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

Human Dopamine & Serotonin Pathway

Cat. no. 330231 PAHS-158ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² 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
RT² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT² Profiler PCR Array, Format H	Fluidigm® BioMark™

QIAGEN®

Sample & Assay Technologies

Description

The Human 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 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 cycler (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	ADCY1	ADCY2	ADCY3	ADCY5	ADRB1	ADRB2	ADRBK1	ADRBK2	AKT1	AKT2	AKT3	ALOX12
B	APP	ARRB1	ARRB2	BDNF	CASP3	CDK5	COMT	CREB1	CYP2D6	DBH	DDC	DRD1
C	DRD2	DRD3	DRD4	DRD5	DUSP1	EPHB1	FOS	GDNF	GFAP	GRK4	GRK5	GRK6
D	GSK3A	GSK3B	HTR1A	HTR1B	HTR1D	HTR1E	HTR1F	HTR2A	HTR2B	HTR2C	HTR3A	HTR3B
E	HTR4	HTR5A	HTR6	HTR7	ITPR1	MAOA	MAOB	MAPK1	NR4A1	NR4A3	PDE10A	PDE4A
F	PDE4B	PDE4C	PDE4D	PDYN	PIK3CA	PIK3CG	PLA2G5	PLCB1	PLCB2	PLCB3	PPP1R1B	PRKACA
G	PTGS2	SLC18A1	SLC18A2	SLC6A3	SLC6A4	SNCA	SNCAIP	SYN2	TDO2	TH	TPH1	TPH2
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.192215	NM_021116	ADCY1	Adenylate cyclase 1 (brain)
A02	Hs.481545	NM_020546	ADCY2	Adenylate cyclase 2 (brain)
A03	Hs.708074	NM_004036	ADCY3	Adenylate cyclase 3
A04	Hs.655144	NM_183357	ADCY5	Adenylate cyclase 5
A05	Hs.99913	NM_000684	ADRB1	Adrenergic, beta-1-, receptor
A06	Hs.591251	NM_000024	ADRB2	Adrenergic, beta-2-, receptor, surface
A07	Hs.83636	NM_001619	ADRBK1	Adrenergic, beta, receptor kinase 1
A08	Hs.657494	NM_005160	ADRBK2	Adrenergic, beta, receptor kinase 2
A09	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A10	Hs.631535	NM_001626	AKT2	V-akt murine thymoma viral oncogene homolog 2
A11	Hs.498292	NM_005465	AKT3	V-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)
A12	Hs.654431	NM_000697	ALOX12	Arachidonate 12-lipoxygenase
B01	Hs.434980	NM_000484	APP	Amyloid beta (A4) precursor protein
B02	Hs.503284	NM_004041	ARRB1	Arrestin, beta 1
B03	Hs.435811	NM_004313	ARRB2	Arrestin, beta 2
B04	Hs.502182	NM_001709	BDNF	Brain-derived neurotrophic factor
B05	Hs.141125	NM_004346	CASP3	Caspase 3, apoptosis-related cysteine peptidase
B06	Hs.647078	NM_004935	CDK5	Cyclin-dependent kinase 5
B07	Hs.370408	NM_000754	COMT	Catechol-O-methyltransferase
B08	Hs.516646	NM_004379	CREB1	CAMP responsive element binding protein 1
B09	Hs.648256	NM_000106	CYP2D6	Cytochrome P450, family 2, subfamily D, polypeptide 6
B10	Hs.591890	NM_000787	DBH	Dopamine beta-hydroxylase (dopamine beta-monooxygenase)
B11	Hs.359698	NM_000790	DDC	Dopa decarboxylase (aromatic L-amino acid decarboxylase)
B12	Hs.2624	NM_000794	DRD1	Dopamine receptor D1
C01	Hs.73893	NM_000795	DRD2	Dopamine receptor D2
C02	Hs.121478	NM_000796	DRD3	Dopamine receptor D3
C03	Hs.99922	NM_000797	DRD4	Dopamine receptor D4
C04	Hs.380681	NM_000798	DRD5	Dopamine receptor D5
C05	Hs.171695	NM_004417	DUSP1	Dual specificity phosphatase 1
C06	Hs.116092	NM_004441	EPHB1	EPH receptor B1
C07	Hs.728789	NM_005252	FOS	FBJ murine osteosarcoma viral oncogene homolog
C08	Hs.248114	NM_000514	GDNF	Glial cell derived neurotrophic factor
C09	Hs.514227	NM_002055	GFAP	Glial fibrillary acidic protein
C10	Hs.32959	NM_001004056	GRK4	G protein-coupled receptor kinase 4
C11	Hs.524625	NM_005308	GRK5	G protein-coupled receptor kinase 5
C12	Hs.235116	NM_002082	GRK6	G protein-coupled receptor kinase 6
D01	Hs.466828	NM_019884	GSK3A	Glycogen synthase kinase 3 alpha
D02	Hs.445733	NM_002093	GSK3B	Glycogen synthase kinase 3 beta
D03	Hs.247940	NM_000524	HTR1A	5-hydroxytryptamine (serotonin) receptor 1A
D04	Hs.123016	NM_000863	HTR1B	5-hydroxytryptamine (serotonin) receptor 1B
D05	Hs.121482	NM_000864	HTR1D	5-hydroxytryptamine (serotonin) receptor 1D
D06	Hs.1611	NM_000865	HTR1E	5-hydroxytryptamine (serotonin) receptor 1E
D07	Hs.248136	NM_000866	HTR1F	5-hydroxytryptamine (serotonin) receptor 1F
D08	Hs.654586	NM_000621	HTR2A	5-hydroxytryptamine (serotonin) receptor 2A
D09	Hs.421649	NM_000867	HTR2B	5-hydroxytryptamine (serotonin) receptor 2B

Position	UniGene	GenBank	Symbol	Description
D10	Hs.149037	NM_000868	HTR2C	5-hydroxytryptamine (serotonin) receptor 2C
D11	Hs.413899	NM_000869	HTR3A	5-hydroxytryptamine (serotonin) receptor 3A
D12	Hs.241377	NM_006028	HTR3B	5-hydroxytryptamine (serotonin) receptor 3B
E01	Hs.483773	NM_000870	HTR4	5-hydroxytryptamine (serotonin) receptor 4
E02	Hs.65791	NM_024012	HTR5A	5-hydroxytryptamine (serotonin) receptor 5A
E03	Hs.22180	NM_000871	HTR6	5-hydroxytryptamine (serotonin) receptor 6
E04	Hs.73739	NM_000872	HTR7	5-hydroxytryptamine (serotonin) receptor 7 (adenylate cyclase-coupled)
E05	Hs.567295	NM_002222	ITPR1	Inositol 1,4,5-trisphosphate receptor, type 1
E06	Hs.183109	NM_000240	MAOA	Monoamine oxidase A
E07	Hs.654473	NM_000898	MAOB	Monoamine oxidase B
E08	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1
E09	Hs.524430	NM_002135	NR4A1	Nuclear receptor subfamily 4, group A, member 1
E10	Hs.279522	NM_006981	NR4A3	Nuclear receptor subfamily 4, group A, member 3
E11	Hs.348762	NM_006661	PDE10A	Phosphodiesterase 10A
E12	Hs.89901	NM_006202	PDE4A	Phosphodiesterase 4A, cAMP-specific
F01	Hs.198072	NM_002600	PDE4B	Phosphodiesterase 4B, cAMP-specific
F02	Hs.132584	NM_000923	PDE4C	Phosphodiesterase 4C, cAMP-specific
F03	Hs.117545	NM_006203	PDE4D	Phosphodiesterase 4D, cAMP-specific
F04	Hs.22584	NM_024411	PDYN	Prodynorphin
F05	Hs.553498	NM_006218	PIK3CA	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F06	Hs.32942	NM_002649	PIK3CG	Phosphoinositide-3-kinase, catalytic, gamma polypeptide
F07	Hs.319438	NM_000929	PLA2G5	Phospholipase A2, group V
F08	Hs.431173	NM_015192	PLCB1	Phospholipase C, beta 1 (phosphoinositide-specific)
F09	Hs.355888	NM_004573	PLCB2	Phospholipase C, beta 2
F10	Hs.591953	NM_000932	PLCB3	Phospholipase C, beta 3 (phosphatidylinositol-specific)
F11	Hs.286192	NM_181505	PPP1R1B	Protein phosphatase 1, regulatory (inhibitor) subunit 1B
F12	Hs.631630	NM_002730	PRKACA	Protein kinase, cAMP-dependent, catalytic, alpha
G01	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
G02	Hs.158322	NM_003053	SLC18A1	Solute carrier family 18 (vesicular monoamine), member 1
G03	Hs.654476	NM_003054	SLC18A2	Solute carrier family 18 (vesicular monoamine), member 2
G04	Hs.406	NM_001044	SLC6A3	Solute carrier family 6 (neurotransmitter transporter, dopamine), member 3
G05	Hs.591192	NM_001045	SLC6A4	Solute carrier family 6 (neurotransmitter transporter, serotonin), member 4
G06	Hs.271771	NM_000345	SNCA	Synuclein, alpha (non A4 component of amyloid precursor)
G07	Hs.426463	NM_005460	SNCAIP	Synuclein, alpha interacting protein
G08	Hs.445503	NM_003178	SYN2	Synapsin II
G09	Hs.183671	NM_005651	TDO2	Tryptophan 2,3-dioxygenase
G10	Hs.435609	NM_000360	TH	Tyrosine hydroxylase
G11	Hs.591999	NM_004179	TPH1	Tryptophan hydroxylase 1
G12	Hs.376337	NM_173353	TPH2	Tryptophan hydroxylase 2
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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 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
RT² 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
RT² 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

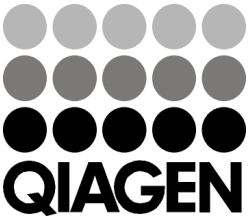
* Larger kit sizes available; please inquire.

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.

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.

www.qiagen.com

Australia ▪ 1-800-243-800
Austria ▪ 0800/281010
Belgium ▪ 0800-79612
Brazil ▪ 0800-557779
Canada ▪ 800-572-9613
China ▪ 8621-3865-3865
Denmark ▪ 80-885945
Finland ▪ 0800-914416
France ▪ 01-60-920-930
Germany ▪ 02103-29-12000
Hong Kong ▪ 800 933 965
Ireland ▪ 1800 555 049
Italy ▪ 800-787980
Japan ▪ 03-6890-7300
Korea (South) ▪ 080-000-7145
Luxembourg ▪ 8002 2076
Mexico ▪ 01-800-7742-436
The Netherlands ▪ 0800 0229592
Norway ▪ 800-18859
Singapore ▪ 1800-742-4368
Spain ▪ 91-630-7050
Sweden ▪ 020-790282
Switzerland ▪ 055-254-22-11
UK ▪ 01293-422-911
USA ▪ 800-426-8157



Sample & Assay Technologies