RT² Profiler PCR Array (Rotor-Gene® Format)

Human Gap Junctions

Cat. no. 330231 PAHS-144ZR

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 Human Gap Junctions RT² Profiler PCR Array profiles the expression of 84 key genes encoding components, interactors, and regulators of gap junctions. Gap junctions are comprised of complexes of innexins and connexins whose extracellular domains dimerize with similar complexes in an adjacent cell. These intercellular complexes form channels, each with its own conductance and molecular permeability. The channels connect cytoplasms, allowing ions and small molecules to pass through and mediating communication between the adjacent cells. Cell surface receptors for neurotransmitters, cytokines, growth factors, and lysophosphatidic acid activate protein kinase, G-protein, and secondary messenger signaling pathways to regulate gap junctions via changes in connexin phosphorylation and membrane potential. The connexins directly bind tubulins, and their downstream signaling pathways regulate and recruit microtubules to help define cell shape and mediate intracellular transport. A wide variety of cell types express gap junctions including cardiomyocytes, keratinocytes, astrocytes, endothelial cells, and smooth muscle cells. Gap junctions regulate many biological processes such as cellular growth and differentiation, embryonic development, excitable cell contraction, immune responses, neural activity, tissue homeostasis, and metabolic transport. Mutations in connexin genes or other disruptions of gap junction function contribute to the pathophysiology of cardiovascular disease, neurological disorders, and developmental abnormalities. Profiling the expression of gap junction components and regulators may lead to a better understanding of molecular mechanisms behind gap-junction–mediated cell biology. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in gap junctions 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	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.591251	NM_000024	ADRB2	Adrenergic, beta-2-, receptor, surface
A05	Hs.74034	NM_001753	CAV1	Caveolin 1, caveolae protein, 22kDa
A06	Hs.334562	NM_001786	CDK1	Cyclin-dependent kinase 1
A07	Hs.631725	NM_001893	CSNK1D	Casein kinase 1, delta
A08	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
A09	Hs.130316	NM_004395	DBN1	Drebrin 1
A10	Hs.488293	NM_005228	EGFR	Epidermal growth factor receptor
A11	Hs.74471	NM_000165	GJA1	Gap junction protein, alpha 1, 43kDa
A12	Hs.130313	NM_021954	GJA3	Gap junction protein, alpha 3, 46kDa
B01	Hs.296310	NM_002060	GJA4	Gap junction protein, alpha 4, 37kDa
B02	Hs.447968	NM_181703	GJA5	Gap junction protein, alpha 5, 40kDa
B03	Hs.632441	NM_005267	GJA8	Gap junction protein, alpha 8, 50kDa
B04	Hs.632402	NM_030772	GJA9	Gap junction protein, alpha 9, 59kDa
B05	Hs.333303	NM_000166	GJB1	Gap junction protein, beta 1, 32kDa
B06	Hs.524894	NM_004004	GJB2	Gap junction protein, beta 2, 26kDa
B07	Hs.522561	NM_024009	GJB3	Gap junction protein, beta 3, 31kDa
B08	Hs.351203	NM_153212	GJB4	Gap junction protein, beta 4, 30.3kDa
B09	Hs.198249	NM_005268	GJB5	Gap junction protein, beta 5, 31.1kDa
B10	Hs.511757	NM_006783	GJB6	Gap junction protein, beta 6, 30kDa
B11	Hs.146727	NM_198568	GJB7	Gap junction protein, beta 7, 25kDa
B12	Hs.100072	NM_020435	GJC2	Gap junction protein, gamma 2, 47kDa
C01	Hs.283816	NM_020660	GJD2	Gap junction protein, delta 2, 36kDa
C02	Hs.647524	NM_181538	GJE1	Gap junction protein, epsilon 1, 23kDa
C03	Hs.134587	NM_002069	GNAI1	Guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 1
C04	Hs.444356	NM_002086	GRB2	Growth factor receptor-bound protein 2
C05	Hs.32945	NM_000838	GRM1	Glutamate receptor, metabotropic 1
C06	Hs.654555	NM_000855	GUCY1A2	Guanylate cyclase 1, soluble, alpha 2
C07	Hs.24258	NM_000856	GUCY1A3	Guanylate cyclase 1, soluble, alpha 3
C08	Hs.77890	NM_000857	GUCY1B3	Guanylate cyclase 1, soluble, beta 3
C09	Hs.37003	NM_005343	HRAS	V-Ha-ras Harvey rat sarcoma viral oncogene homolog
C10	Hs.654586	NM_000621	HTR2A	5-hydroxytryptamine (serotonin) receptor 2A
C11	Hs.567295	NM_002222	ITPR1	Inositol 1,4,5-trisphosphate receptor, type 1
C12	Hs.512235	NM_002223	ITPR2	Inositol 1,4,5-trisphosphate receptor, type 2
D01	Hs.505033	NM_004985	KRAS	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog
D02	Hs.126667	NM_057159	LPAR1	Lysophosphatidic acid receptor 1
D03	Hs.145442	NM_002755	MAP2K1	Mitogen-activated protein kinase kinase 1
D04	Hs.465627	NM_030662	MAP2K2	Mitogen-activated protein kinase kinase 2
D05	Hs.114198	NM_002757	MAP2K5	Mitogen-activated protein kinase kinase 5
D06	Hs.145605	NM_006609	MAP3K2	Mitogen-activated protein kinase kinase kinase 2
D07	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1
D08	Hs.861	NM_002746	MAPK3	Mitogen-activated protein kinase 3
D09	Hs.150136	NM_002749	MAPK7	Mitogen-activated protein kinase 7
D10	Hs.235935	NM_002514	NOV	Nephroblastoma overexpressed gene
D11	Hs.486502	NM_002524	NRAS	Neuroblastoma RAS viral (v-ras) oncogene homolog
D12	Hs.591976	NM_015368	PANX1	Pannexin 1
E01	Hs.440092	NM_052839	PANX2	Pannexin 2
E02	Hs.99235	NM_052959	PANX3	Pannexin 3
E03	Hs.74615	NM_006206	PDGFRA	Platelet-derived growth factor receptor, alpha polypeptide
E04	Hs.509067	NM_002609	PDGFRB	Platelet-derived growth factor receptor, beta polypeptide
E05	Hs.431173	NM_015192	PLCB1	Phospholipase C, beta 1 (phosphoinositide-specific)
E06	Hs.355888	NM_004573	PLCB2	Phospholipase C, beta 2
E07	Hs.631630	NM_002730	PRKACA	Protein kinase, cAMP-dependent, catalytic, alpha
E08	Hs.487325	NM_182948	PRKACB	Protein kinase, cAMP-dependent, catalytic, beta

Position	UniGene	GenBank	Symbol	Description
E09	Hs.158029	NM_002732	PRKACG	Protein kinase, cAMP-dependent, catalytic, gamma
E10	Hs.531704	NM_002737	PRKCA	Protein kinase C, alpha
E11	Hs.460355	NM_002738	PRKCB	Protein kinase C, beta
E12	Hs.631564	NM_002739	PRKCG	Protein kinase C, gamma
F01	Hs.654556	NM_006258	PRKG1	Protein kinase, cGMP-dependent, type I
F02	Hs.570833	NM_006259	PRKG2	Protein kinase, cGMP-dependent, type II
F03	Hs.159130	NM_002880	RAF1	V-raf-1 murine leukemia viral oncogene homolog 1
F04	Hs.592839	NM_005633	SOS1	Son of sevenless homolog 1 (Drosophila)
F05	Hs.291533	NM_006939	SOS2	Son of sevenless homolog 2 (Drosophila)
F06	Hs.195659	NM_005417	SRC	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)
F07	Hs.520145	NM_080604	TJAP1	Tight junction associated protein 1 (peripheral)
F08	Hs.510833	NM_175610	TJP1	Tight junction protein 1 (zona occludens 1)
F09	Hs.50382	NM_004817	TJP2	Tight junction protein 2 (zona occludens 2)
F10	Hs.652390	NM_032704	TUBA1C	Tubulin, alpha 1c
F11	Hs.349695	NM_006001	TUBA3C	Tubulin, alpha 3c
F12	Hs.75318	NM_006000	TUBA4A	Tubulin, alpha 4a
G01	Hs.664469	NR_003063	TUBA4B	Tubulin, alpha 4b (pseudogene)
G02	Hs.137400	NM_018943	TUBA8	Tubulin, alpha 8
G03	Hs.163079	NM_024803	TUBAL3	Tubulin, alpha-like 3
G04	Hs.636480	NM_178014	TUBB	Tubulin, beta
G05	Hs.303023	NM_030773	TUBB1	Tubulin, beta 1
G06	Hs.654543	NM_001069	TUBB2A	Tubulin, beta 2A
G07	Hs.300701	NM_178012	TUBB2B	Tubulin, beta 2B
G08	Hs.433615	NM_006088	TUBB2C	Tubulin, beta 2C
G09	Hs.511743	NM_006086	TUBB3	Tubulin, beta 3
G10	Hs.110837	NM_006087	TUBB4	Tubulin, beta 4
G11	Hs.351544	NM_020040	TUBB4Q	Tubulin, beta polypeptide 4, member Q, pseudogene
G12	Hs.532659	NM_177987	TUBB8	Tubulin, beta 8
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 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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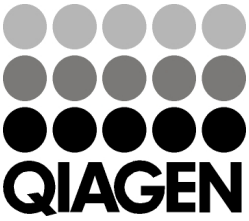

Sample & Assay Technologies