X protein
A10	Ssc.53633	XM_003121700	BCL2	B-cell CLL/lymphoma 2
A11	Ssc.46672	NM_001164511	BCL2A1	BCL2-related protein A1
A12	Ssc.94302	NM_214285	BCL2L1	BCL2-like 1
B01	N/A	XM_001924261	BCL2L10	BCL2-like 10 (apoptosis facilitator)
B02	N/A	XM_001928880	BCL2L2	BCL2-like 2
B03	Ssc.19150	NM_001030535	BID	BH3 interacting domain death agonist
B04	N/A	XM_003357261	BIRC2	Baculoviral IAP repeat containing 2
B05	N/A	XM_003357258	BIRC3	Baculoviral IAP repeat containing 3
B06	Ssc.432	NM_214141	BIRC5	Baculoviral IAP repeat containing 5
B07	N/A	XM_003121469	BNIP2	BCL2/adenovirus E1B 19kDa interacting protein 2
B08	Ssc.7152	XM_001927592	BNIP3L	BCL2/adenovirus E1B 19kDa interacting protein 3-like
B09	N/A	XM_003134610	BRAF	V-raf murine sarcoma viral oncogene homolog B1
B10	Ssc.16012	NM_214162	CASP1	Caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)
B11	Ssc.9544	NM_001161640	CASP10	Caspase 10, apoptosis-related cysteine peptidase
B12	N/A	XM_003123430	CASP14	Caspase 14, apoptosis-related cysteine peptidase
C01	Ssc.9673	XM_003134571	CASP2	Caspase 2, apoptosis-related cysteine peptidase
C02	Ssc.15886	NM_214131	CASP3	Caspase 3, apoptosis-related cysteine peptidase
C03	N/A	XM_003129812	CASP4	Caspase 4, apoptosis-related cysteine peptidase
C04	N/A	XM_005656547	CASP6	Caspase 6, apoptosis-related cysteine peptidase
C05	Ssc.30615	NM_001031779	CASP8	Caspase 8, apoptosis-related cysteine peptidase
C06	N/A	XM_003131145	CBX4	Chromobox homolog 4
C07	Ssc.26880	NM_214194	CD40	CD40 molecule, TNF receptor superfamily member 5
C08	Ssc.15861	NM_214126	CD40LG	CD40 ligand
C09	Ssc.42649	NM_001044531	CD70	CD70 molecule
C10	Ssc.12592	XM_003126852	CFDP1	Craniofacial development protein 1
C11	Ssc.20399	NM_001112696	CIDEA	Cell death-inducing DFFA-like effector a
C12	Ssc.42420	NM_001112688	CIDE-B	Cell-death-inducing DNA-fragmentation-factor-like effector B
D01	Ssc.81554	XM_003130809	CUL2	Cullin 2
D02	Ssc.50553	NM_001129970	CYCS	Cytochrome c, somatic
D03	N/A	XM_003482803	DAPK1	Death-associated protein kinase 1
D04	Ssc.6364	XM_001928544	DDX20	DEAD (Asp-Glu-Ala-Asp) box polypeptide 20
D05	Ssc.5098	NM_001190216	DIABLO	Diablo, IAP-binding mitochondrial protein
D06	Ssc.53733	XM_003122537	DPF2	D4, zinc and double PHD fingers family 2
D07	N/A	XM_003126581	ERC1	ELKS/RAB6-interacting/CAST family member 1
D08	N/A	XM_005658114	ERN2	Endoplasmic reticulum to nucleus signaling 2
D09	Ssc.14497	NM_213839	FAS	Fas (TNF receptor superfamily, member 6)
D10	Ssc.15870	NM_213806	FASLG	Fas ligand (TNF superfamily, member 6)
D11	N/A	XM_003121751	FEM1B	Fem-1 homolog b (C. elegans)
D12	Ssc.20913	NM_001044599	GADD45A	Growth arrest and DNA-damage-inducible, alpha
E01	Ssc.54172	NM_214172	IGF1R	Insulin-like growth factor 1 receptor
E02	Ssc.148	NM_214041	IL10	Interleukin 10
E03	Ssc.13765	NM_214360	LALBA	Lactalbumin, alpha-
E04	N/A	XM_003359104	HRK	Activator of apoptosis harakiri-like
E05	Ssc.12026	XM_001928978	LOC100156777	Caspase 7
E06	Ssc.1509	XM_003128430	TNFRSF21	Tumor necrosis factor receptor superfamily member 21-like
E07	N/A	XM_003355027	RIPK2	Receptor-interacting serine/threonine-protein kinase 2-like
E08	N/A	XM_003127618	CASP9	Caspase-9-like

Position	UniGene	GenBank	Symbol	Description
E09	N/A	XM_003126547	LTBR	Tumor necrosis factor receptor superfamily member 3-like
E10	N/A	XM_003124468	PYCARD	Apoptosis-associated speck-like protein containing a CARD-like
E11	N/A	XM_003127563	DFFA	DNA fragmentation factor subunit alpha-like
E12	N/A	XM_003126938	NOL3	Nucleolar protein 3-like
F01	N/A	XM_003359404	LOC100624868	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like
F02	Ssc.42720	NM_001037147	LOC641352	Caspase-15
F03	Ssc.27595	NM_214453	LTA	Lymphotoxin alpha (TNF superfamily, member 1)
F04	Ssc.95917	NM_214361	MCL1	Myeloid cell leukemia sequence 1 (BCL2-related)
F05	N/A	XM_003122426	MTL5	Metallothionein-like 5, testis-specific (tesmin)
F06	Ssc.17816	NM_001048232	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F07	Ssc.69921	NM_001114277	NOD1	Nucleotide-binding oligomerization domain containing 1
F08	N/A	XM_001928652	PAK7	P21 protein (Cdc42/Rac)-activated kinase 7
F09	Ssc.102	NM_214024	PPP2R1A	Protein phosphatase 2, regulatory subunit A, alpha
F10	Ssc.731	XM_003357285	PPP2R1B	Protein phosphatase 2, regulatory subunit A, beta
F11	Ssc.86965	NM_001001263	PROX1	PROX1 paired-like homeobox 1
F12	N/A	XM_003130329	RFWD2	Ring finger and WD repeat domain 2
G01	Ssc.5869	XM_003122517	SART1	Squamous cell carcinoma antigen recognized by T cells
G02	N/A	XM_005660759	SIPA1	Signal-induced proliferation-associated 1
G03	Ssc.44382	XM_003125008	STAMPB	STAM binding protein
G04	Ssc.100	NM_214022	TNF	Tumor necrosis factor
G05	Ssc.90180	XM_003481346	TNFRSF11B	Tumor necrosis factor receptor superfamily, member 11b
G06	Ssc.54327	NM_213969	TNFRSF1A	Tumor necrosis factor receptor superfamily, member 1A
G07	Ssc.90124	NM_001097441	TNFRSF1B	Tumor necrosis factor receptor superfamily, member 1B
G08	Ssc.12829	NM_001024696	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10
G09	Ssc.15917	NM_213824	TP53	Tumor protein p53
G10	Ssc.9003	XM_003130583	TP53BP2	Tumor protein p53 binding protein, 2
G11	N/A	XM_005652719	TRAF2	TNF receptor-associated factor 2
G12	Ssc.43829	NM_001097436	XIAP	X-linked inhibitor of apoptosis
H01	Ssc.10316	XM_003357928	ACTB	Actin, beta
H02	Ssc.73773	NM_213978	B2M	Beta-2-microglobulin
H03	Ssc.79971	NM_001206359	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Ssc.4158	NM_001032376	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Ssc.17024	NM_001244068	RPL13A	Ribosomal protein L13a
H06	N/A	SA_00133	SGDC	Pig 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, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> 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™ 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.

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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.

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