RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Dopamine & Serotonin Pathway

Cat. no. 330231 PARN-158ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Rat 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/serotoninergic 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 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
A01	Rn.214145	NM_001107239	Adcy1	Adenylate cyclase 1 (brain)
A02	Rn.10731	NM_031007	Adcy2	Adenylate cyclase 2 (brain)
A03	Rn.87800	NM_130779	Adcy3	Adenylate cyclase 3
A04	Rn.6278	NM_022600	Adcy5	Adenylate cyclase 5
A05	Rn.87064	NM_012701	Adrb1	Adrenergic, beta-1-, receptor
A06	Rn.10206	NM_012492	Adrb2	Adrenergic, beta-2-, receptor, surface
A07	Rn.13010	NM_012776	Adrbk1	Adrenergic, beta, receptor kinase 1
A08	Rn.9861	NM_012897	Adrbk2	Adrenergic, beta, receptor kinase 2
A09	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1
A10	Rn.87066	NM_017093	Akt2	V-akt murine thymoma viral oncogene homolog 2
A11	Rn.10506	NM_031575	Akt3	V-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)
A12	Rn.66513	NM_001105798	Alox12	Arachidonate 12-lipoxygenase
B01	Rn.2104	NM_019288	App	Amyloid beta (A4) precursor protein
B02	Rn.34876	NM_012910	Arrb1	Arrestin, beta 1
B03	Rn.32973	NM_012911	Arrb2	Arrestin, beta 2
B04	Rn.11266	NM_012513	Bdnf	Brain-derived neurotrophic factor
B05	Rn.87769	NM_012918	Cacna1a	Calcium channel, voltage-dependent, P/Q type, alpha 1A subunit
B06	Rn.10562	NM_012922	Casp3	Caspase 3
B07	Rn.10749	NM_080885	Cdk5	Cyclin-dependent kinase 5
B08	Rn.220	NM_012531	Comt	Catechol-O-methyltransferase
B09	Rn.90061	NM_031017	Creb1	CAMP responsive element binding protein 1
B10	Rn.26060	NM_138515	Cyp2d4	Cytochrome P450, family 2, subfamily d, polypeptide 4
B11	Rn.87166	NM_013158	Dbh	Dopamine beta-hydroxylase (dopamine beta-monooxygenase)
B12	Rn.11064	NM_012545	Ddc	Dopa decarboxylase (aromatic L-amino acid decarboxylase)
C01	Rn.24039	NM_012546	Drd1a	Dopamine receptor D1A
C02	Rn.87299	NM_012547	Drd2	Dopamine receptor D2
C03	Rn.10356	NM_017140	Drd3	Dopamine receptor D3
C04	Rn.10159	NM_012944	Drd4	Dopamine receptor D4
C05	Rn.138110	NM_012768	Drd5	Dopamine receptor D5
C06	Rn.98260	NM_053769	Dusp1	Dual specificity phosphatase 1
C07	Rn.46606	NM_001104528	Ephb1	Eph receptor B1
C08	Rn.103750	NM_022197	Fos	FBJ osteosarcoma oncogene
C09	Rn.53970	NM_019139	Gdnf	Glial cell derived neurotrophic factor
C10	Rn.91512	NM_017009	Gfap	Glial fibrillary acidic protein
C11	Rn.54517	NM_022928	Grk4	G protein-coupled receptor kinase 4
C12	Rn.6500	NM_030829	Grk5	G protein-coupled receptor kinase 5
D01	Rn.10633	NM_031657	Grk6	G protein-coupled receptor kinase 6
D02	Rn.36807	NM_017344	Gsk3a	Glycogen synthase kinase 3 alpha
D03	Rn.10426	NM_032080	Gsk3b	Glycogen synthase kinase 3 beta
D04	Rn.44486	NM_012585	Htr1a	5-hydroxytryptamine (serotonin) receptor 1A
D05	Rn.138109	NM_022225	Htr1b	5-hydroxytryptamine (serotonin) receptor 1B
D06	Rn.34834	NM_012852	Htr1d	5-Hydroxytryptamine (serotonin) receptor 1D
D07	Rn.44301	NM_021857	Htr1f	5-hydroxytryptamine (serotonin) receptor 1F
D08	Rn.10294	NM_017254	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
D09	Rn.10425	NM_017250	Htr2b	5-hydroxytryptamine (serotonin) receptor 2B
D10	Rn.9935	NM_012765	Htr2c	5-hydroxytryptamine (serotonin) receptor 2C
D11	Rn.55109	NM_024394	Htr3a	5-hydroxytryptamine (serotonin) receptor 3a
D12	Rn.87106	NM_022189	Htr3b	5-hydroxytryptamine (serotonin) receptor 3b
E01	Rn.10094	NM_012853	Htr4	5-hydroxytryptamine (serotonin) receptor 4
E02	Rn.10569	NM_013148	Htr5a	5-hydroxytryptamine (serotonin) receptor 5A
E03	Rn.10552	NM_024365	Htr6	5-hydroxytryptamine (serotonin) receptor 6
E04	Rn.87132	NM_022938	Htr7	5-hydroxytryptamine (serotonin) receptor 7
E05	Rn.2135	NM_001007235	Itpr1	Inositol 1,4,5-triphosphate receptor, type 1
E06	Rn.163443	NM_033653	Maoa	Monoamine oxidase A
E07	Rn.6656	NM_013198	Maob	Monoamine oxidase B
E08	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
E09	Rn.10000	NM_024388	Nr4a1	Nuclear receptor subfamily 4, group A, member 1

Position	UniGene	GenBank	Symbol	Description
E10	Rn.62694	NM_017352	Nr4a3	Nuclear receptor subfamily 4, group A, member 3
E11	Rn.44869	NM_022236	Pde10a	Phosphodiesterase 10A
E12	Rn.91357	NM_013101	Pde4a	Phosphodiesterase 4A, cAMP-specific (phosphodiesterase E2 dunce homolog, Drosophila)
F01	Rn.37733	NM_017031	Pde4b	Phosphodiesterase 4B, cAMP specific
F02	Rn.214181	XM_214325	Pde4c	Phosphodiesterase 4C, cAMP-specific (phosphodiesterase E1 dunce homolog, Drosophila)
F03	Rn.95959	NM_017032	Pde4d	Phosphodiesterase 4D, cAMP-specific (phosphodiesterase E3 dunce homolog, Drosophila)
F04	Rn.44471	NM_019374	Pdyn	Prodynorphin
F05	Rn.44193	NM_133399	Pik3ca	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F06	Rn.152697	NM_001106723	Pik3cg	Phosphoinositide-3-kinase, catalytic, gamma polypeptide
F07	Rn.20244	NM_017174	Pla2g5	Phospholipase A2, group V
F08	Rn.45523	NM_001077641	Plcb1	Phospholipase C, beta 1 (phosphoinositide-specific)
F09	Rn.30033	NM_053478	Plcb2	Phospholipase C, beta 2
F10	Rn.16983	NM_033350	Plcb3	Phospholipase C, beta 3 (phosphatidylinositol-specific)
F11	Rn.70366	NM_138521	Ppp1r1b	Protein phosphatase 1, regulatory (inhibitor) subunit 1B
F12	Rn.20	NM_001100922	Prkaca	Protein kinase, cAMP-dependent, catalytic, alpha
G01	Rn.44369	NM_017232	Ptgs2	Prostaglandin-endoperoxide synthase 2
G02	Rn.89261	NM_013152	Slc18a1	Solute carrier family 18 (vesicular monoamine), member 1
G03	Rn.9686	NM_013031	Slc18a2	Solute carrier family 18 (vesicular monoamine), member 2
G04	Rn.10093	NM_012694	Slc6a3	Solute carrier family 6 (neurotransmitter transporter, dopamine), member 3
G05	Rn.1663	NM_013034	Slc6a4	Solute carrier family 6 (neurotransmitter transporter, serotonin), member 4
G06	Rn.1827	NM_019169	Snca	Synuclein, alpha (non A4 component of amyloid precursor)
G07	Rn.208536	NM_001107379	Sncaip	Synuclein, alpha interacting protein
G08	Rn.506	NM_019159	Syn2	Synapsin II
G09	Rn.1029	NM_022403	Tdo2	Tryptophan 2,3-dioxygenase
G10	Rn.11082	NM_012740	Th	Tyrosine hydroxylase
G11	Rn.219628	NM_001100634	Tph1	Tryptophan hydroxylase 1
G12	Rn.28510	NM_173839	Tph2	Tryptophan hydroxylase 2
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat 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.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² 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.

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 or can be requested from QIAGEN Technical Services or your local distributor.

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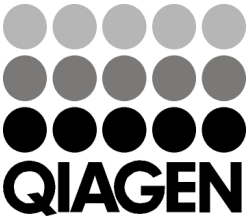

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