

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

Zebrafish Toll-Like Receptor Signaling

Cat. no. 330231 PAZF-018ZA

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™



Description

The Zebrafish Toll-Like Receptor (TLR) Signaling Pathway RT² Profiler PCR Array profiles the expression of 84 genes central to TLR-mediated signal transduction and innate immunity. The TLR family of pattern recognition receptors (PRRs) detects a wide range of bacteria, viruses, fungi and parasites via pathogen-associated molecular patterns (PAMPs). Each receptor binds to specific ligands, initiates a tailored innate immune response to the specific class of pathogen, and activates the adaptive immune response. For example, TLR4 recognizes bacterial lipopolysaccharide (LPS) or endotoxin, the compound which causes septic shock during blood-borne infection. The receptors act alone or as heterodimers, interacting with adaptor proteins to initiate MyD88 or TICAM1 (TRIF)-dependent responses. These responses initiate signaling cascades primarily through NFκB, which activates downstream JNK/p38 signaling or cytokine secretion. Dysregulation of these signaling pathways has severe consequences, and causes many autoimmune diseases and chronic pathological inflammation. This array includes members of the TLR signaling family as well as adaptor and effector proteins. Members of the NFκB, JNK/p38, IRF and JAK/STAT signaling pathways downstream of TLR activation are also included. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to TLR-mediated signal transduction 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 cyclers (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	ltk	casp8	ccl39.6	cd180	cd40	cd80/86	chuk	csf3a	cxcl11.1	cxcl8a	ecsit	elf2ak2
B	elk1	fadd	fosab	hmgb1a	hrasb	hsp70.3	hspd1	ifng1	ifnphi1	ifnphi3	ikkbk	il10
C	il10ra	il12a	il12ba	il1b	il6	irak1	irak4	irf1a	irf3	irf7	jun	lta
D	ly86	map2k4a	map2k6	map3k1	map3k7	map4k4	mapk8a	mapk8ip3	myd88	nfbk1	nfbk2	nfbkbaa
E	nfbkbl	nfrkb	nr2c2	pel1a	pparaa	prkra	ptgs2a	rel	rela	ripk1l	ripk2	sarm1
F	sigirr	tab1	tab2	tbk1	tirap	tlr1	tlr2	tlr3	tlr4al	tlr4ba	tlr4bb	tlr5a
G	tlr5b	tlr7	tlr8a	tlr8b	tlr9	tnfa	tnfb	tnfrsf1a	tollip	traf3	traf6	ube2na
H	acta1b	b2m	hprt1	nono	rpl13a	ZGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Dr.83181	XM_691995	ltk	Bruton agammaglobulinemia tyrosine kinase
A02	Dr.10334	NM_131510	casp8	Caspase 8, apoptosis-related cysteine peptidase
A03	N/A	XM_001338104	ccl39.6	C-C motif chemokine 2-like
A04	N/A	XM_009301826	cd180	CD180 molecule
A05	Dr.92473	NM_001145246	cd40	CD40 antigen
A06	N/A	NM_001308063	cd80/86	Cluster of Differentiation 80/86
A07	Dr.14012	NM_200317	chuk	Conserved helix-loop-helix ubiquitous kinase
A08	Dr.155031	NM_001145242	csf3a	Colony stimulating factor 3 (granulocyte) a
A09	Dr.115041	XM_001339271	cxcl11.1	Chemokine (C-X-C motif) ligand 11 like
A10	Dr.112992	XM_001342570	cxcl8a	Interleukin 8
A11	Dr.105286	NM_001242938	ecsit	ECST homolog (Drosophila)
A12	Dr.143197	NM_001114470	elf2ak2	Eukaryotic translation initiation factor 2-alpha kinase 2
B01	Dr.85916	XM_691202	elk1	ELK1, member of ETS oncogene family
B02	Dr.94478	XM_001923858	fadd	Fas (tnfrsf6)-associated via death domain
B03	Dr.12986	NM_205569	fosab	V-fos FBJ murine osteosarcoma viral oncogene homolog
B04	Dr.158952	NM_199555	hmgb1a	High-mobility group box 1a
B05	Dr.8916	NM_001020629	hrasb	-Ha-ras Harvey rat sarcoma viral oncogene homolog b
B06	Dr.114305	NM_131397	hsp70.3	Heat shock cognate 70-kD protein, tandem duplicate 3
B07	Dr.75320	NM_181330	hspd1	Heat shock 60kD protein 1 (chaperonin)
B08	Dr.90633	NM_212864	ifng1	Interferon, gamma 1-2
B09	Dr.85981	NM_207640	ifnphi1	Interferon phi 1
B10	Dr.143188	NM_001111083	ifnphi3	Interferon phi 3
B11	Dr.101105	NM_001123265	ikkbk	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
B12	Dr.135567	NM_001020785	il10	Interleukin 10

Position	UniGene	GenBank	Symbol	Description
C01	Dr.91624	NM_001077625	il10ra	Cytokine receptor family member b7
C02	Dr.162019	NM_001007107	il12a	Interleukin 12a
C03	Dr.135198	NM_001007108	il12ba	Interleukin 12Ba (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40)
C04	Dr.30443	NM_212844	il1b	Interleukin 1, beta
C05	Dr.162566	NM_001261449	il6	Interleukin 6 (interferon, beta 2)
C06	Dr.79642	XM_005166703	irak1	Interleukin-1 receptor-associated kinase 1
C07	Dr.81680	NM_200163	irak4	Interleukin-1 receptor-associated kinase 4
C08	Dr.81011	NM_001040352	irf1a	Interferon regulatory factor 1
C09	Dr.117120	NM_001143904	irf3	Interferon regulatory factor 3
C10	Dr.82280	NM_200677	irf7	Interferon regulatory factor 7
C11	Dr.1064	NM_199987	jun	Jun proto-oncogene
C12	Dr.94014	NM_001024821	lta	Lymphotoxin alpha (TNF superfamily, member 1)
D01	N/A	NM_001310488	ly86	Lymphocyte antigen 86
D02	Dr.82506	NM_205736	map2k4a	Mitogen-activated protein kinase kinase 4a
D03	Dr.150491	NM_131724	map2k6	Mitogen-activated protein kinase kinase 6
D04	Dr.135319	XM_005155507	map3k1	Mitogen-activated protein kinase kinase kinase 1, E3 ubiquitin protein ligase
D05	Dr.80386	NM_001020750	map3k7	Mitogen activated protein kinase kinase kinase 7
D06	Dr.60004	XM_009298281	map4k4	Mitogen-activated protein kinase kinase kinase kinase 4
D07	Dr.149022	NM_001110389	mapk8a	Mitogen-activated protein kinase 8a
D08	N/A	NM_001302244	mapk8ip3	Mitogen-activated protein kinase 8 interacting protein 3
D09	Dr.134592	NM_212814	myd88	Myeloid differentiation primary response gene (88)
D10	Dr.47468	XM_003199975	nfkb1	NF-kB1 precursor protein
D11	Dr.117553	NM_001001840	nfkb2	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100
D12	Dr.79912	NM_213184	nfkb1aa	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha a
E01	N/A	XM_005155451	nfkb1l1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor-like 1
E02	Dr.26668	NM_001243035	nfrkb	Wu:fi86h10
E03	Dr.160181	NM_001123294	nr2c2	Nuclear receptor subfamily 2, group C, member 2
E04	N/A	XM_005160186	pel1a	Pellino homolog 1a (Drosophila)
E05	Dr.88405	NM_001161333	pparaa	Peroxisome proliferator-activated receptor alpha a
E06	Dr.86625	NM_001089361	prkra	Zgc:162619
E07	Dr.113864	NM_153657	ptgs2a	Prostaglandin-endoperoxide synthase 2a
E08	Dr.86023	NM_001001841	rel	V-rel reticuloendotheliosis viral oncogene homolog
E09	Dr.84126	NM_001001839	rela	V-rel reticuloendotheliosis viral oncogene homolog A
E10	Dr.103967	NM_001043350	ripk1l	Receptor (TNFRSF)-interacting serine-threonine kinase 1, like
E11	Dr.150902	NM_194411	ripk2	Receptor-interacting serine-threonine kinase 2
E12	Dr.84799	NM_001130596	sarm1	Sterile alpha and TIR motif containing 1
F01	Dr.85895	NM_001098250	sigirr	Single immunoglobulin and toll-interleukin 1 receptor (TIR) domain
F02	Dr.140963	XM_002662240	tab1	TGF-beta activated kinase 1/MAP3K7 binding protein 1
F03	Dr.82175	NM_001009900	tab2	TGF-beta activated kinase 1/MAP3K7 binding protein 2

Position	UniGene	GenBank	Symbol	Description
F04	Dr.82024	NM_001044748	tbk1	TANK-binding kinase 1
F05	Dr.87438	XM_002667112	tirap	Toll-interleukin 1 receptor (TIR) domain containing adaptor protein
F06	Dr.89709	NM_001130593	tlr1	Toll-like receptor 1
F07	Dr.30180	NM_212812	tlr2	Toll-like receptor 2
F08	Dr.82491	NM_001013269	tlr3	Toll-like receptor 3
F09	N/A	XM_001919664	tlr4a1	Similar to Toll-like receptor 4b
F10	Dr.89708	NM_001131051	tlr4ba	Toll-like receptor 4b, duplicate a
F11	Dr.89442	NM_212813	tlr4bb	Toll-like receptor 4b, duplicate b
F12	Dr.89423	XM_001919017	tlr5a	Toll-like receptor 5a
G01	Dr.89707	NM_001130595	tlr5b	Toll-like receptor 5b
G02	Dr.156645	XM_003199261	tlr7	Toll-like receptor 7-like
G03	Dr.89705	XM_001920559	tlr8a	Toll-like receptor 8a
G04	Dr.89704	XM_017358120	tlr8b	Toll-like receptor 8b
G05	Dr.89703	NM_001130594	tlr9	Toll-like receptor 9
G06	Dr.89727	NM_212859	tnfa	Tumor necrosis factor a (TNF superfamily, member 2)
G07	Dr.94015	NM_001024447	tnfb	Tumor necrosis factor b (TNF superfamily, member 2)
G08	Dr.27758	NM_213190	tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G09	Dr.79855	NM_207061	tollip	Toll interacting protein
G10	Dr.81587	NM_001003513	traf3	TNF receptor-associated factor 3
G11	Dr.74618	NM_001044752	traf6	TNF receptor-associated factor 6
G12	Dr.16839	NM_213486	ube2na	Ubiquitin-conjugating enzyme E2Na
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, 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.

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