

# RT<sup>2</sup> Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

## Zebrafish Necrosis

Cat. no. 330231 PAZF-141ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> 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 <sup>2</sup> Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT <sup>2</sup> Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT <sup>2</sup> Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT <sup>2</sup> Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT <sup>2</sup> Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT <sup>2</sup> Profiler PCR Array, Format H	Fluidigm® BioMark™



## Description

The Zebrafish Necrosis RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes central to necrotic cell death. Historically considered an accidental or uncontrolled cell death via swelling and lysis, necrosis (also known as necroptosis, programmed necrosis, oncosis, or type III cell death) has been found by recent scientific studies to act like a specific controlled cellular program. Activated death receptors (FAS, TNFRSF1A (TNFR1), and TNFRSF10A (TRAIL-R)) signal through the serine/threonine kinase RIPK1 (RIP1). RIPK1 interacts with RIPK3 and activates PARP1 leading to mitochondrial effects such as increased reactive oxygen species (ROS), increased cytosolic calcium, and ATP depletion. This array includes genes involved in programmed necrosis, potential necrotic genes downstream of key necrotic activators, genes involved in death receptor signaling, and genes involved in ROS production or mitochondrial activity. The same death receptors initiate both necrotic signaling and apoptosis; therefore, this array also represents downstream effectors shared by these cell death programs. Results obtained using this array can yield new insights into the molecular mechanisms of necrotic cell death. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in programmed necrosis 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 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. RT<sup>2</sup> Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

For long term storage, keep plates at  $-20^{\circ}\text{C}$ .

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.

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## Array layout (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT<sup>2</sup> Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
<b>A</b>	aifm1	ar	baxa	baxb	bida	birc2	bmf1	bmf2	bnip3lb	capn1a	capn1b	capn2l
<b>B</b>	capn3a	capn5a	capn5b	capn7	capns1a	capns1b	casp8ap2	ccdc103	cd40	commd4	cyba	cybb
<b>C</b>	cylda	defbl1	dennd4a	dpysl4	edar	EIF5B	fadd	faf1	fas	faslg	fem1b	foxi1
<b>D</b>	fus	glud1a	glud1b	glula	grb2a	grb2b	hspbap1	ikbkg	jph3	kcnip1a	kcnip1b	madd
<b>E</b>	mag	mgea5	myd88	nfkbl	ngfa	ngfb	nox1	parp1	parp2	phtf2	pidd1	ppiaa
<b>F</b>	ppid	pygl	rab25a	ripk1	ripk2	ripk3	slc25a4	sp1	spata2	sycp2	tmem123	tmem57a
<b>G</b>	tnfa	tnfb	tnfrsf17	tnfrsf18	tnfrsf19	tnfrsf1a	tnfrsf1b	tnfrsf21	tnfrsf10	tradd	traf2a	tnn4b
<b>H</b>	acta1b	b2m	hprt1	nono	rpl13a	ZGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description
A01	Dr.7667	NM_200102	aifm1	Programmed cell death 8 (apoptosis-inducing factor)
A02	Dr.75914	NM_001083123	ar	Androgen receptor
A03	Dr.78968	NM_131562	baxa	Bcl2-associated X protein, a
A04	Dr.14459	NM_001013296	baxb	Bcl2-associated X protein, b
A05	Dr.151151	NM_001079826	bida	BH3 interacting domain death agonist
A06	Dr.77093	NM_194395	birc2	Baculoviral IAP repeat-containing 2
A07	Dr.84275	NM_001045224	bmf1	Bcl2 modifying factor 1
A08	Dr.89089	NM_001045473	bmf2	Bcl2 modifying factor 2
A09	Dr.78270	NM_205571	bnip3lb	BCL2/adenovirus E1B interacting protein 3-like b
A10	Dr.105407	NM_200445	capn1a	Calpain 1, (mu/I) large subunit a
A11	Dr.120194	NM_001144795	capn1b	Novel protein similar to vertebrate calpain 1 (CAPN1)
A12	Dr.1945	NM_001017807	capn2l	Calpain 2, (m/II) large subunit, like
B01	Dr.36430	NM_001004571	capn3a	Calpain 3, (p94)
B02	Dr.149115	NM_001080007	capn5a	Calpain 5a
B03	N/A	XM_001345078	capn5b	Calpain 5b
B04	Dr.118647	NM_001135108	capn7	Calpain-7
B05	Dr.77412	NM_001017899	capns1a	Calpain, small subunit 1 a
B06	Dr.45282	NM_001109706	capns1b	Calpain, small subunit 1 b
B07	Dr.18102	NM_001014334	casp8ap2	CASP8 associated protein 2
B08	Dr.114404	NM_001002753	ccdc103	Zgc:100838
B09	Dr.92473	NM_001145246	cd40	CD40 antigen
B10	Dr.78119	NM_001076738	commd4	COMM domain containing 4
B11	Dr.83382	NM_200579	cyba	Cytochrome b-245, alpha polypeptide
B12	Dr.81013	NM_200414	cybb	Cytochrome b-245, beta polypeptide (chronic granulomatous disease)
C01	Dr.53546	XM_005169019	cylda	Cylindromatosis (turban tumor syndrome), a
C02	Dr.113373	NM_001081553	defbl1	Defensin, beta-like 1
C03	Dr.87366	NM_001080989	dennd4a	DENN/MADD domain containing 4A
C04	Dr.45429	NM_001020516	dpysl4	Dihydropyrimidinase-like 4
C05	Dr.139207	NM_001115064	edar	Ectodysplasin A receptor
C06	Dr.75312	XM_001923538	EIF5B	Si:ch211-254d18.3
C07	Dr.94478	XM_001923858	fadd	Fas (tnfrsf6)-associated via death domain
C08	Dr.75605	NM_212973	faf1	Fas associated factor 1
C09	Dr.150815	XM_685355	fas	Fas (TNF receptor superfamily, member 6)
C10	Dr.72304	NM_001042701	faslg	Fas ligand (TNF superfamily, member 6)
C11	Dr.72046	XM_690410	fem1b	Fem-1 homolog b (C. elegans)
C12	Dr.20969	NM_181735	foxi1	Forkhead box I1
D01	Dr.114403	NM_201083	fus	Fusion (involved in t(12;16) in malignant liposarcoma)
D02	Dr.78891	NM_212576	glud1a	Glutamate dehydrogenase 1a
D03	Dr.143718	NM_199545	glud1b	Glutamate dehydrogenase 1b
D04	Dr.76758	NM_181559	glula	Glutamate-ammonia ligase (glutamine synthase) a
D05	Dr.84956	NM_001007769	grb2a	Zgc:103549
D06	Dr.114331	NM_213035	grb2b	Growth factor receptor-bound protein 2
D07	Dr.89049	NM_001003777	hspbap1	Hspb associated protein 1
D08	Dr.69759	NM_001014344	ikbkg	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase gamma
D09	Dr.105883	NM_001122702	jph3	Novel protein similar to mouse and human junctophilin (JPH3)

Position	UniGene	GenBank	Symbol	Description
D10	Dr.103316	XM_001346344	kcnip1a	Kv channel interacting protein 1 a
D11	Dr.90613	NM_001008632	kcnip1b	Kv channel interacting protein 1 b
D12	Dr.81101	XM_009303265	madd	MAP-kinase activating death domain
E01	Dr.108604	NM_001007062	mag	Myelin associated glycoprotein
E02	Dr.155648	XM_002664139	mgea5	Meningioma expressed antigen 5 (hyaluronidase)
E03	Dr.134592	NM_212814	myd88	Myeloid differentiation primary response gene (88)
E04	Dr.47468	XM_003199975	nfkb1	NF-kB1 precursor protein
E05	Dr.133608	NM_131064	ngfa	Neurotrophin 7
E06	Dr.160139	NM_199210	ngfb	Nerve growth factor (beta polypeptide)
E07	Dr.91905	NM_001102387	nox1	NADPH oxidase 1
E08	Dr.36319	NM_001044942	parp1	Poly (ADP-ribose) polymerase family, member 1
E09	Dr.67944	NM_001204270	parp2	Poly (ADP-ribose) polymerase family, member 2
E10	Dr.89943	NM_001002305	phf2	Zgc:92022
E11	Dr.120708	XM_694585	pidd1	Si:dkey-201c1.1
E12	Dr.104642	NM_212758	ppiaa	Peptidylprolyl isomerase A (cyclophilin A)
F01	Dr.76794	NM_001002065	ppid	Peptidylprolyl isomerase D (cyclophilin D)
F02	Dr.37123	NM_001008538	pygl	Phosphorylase, glycogen; liver (Hers disease, glycogen storage disease type VI)
F03	Dr.81751	NM_001008641	rab25a	RAB25, member RAS oncogene family
F04	Dr.103967	NM_001043350	ripk1l	Receptor (TNFRSF)-interacting serine-threonine kinase 1, like
F05	Dr.150902	NM_194411	ripk2	Receptor-interacting serine-threonine kinase 2
F06	Dr.80932	XM_001343791	ripk3	Receptor-interacting serine-threonine kinase 3 like
F07	Dr.75854	NM_214702	slc25a4	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4
F08	Dr.78488	NM_212662	sp1	Sp1 transcription factor
F09	Dr.29691	NM_001080191	spata2	Spermatogenesis associated 2
F10	Dr.161289	XM_009296685	sycp2	Synaptonemal complex protein 2
F11	N/A	XM_001923084	tmem123	Hypothetical LOC561344
F12	Dr.79083	NM_200319	tmem57a	Transmembrane protein 57a
G01	Dr.89727	NM_212859	tnfa	Tumor necrosis factor a (TNF superfamily, member 2)
G02	Dr.94015	NM_001024447	tnfb	Tumor necrosis factor b (TNF superfamily, member 2)
G03	N/A	XM_009306702	tnfrsf17	Tumor necrosis factor receptor superfamily, member 17
G04	Dr.90157	NM_001113524	tnfrsf18	Tumor necrosis factor receptor superfamily, member 18
G05	Dr.67639	NM_001044904	tnfrsf19	Tumor necrosis factor receptor superfamily, member 19
G06	Dr.27758	NM_213190	tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G07	Dr.90354	NM_001089510	tnfrsf1b	Zgc:163064
G08	Dr.108925	NM_001042688	tnfrsf21	Tumor necrosis factor receptor superfamily, member 21
G09	Dr.86839	NM_001002593	tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10 like 2
G10	Dr.105498	NM_131607	tradd	Tnfrsf1a-associated via death domain
G11	Dr.92260	XM_005171946	traf2a	Tnf receptor-associated factor 2a
G12	Dr.14498	NM_001037123	txn14b	Zgc:123253
H01	Dr.47173	NM_214784	acta1b	Actin, alpha 1b, skeletal muscle
H02	Dr.51646	NM_001159768	b2m	Beta-2-microglobulin
H03	Dr.77915	NM_212986	hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Dr.150274	NM_201579	nono	Non-POU domain containing, octamer-binding
H05	Dr.32450	NM_212784	rpl13a	Ribosomal protein L13a
H06	N/A zebrafish	SA_00143	ZGDC	Zebrafish 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 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 <sup>2</sup> 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 <sup>2</sup> 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.

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.

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