

RT² Profiler PCR Array (Rotor-Gene® Format)

Pig Apoptosis

Cat. no. 330231 PASS-012ZR

For pathway expression analysis

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

Description

The Pig 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. 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 *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² 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 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

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: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	N/A	XM_005660524	ABL1	C-abl oncogene 1, non-receptor tyrosine kinase	PPS06926A
A02	Ssc.48416	NM_001297632	AIFM1	Apoptosis-inducing factor, mitochondrion-associated, 1	PPS06843A
A03	N/A	XM_013983186	AIFM3	Apoptosis-inducing factor, mitochondrion-associated, 3	PPS07070A
A04	Ssc.19672	NM_001159776	AKT1	V-akt murine thymoma viral oncogene homolog 1	PPS01879A
A05	N/A	XM_003481742	APAF1	Apoptotic peptidase activating factor 1	PPS05222A
A06	Ssc.80634	XM_003122573	BAD	BCL2-associated agonist of cell death	PPS13559A
A07	Ssc.13649	XM_001929000	BAG3	BCL2-associated athanogene 3	PPS03897A
A08	Ssc.16343	XM_001928147	BAK1	Bak protein	PPS00851A
A09	Ssc.23470	XM_003127290	BAX	BCL2-associated X protein	PPS00066A
A10	Ssc.53633	XM_003121700	BCL2	B-cell CLL/lymphoma 2	PPS01748A
A11	Ssc.46672	NM_001164511	BCL2A1	BCL2-related protein A1	PPS03859A
A12	Ssc.94302	NM_214285	BCL2L1	BCL2-like 1	PPS00844A
B01	N/A	XM_001924261	BCL2L10	BCL2-like 10 (apoptosis facilitator)	PPS08339A
B02	N/A	XM_001928880	LOC100154044	BCL2-like 2	PPS08550A
B03	Ssc.19150	NM_001030535	BID	BH3 interacting domain death agonist	PPS01355A
B04	Ssc.3623	XM_003357261	LOC100622859	Baculoviral IAP repeat containing 2	PPS16998A
B05	N/A	XM_003357258	BIRC3	Baculoviral IAP repeat containing 3	PPS07354A
B06	Ssc.432	NM_214141	BIRC5	Baculoviral IAP repeat containing 5	PPS00593A
B07	N/A	XM_003121469	BNIP2	BCL2/adenovirus E1B 19kDa interacting protein 2	PPS13736A
B08	Ssc.7152	XM_001927592	BNIP3L	BCL2/adenovirus E1B 19kDa interacting protein 3-like	PPS02480A
B09	Ssc.34726	XM_003134610	BRAF	V-raf murine sarcoma viral oncogene homolog B1	PPS05412A
B10	Ssc.16012	NM_214162	CASP1	Caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)	PPS00641A
B11	Ssc.43098	NM_001161640	CASP10	Caspase 10, apoptosis-related cysteine peptidase	PPS03226A
B12	N/A	XM_003123430	CASP14	Caspase 14, apoptosis-related cysteine peptidase	PPS12548A
C01	Ssc.9673	XM_005657720	CASP2	Caspase 2, apoptosis-related cysteine peptidase	PPS13577A
C02	Ssc.15886	NM_214131	CASP3	Caspase 3, apoptosis-related cysteine peptidase	PPS00573A
C03	Ssc.13053	XM_003129812	LOC100522887	Caspase 4, apoptosis-related cysteine peptidase	PPS14276A
C04	Ssc.23960	XM_005656547	CASP6	Caspase 6, apoptosis-related cysteine peptidase	PPS12113A
C05	Ssc.30615	NM_001031779	CASP8	Caspase 8, apoptosis-related cysteine peptidase	PPS01360A
C06	N/A	XM_003131145	CBX4	Chromobox homolog 4	PPS04960A
C07	Ssc.26880	NM_214194	CD40	CD40 molecule, TNF receptor superfamily member 5	PPS00707A
C08	Ssc.15861	NM_214126	CD40LG	CD40 ligand	PPS00564A
C09	Ssc.42649	NM_001044531	CD70	CD70 molecule	PPS01444A
C10	Ssc.20656	XM_003126852	CFDP1	Craniofacial development protein 1	PPS02066A
C11	Ssc.20399	NM_001112696	CIDEA	Cell death-inducing DFFA-like effector a	PPS01907A
C12	Ssc.42420	NM_001112688	CIDEB	Cell-death-inducing DNA-fragmentation-factor-like effector B	PPS01898A
D01	Ssc.81554	XM_013980305	CUL2	Cullin 2	PPS05060A
D02	Ssc.50553	NM_001129970	CYCS	Cytochrome c, somatic	PPS04336A
D03	N/A	XM_003482803	LOC100516103	Death-associated protein kinase 1	PPS05623A
D04	Ssc.6364	XM_001928544	DDX20	DEAD (Asp-Glu-Ala-Asp) box polypeptide 20	PPS02522A
D05	Ssc.5098	NM_001190216	DIABLO	Diablo, IAP-binding mitochondrial protein	PPS03501A
D06	Ssc.53733	XM_003122537	DPF2	D4, zinc and double PHD fingers family 2	PPS05268A
D07	Ssc.26683	XM_005664112	ERC1	ELKS/RAB6-interacting/CAST family member 1	PPS05323A
D08	Ssc.101732	XM_013991253	ERN2	Endoplasmic reticulum to nucleus signaling 2	PPS07501A
D09	Ssc.14497	NM_213839	FAS	Fas (TNF receptor superfamily, member 6)	PPS00194A
D10	Ssc.15870	NM_213806	FASLG	Fas ligand (TNF superfamily, member 6)	PPS00135A
D11	N/A	XM_003121751	FEM1B	Fem-1 homolog b (C. elegans)	PPS04271A
D12	Ssc.20913	NM_001044599	GADD45A	Growth arrest and DNA-damage-inducible, alpha	PPS01507A
E01	Ssc.54172	NM_214172	IGF1R	Insulin-like growth factor 1 receptor	PPS00667A
E02	Ssc.148	NM_214041	IL10	Interleukin 10	PPS00445B
E03	Ssc.13765	NM_214360	LALBA	Lactalbumin, alpha-	PPS00947A
E04	N/A	XM_003359104	HRK	Activator of apoptosis harakiri-like	PPS08882A

Position	UniGene	GenBank	Symbol	Description	Assay
E05	Ssc.12026	XM_001928978	LOC100156777	Caspase 7	PPS09128A
E06	Ssc.1509	XM_003128430	TNFRSF21	Tumor necrosis factor receptor superfamily member 21-like	PPS10417A
E07	N/A	XM_013996625	RIPK2	Receptor-interacting serine/threonine-protein kinase 2-like	PPS12694A
E08	N/A	XM_003127618	CASP9	Caspase-9-like	PPS12723A
E09	N/A	NM_001308823	LTBR	Tumor necrosis factor receptor superfamily member 3-like	PPS13240A
E10	N/A	XM_003124468	LOC100522011	Apoptosis-associated speck-like protein containing a CARD-like	PPS13931A
E11	Ssc.22064	XM_003127563	DFFA	DNA fragmentation factor subunit alpha-like	PPS14366A
E12	Ssc.9258	XM_003126938	LOC100523672	Nucleolar protein 3-like	PPS14497A
F01	N/A	XM_003359404	BNIP3	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like	PPS17954A
F02	Ssc.42720	NM_001037147	LOC641352	Caspase-15	PPS07923A
F03	Ssc.27595	NM_214453	LTA	Lymphotoxin alpha (TNF superfamily, member 1)	PPS01084A
F04	Ssc.95917	NM_214361	MCL1	Myeloid cell leukemia sequence 1 (BCL2-related)	PPS00948A
F05	N/A	XM_003122426	MTL5	Metallothionein-like 5, testis-specific (tesmin)	PPS06343A
F06	Ssc.17816	NM_001048232	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1	PPS01542A
F07	Ssc.69921	NM_001114277	NOD1	Nucleotide-binding oligomerization domain containing 1	PPS01964A
F08	Ssc.60877	XM_001928652	PAK7	P21 protein (Cdc42/Rac)-activated kinase 7	PPS02353A
F09	Ssc.102	NM_214024	PPP2R1A	Protein phosphatase 2, regulatory subunit A, alpha	PPS00428A
F10	Ssc.81971	XM_003357285	PPP2R1B	Protein phosphatase 2, regulatory subunit A, beta	PPS00781A
F11	Ssc.15921	NM_001001263	PROP1	PROP paired-like homeobox 1	PPS00607A
F12	Ssc.48571	XM_013989641	RFWD2	Ring finger and WD repeat domain 2	PPS06389A
G01	Ssc.5869	XM_003122517	SART1	Squamous cell carcinoma antigen recognized by T cells	PPS06967A
G02	N/A	XM_005660759	LOC100517325	Signal-induced proliferation-associated 1	PPS05810A
G03	Ssc.44382	XM_003125008	STAMPB	STAM binding protein	PPS05711A
G04	Ssc.100	NM_214022	TNF	Tumor necrosis factor	PPS00426A
G05	Ssc.90180	XM_003481346	TNFRSF11B	Tumor necrosis factor receptor superfamily, member 11b	PPS01738A
G06	Ssc.54327	NM_213969	TNFRSF1A	Tumor necrosis factor receptor superfamily, member 1A	PPS00363A
G07	Ssc.42189	NM_001097441	TNFRSF1B	Tumor necrosis factor receptor superfamily, member 1B	PPS01610A
G08	Ssc.12829	NM_001024696	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10	PPS01066A
G09	Ssc.15917	NM_213824	TP53	Tumor protein p53	PPS00603A
G10	Ssc.9003	XM_003130583	TP53BP2	Tumor protein p53 binding protein, 2	PPS06227A
G11	N/A	XM_005652719	TRAF2	TNF receptor-associated factor 2	PPS05308A
G12	Ssc.43829	NM_001097436	XIAP	X-linked inhibitor of apoptosis	PPS01604A
H01	Ssc.10316	XM_003124280	ACTB	Actin, beta	PPS71698A
H02	Ssc.73773	NM_213978	B2M	Beta-2-microglobulin	PPS00376A
H03	Ssc.16135	NM_001206359	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	PPS00192A
H04	Ssc.4158	NM_001032376	HPRT1	Hypoxanthine phosphoribosyltransferase 1	PPS00668B
H05	Ssc.27927	NM_001244068	RPL13A	Ribosomal protein L13a	PPS01574A
H06	N/A	SA_00133	SGDC	Pig Genomic DNA Contamination	PPS71596A
H07	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H08	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H09	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H10	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H11	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H12	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A

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 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.

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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