

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

Zebrafish Dopamine & Serotonin

Cat. no. 330231 PAZF-158ZA

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 Dopamine & Serotonin Pathway RT² Profiler PCR array profiles the expression of 84 genes associated with the dopamine and serotonin systems. Dopamine and serotonin are 2 of the major neurotransmitter systems in the mammalian nervous system. Dopamine affects brain processes that control both motor and emotional behavior and plays a role in the brain's reward mechanism. Serotonin is critical in temperature regulation, sensory perception, locomotion, sleep, and psychosis. Pharmacological agents targeting dopaminergic/serotonergic neurotransmission have been clinically used to manage several neurological and psychiatric disorders including Parkinson's disease, schizophrenia, bipolar disorder, depression, attention deficit and hyperactivity disorder (ADHD), and addiction. Besides significant progress in understanding their structural, genetic and pharmacological properties, recent studies have uncovered the complexity, intricacy, and plasticity of intracellular signaling mechanisms involved in dopamine and serotonin receptor function. These receptors act through diverse G-protein coupled and G-protein independent mechanisms that trigger downstream intracellular signal transduction events involving the cAMP/PKA, PI-3Kinase/AKT, phospholipase A2 (PLA2), and phospholipase C (PLC) pathways. These pathways in turn regulate various functions including synthesis, transport and degradation of dopamine and serotonin as well as the transcriptional regulation key genes linked to multiple neuropathological conditions. Using real time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes associated with and regulated by the dopamine and serotonin systems 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	adcy1a	adcy2b	adcy3	adcy5	adrb1	adrb2a	adrbk2	akt1	akt2	akt3a	alox12	appa
B	arrb1	arrb2b	bdnf	cacna1aa	camk2a	casp3a	cdk5	comta	creb1a	dbh	ddc	drd1
C	drd2l	drd3	drd4-rs	drd5	dup1	ephb1	fosab	gdnfa	gfap	grk4	grk5	grk6
D	gsk3ab	gsk3b	htr1aa	htr1b	htr1d	htr1e	htr1fa	htr2a	htr2b	htr2cl1	htr3a	htr3b
E	htr4	htr5a	htr6	htr7	itpr1b	mao	mapk1	moxd1	nr4a1	nr4a3	pde10a	pde4a
F	pde4ba	pde4ca	pde4d	pdyn	pik3ca	pik3cg	plcb1	plcb2	plcb3	ppp1r1b	prkacaa	prkca
G	ptgs2a	si:dkey-100n10.2	slc18a1	slc18a2	slc6a3	slc6a4a	snaip	syn2a	tdo2a	th	tph1a	tph2
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.158887	NM_001168349	adcy1a	Adenylate cyclase 1a
A02	Dr.89917	NM_001099987	adcy2b	Adenylate cyclase 2b (brain)
A03	Dr.140641	NM_001162542	adcy3	Adenylate cyclase 3-like
A04	Dr.151784	NM_001171585	adcy5	Adenylate cyclase 5
A05	Dr.81721	NM_001128689	adrb1	Adrenergic receptor, beta 1
A06	Dr.88172	NM_001102652	adrb2a	Adrenergic receptor, beta 2a
A07	Dr.92943	NM_001134725	adrbk2	Adrenergic, beta, receptor kinase 2
A08	N/A	NM_001281801	akt1	V-akt murine thymoma viral oncogene homolog 1
A09	Dr.151154	NM_198146	akt2	V-akt murine thymoma viral oncogene homolog 2
A10	Dr.160105	NM_001197201	akt3a	V-akt murine thymoma viral oncogene homolog 3a
A11	Dr.75534	NM_199618	alox12	Arachidonate 12-lipoxygenase
A12	Dr.105653	NM_131564	appa	Amyloid beta (A4) precursor protein a
B01	Dr.91022	NM_001159822	arrb1	Arrestin, beta 1
B02	Dr.132395	NM_201124	arrb2b	Arrestin, beta 2b
B03	Dr.132862	NM_131595	bdnf	Brain-derived neurotrophic factor
B04	Dr.107121	XM_005164090	cacna1aa	Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit, a
B05	Dr.80592	NM_001017741	camk2a	Calcium/calmodulin-dependent protein kinase (CaM kinase) II alpha
B06	Dr.11726	NM_131877	casp3a	Caspase 3, apoptosis-related cysteine protease a
B07	Dr.105878	NM_131719	cdk5	Cyclin-dependent protein kinase 5
B08	Dr.160479	NM_001030157	comta	Catechol-O-methyltransferase a
B09	Dr.144106	NM_200909	creb1a	CAMP responsive element binding protein 1
B10	Dr.21021	NM_001109694	dbh	Dopamine beta hydroxylase
B11	Dr.75993	NM_213342	ddc	Dopa decarboxylase
B12	N/A	XM_005173154	drd1	D(1) dopamine receptor-like

Position	UniGene	GenBank	Symbol	Description
C01	Dr.89472	NM_197935	drd2l	Dopamine receptor D2 like
C02	Dr.151864	NM_183067	drd3	Dopamine receptor D3
C03	Dr.92680	NM_001012620	drd4-rs	Dopamine receptor D4 related sequence
C04	N/A	XM_003199767	drd5	D(1B) dopamine receptor-like
C05	Dr.2413	NM_213067	dusp1	Dual specificity phosphatase 1
C06	N/A	XM_009298827	ephb1	EPH receptor B1
C07	Dr.12986	NM_205569	fosab	V-fos FBJ murine osteosarcoma viral oncogene homolog
C08	Dr.11721	NM_131732	gdnfa	Glial cell derived neurotrophic factor
C09	Dr.32667	NM_131373	gfap	Glial fibrillary acidic protein
C10	Dr.134726	XM_002660383	grk4	G protein-coupled receptor kinase 4
C11	Dr.18531	NM_001173503	grk5	G protein-coupled receptor kinase 5
C12	Dr.110697	XM_684691	grk6	G protein-coupled receptor kinase 6
D01	Dr.75529	NM_131390	gsk3ab	Glycogen synthase kinase 3 alpha
D02	Dr.107139	NM_131381	gsk3b	Glycogen synthase kinase 3 beta
D03	Dr.92449	NM_001123321	htr1aa	5-hydroxytryptamine (serotonin) receptor 1A a
D04	Dr.161682	NM_001128709	htr1b	Similar to 5-hydroxytryptamine receptor 1B (5-HT-1B) (Serotonin receptor 1B) (5-HT1B) (5-HT-1D-beta) (Serotonin 1D beta receptor) (S12)
D05	Dr.155143	NM_001145686	htr1d	5-hydroxytryptamine (serotonin) receptor 1bd
D06	N/A	XM_002665643	htr1e	5-hydroxytryptamine receptor 1E-like
D07	N/A	XM_001344394	htr1fa	5-hydroxytryptamine (serotonin) receptor 1F-like
D08	N/A	XM_684208	htr2a	Similar to serotonin 5-HT2 receptor
D09	Dr.74153	NM_001044743	htr2b	Zgc:194119
D10	Dr.134134	NM_001129893	htr2cl1	Si:dkey-24g18.2
D11	N/A	XM_009295409	htr3a	5-hydroxytryptamine (serotonin) receptor 3A
D12	N/A	XM_009295449	htr3b	5-hydroxytryptamine receptor 3A-like
E01	N/A	XM_009291062	htr4	5-hydroxytryptamine receptor 4
E02	Dr.42552	NM_001126410	htr5a	5-hydroxytryptamine (serotonin) receptor 5A
E03	N/A	XM_009297078	htr6	5-hydroxytryptamine receptor 6-like
E04	N/A	XM_685507	htr7	5-hydroxytryptamine receptor 7-like
E05	Dr.47889	XM_021479879	itpr1b	Inositol 1,4,5-trisphosphate receptor, type 1b
E06	Dr.77508	NM_212827	mao	Monoamine oxidase
E07	Dr.10452	NM_182888	mapk1	Mitogen-activated protein kinase 1
E08	Dr.155385	NM_001045206	moxd1	Monooxygenase, DBH-like 1
E09	Dr.9243	NM_001002173	nr4a1	Nuclear receptor subfamily 4, group A, member 1
E10	Dr.76117	NM_001172629	nr4a3	Nuclear receptor subfamily 4, group A, member 3
E11	Dr.117457	NM_201102	pde10a	Phosphodiesterase 10A
E12	N/A	XM_005164238	pde4a	Phosphodiesterase 4A, cAMP-specific
F01	Dr.79148	XM_005165881	pde4ba	Phosphodiesterase 4B, cAMP-specific
F02	Dr.45552	XM_005163374	pde4ca	Phosphodiesterase 4C, cAMP-specific (phosphodiesterase E1 dunce homolog, Drosophila)
F03	N/A	XM_009303868	pde4d	Novel protein similar to vertebrate phosphodiesterase 4D, cAMP-specific (phosphodiesterase E3 dunce homolog, Drosophila) (PDE4D)

Position	UniGene	GenBank	Symbol	Description
F04	Dr.161890	NM_001001831	pdyn	Prodynorphin
F05	Dr.95538	XM_005155854	pik3ca	Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit alpha isoform-like
F06	Dr.23613	NM_213306	pik3cg	Phosphatidylinositol-4,5-bisphosphate 3-kinase, catalytic subunit gamma
F07	N/A	XM_005173576	plcb1	Phospholipase C beta 1
F08	N/A	XM_003200291	plcb2	Phospholipase C, beta 2
F09	Dr.91096	NM_001122773	plcb3	Phospholipase C, beta 3 (phosphatidylinositol-specific)
F10	Dr.91852	NM_001281923	ppp1r1b	Protein phosphatase 1, regulatory (inhibitor) subunit 1B
F11	Dr.44411	NM_001082840	prkaca	Protein kinase, cAMP-dependent, catalytic, alpha, genome duplicate a
F12	Dr.33991	NM_001256241	prkca	Protein kinase C, alpha
G01	Dr.113864	NM_153657	ptgs2a	Prostaglandin-endoperoxide synthase 2a
G02	N/A	XM_001340292	si:dkey-100n10.2	Si:dkey-100n10.2
G03	N/A	XM_009304250	slc18a1	Chromaffin granule amine transporter-like
G04	Dr.110027	NM_001256225	slc18a2	Solute carrier family 18 (vesicular monoamine), member 2
G05	Dr.83333	NM_131755	slc6a3	Solute carrier family 6 (neurotransmitter transporter, dopamine), member 3
G06	Dr.39284	NM_001039972	slc6a4a	Solute carrier family 6 (neurotransmitter transporter, serotonin), member 4A
G07	Dr.116564	NM_001113636	sncaip	Zgc:172291
G08	Dr.120313	NM_001002597	syn2a	Synapsin IIa
G09	Dr.105118	NM_001102616	tdo2a	Tryptophan 2,3-dioxygenase a
G10	Dr.88609	NM_131149	th	Tyrosine hydroxylase
G11	Dr.19931	NM_178306	tph1a	Tryptophan hydroxylase 1 (tryptophan 5-monooxygenase) a
G12	Dr.84644	NM_214795	tph2	Tryptophan hydroxylase 2 (tryptophan 5-monooxygenase)
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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