

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

## Chinese Hamster Ovary (CHO) Cell Dopamine & Serotonin

Cat. no. 330231 PAJJ-158ZR

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 Chinese Hamster Ovary (CHO) Cell Dopamine & Serotonin Pathway RT<sup>2</sup> 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 *RT<sup>2</sup> Profiler PCR Array Handbook*.



## 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.

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

Position	UniGene	GenBank	Symbol	Description
1	N/A	XM_003504387	Adcy1	Adenylate cyclase 1
2	N/A	XM_003505781	Adcy2	Adenylate cyclase 2 (brain)
3	N/A	XM_007619784	Adcy3	Adenylate cyclase 3
4	N/A	XM_003495440	Adcy5	Adenylate cyclase 5
5	N/A	XM_007610304	Adrb2	Adrenoceptor beta 2, surface
6	N/A	XM_003509943	Adrbk1	Adrenergic receptor kinase, beta 1
7	N/A	XM_003498742	Akt1	V-akt murine thymoma viral oncogene homolog 1
8	N/A	XM_007618035	Akt2	Thymoma viral proto-oncogene 2
9	N/A	XM_003508130	Akt3	V-akt murine thymoma viral oncogene homolog 3
10	N/A	XM_007609325	Alox12	Arachidonate 12-lipoxygenase
11	N/A	XM_007645315	App	Amyloid beta (A4) precursor protein
12	N/A	XM_003514566	Arrb1	Arrestin, beta 1
13	N/A	XM_007609368	Arrb2	Arrestin, beta 2
14	N/A	XM_003512746	Bdnf	Brain-derived neurotrophic factor
15	N/A	XM_007624316	Cacna1a	Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit
16	N/A	NM_001244046	Casp3	Caspase 3
17	N/A	XM_003501299	Cdk5	Cyclin-dependent kinase 5
18	N/A	XM_007618112	Comt	Catechol-O-methyltransferase
19	N/A	XM_003506920	Creb1	CAMP responsive element binding protein 1
20	N/A	XM_007620431	Dbh	Dopamine beta-hydroxylase (dopamine beta-monooxygenase)
21	N/A	XM_007636594	Ddc	Dopa decarboxylase (aromatic L-amino acid decarboxylase)
22	N/A	XM_003498119	Drd1	Dopamine receptor D1
23	N/A	XM_003498542	Drd2	Dopamine receptor D2
24	N/A	XM_003497865	Drd3	Dopamine receptor D3
25	N/A	XM_003509758	Drd4	Dopamine receptor D4
26	N/A	XM_003496643	Drd5	Dopamine receptor D5
27	N/A	XM_003500819	Dusp1	Dual specificity phosphatase 1
28	N/A	XM_003501942	Ephb1	Eph receptor B1
29	N/A	NM_001246683	Fos	FBJ osteosarcoma oncogene
30	N/A	XM_007644530	Gdnf	Glial cell derived neurotrophic factor
31	N/A	XM_003504510	Gfap	Glial fibrillary acidic protein
32	N/A	XM_003508838	Grk4	G protein-coupled receptor kinase 4
33	N/A	XM_007620482	Grk5	G protein-coupled receptor kinase 5
34	N/A	XM_007623236	Grk6	G protein-coupled receptor kinase 6
35	N/A	XM_007616698	Gsk3a	Glycogen synthase kinase 3 alpha
36	N/A	XM_007622006	Gsk3b	Glycogen synthase kinase 3 beta
37	N/A	XM_003509072	Htr1a	5-hydroxytryptamine (serotonin) receptor 1A, G protein-coupled
38	N/A	NM_001246754	Htr1b	5-hydroxytryptamine (serotonin) receptor 1B, G protein-coupled

Position	UniGene	GenBank	Symbol	Description
39	N/A	XM_003503640	Htr1d	5-hydroxytryptamine (serotonin) receptor 1D, G protein-coupled
40	N/A	XM_003497264	Htr1f	5-hydroxytryptamine (serotonin) receptor 1F, G protein-coupled
41	N/A	NM_001246728	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
42	N/A	XM_007626075	Htr2b	5-hydroxytryptamine (serotonin) receptor 2B, G protein-coupled
43	N/A	XM_003508810	Htr2c	5-hydroxytryptamine (serotonin) receptor 2C, G protein-coupled
44	N/A	XM_003514936	Htr3a	5-hydroxytryptamine (serotonin) receptor 3A
45	N/A	XM_003514938	Htr3b	5-hydroxytryptamine (serotonin) receptor 3B, ionotropic
46	N/A	XM_003499454	Htr4	5-hydroxytryptamine (serotonin) receptor 4, G protein-coupled
47	N/A	XM_003500040	Htr5a	5-hydroxytryptamine (serotonin) receptor 5A
48	N/A	XM_003506892	Htr6	5-hydroxytryptamine (serotonin) receptor 6
49	N/A	XM_003498959	Htr7	5-hydroxytryptamine (serotonin) receptor 7, adenylate cyclase-coupled
50	N/A	XM_007609839	Itpr1	Inositol 1,4,5-trisphosphate receptor 1
51	N/A	XM_003510299	Maoa	Monoamine oxidase A
52	N/A	XM_007628696	Maob	Monoamine oxidase B
53	N/A	XM_007624835	Mapk1	Mitogen-activated protein kinase 1
54	N/A	XM_007616291	Nr4a1	Nuclear receptor subfamily 4, group A, member 1
55	N/A	XM_007619499	Nr4a3	Nuclear receptor subfamily 4, group A, member 3
56	N/A	XM_007623738	Pde10a	Phosphodiesterase 10A
57	N/A	XM_003499735	Pde4a	Phosphodiesterase 4A, cAMP-specific
58	N/A	XM_007631494	Pde4b	Phosphodiesterase 4B, cAMP-specific
59	N/A	XM_007612919	Pde4c	Phosphodiesterase 4C, cAMP-specific
60	N/A	XM_007609664	Pde4d	Phosphodiesterase 4D, cAMP-specific
61	N/A	XM_003509065	Pdyn	Prodynorphin
62	N/A	XM_003509075	Pik3ca	Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide
63	N/A	XM_007627546	Pik3cg	Phosphoinositide-3-kinase, catalytic, gamma polypeptide
64	N/A	XM_003506897	Pla2g5	Phospholipase A2, group V
65	N/A	XM_007628568	Plcb1	Phospholipase C, beta 1 (phosphoinositide-specific)
66	N/A	XM_003512599	Plcb2	Phospholipase C, beta 2
67	N/A	XM_003511280	Plcb3	Phospholipase C, beta 3 (phosphatidylinositol-specific)
68	N/A	XM_003499583	Ppp1r1b	Protein phosphatase 1, regulatory (inhibitor) subunit 1B
69	N/A	XM_003509090	Ppp2r3a	Protein phosphatase 2, regulatory subunit B", alpha
70	N/A	XM_007614625	Prkaca	Protein kinase, cAMP-dependent, catalytic, alpha
71	N/A	XM_007632108	Prkacb	Protein kinase, cAMP-dependent, catalytic, beta
72	N/A	XM_003496774	Ptgs2	Prostaglandin-endoperoxide synthase 2
73	N/A	XM_003499929	Slc18a1	Solute carrier family 18 (vesicular monoamine), member 1
74	N/A	XM_003500174	Slc18a2	Solute carrier family 18 (vesicular monoamine transporter), member 2
75	N/A	XM_003515681	Slc6a3	Solute carrier family 6 (neurotransmitter transporter, dopamine), member 3
76	N/A	XM_003506082	Slc6a4	Solute carrier family 6 (neurotransmitter transporter), member 4
77	N/A	XM_003503728	Snca	Synuclein, alpha (non A4 component of amyloid precursor)
78	N/A	XM_003511980	Sncaip	Synuclein, alpha interacting protein

Position	UniGene	GenBank	Symbol	Description
79	N/A	XM_003498163	Sncb	Synuclein, beta
80	N/A	XM_003507305	Syn2	Synapsin II
81	N/A	XM_003499464	Tdo2	Tryptophan 2,3-dioxygenase
82	N/A	XM_003508079	Th	Tyrosine hydroxylase
83	N/A	XM_003515126	Tph1	Tryptophan hydroxylase 1
84	N/A	XM_003499235	Tph2	Tryptophan hydroxylase 2
85	N/A	NM_001244575	Actb	Actin, beta
86	N/A	XM_007607973	Actr5	ARP5 actin-related protein 5 homolog (yeast)
87	N/A	NM_001246674	B2m	Beta-2 microglobulin
88	N/A	NM_001244854	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
89	N/A	XM_007623161	Hprt1	Hypoxanthine-guanine phosphoribosyltransferase-like
90	N/A	SA_00519	JGDC	Hamster Genomic DNA Contamination
91	N/A	SA_00104	RTC	Reverse Transcription Control
92	N/A	SA_00104	RTC	Reverse Transcription Control
93	N/A	SA_00104	RTC	Reverse Transcription Control
94	N/A	SA_00103	PPC	Positive PCR Control
95	N/A	SA_00103	PPC	Positive PCR Control
96	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 <sup>™</sup> 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.

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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