RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Gap Junctions

Cat. no. 330231 PARN-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 Rat 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	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.1904	NM_019285	Adcy4	Adenylate cyclase 4
A05	Rn.10206	NM_012492	Adrb2	Adrenergic, beta-2-, receptor, surface
A06	Rn.22518	NM_031556	Cav1	Caveolin 1, caveolae protein
A07	Rn.6934	NM_019296	Cdk1	Cyclin-dependent kinase 1
A08	Rn.8046	NM_139060	Csnk1d	Casein kinase 1, delta
A09	Rn.112601	NM_053357	Ctnnb1	Catenin (cadherin associated protein), beta 1
A10	Rn.11247	NM_031024	Dbn1	Drebrin 1
A11	Rn.37227	NM_031507	Egfr	Epidermal growth factor receptor
A12	Rn.10346	NM_012567	Gja1	Gap junction protein, alpha 1
B01	Rn.154630	XM_232859	Gja10	Gap junction protein, alpha 10
B02	Rn.10345	NM_024376	Gja3	Gap junction protein, alpha 3
B03	Rn.23406	NM_021654	Gja4	Gap junction protein, alpha 4
B04	Rn.88300	NM_019280	Gja5	Gap junction protein, alpha 5
B05	Rn.209042	NM_019308	Gja6	Gap junction protein, alpha 6
B06	Rn.86658	NM_153465	Gja8	Gap junction membrane channel protein alpha 8
B07	Rn.10444	NM_017251	Gjb1	Gap junction protein, beta 1
B08	Rn.219269	NM_001004099	Gjb2	Gap junction protein, beta 2
B09	Rn.162823	NM_019240	Gjb3	Gap junction protein, beta 3
B10	Rn.10344	NM_053984	Gjb4	Gap junction protein, beta 4
B11	Rn.16074	NM_019241	Gjb5	Gap junction protein, beta 5
B12	Rn.18935	NM_053388	Gjb6	Gap junction protein, beta 6
C01	Rn.203000	XM_573100	Gjc2	Gap junction protein, gamma 2
C02	N/A	XM_221997	Gjc3	Gap junction protein, gamma 3
C03	Rn.9904	NM_019281	Gjd2	Gap junction protein, delta 2
C04	Rn.11391	NM_013145	Gnai1	Guanine nucleotide binding protein (G protein), alpha inhibiting 1
C05	Rn.3360	NM_030846	Grb2	Growth factor receptor bound protein 2
C06	Rn.87787	NM_017011	Grm1	Glutamate receptor, metabotropic 1
C07	Rn.209304	NM_023956	Gucy1a2	Guanylate cyclase 1, soluble, alpha 2
C08	Rn.1974	NM_017090	Gucy1a3	Guanylate cyclase 1, soluble, alpha 3
C09	Rn.87228	NM_012769	Gucy1b3	Guanylate cyclase 1, soluble, beta 3
C10	Rn.102180	NM_001098241	Hras	Harvey rat sarcoma virus oncogene
C11	Rn.10294	NM_017254	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
C12	Rn.2135	NM_001007235	Itpr1	Inositol 1,4,5-triphosphate receptor, type 1
D01	Rn.89152	NM_031046	Itpr2	Inositol 1,4,5-triphosphate receptor, type 2
D02	Rn.24554	NM_031515	Kras	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog
D03	Rn.11200	NM_053936	Lpar1	Lysophosphatidic acid receptor 1
D04	Rn.5850	NM_031643	Map2k1	Mitogen activated protein kinase kinase 1
D05	Rn.82693	NM_133283	Map2k2	Mitogen activated protein kinase kinase 2
D06	Rn.11054	NM_017246	Map2k5	Mitogen activated protein kinase kinase 5
D07	Rn.213212	NM_138503	Map3k2	Mitogen activated protein kinase kinase kinase 2
D08	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
D09	Rn.2592	NM_017347	Mapk3	Mitogen activated protein kinase 3
D10	Rn.221942	NM_001191547	Mapk7	Mitogen-activated protein kinase 7
D11	Rn.162955	NM_030868	Nov	Nephroblastoma overexpressed gene
D12	Rn.217722	NM_080766	Nras	Neuroblastoma ras oncogene
E01	Rn.204521	NM_199397	Panx1	Pannexin 1
E02	Rn.40646	NM_199409	Panx2	Pannexin 2
E03	Rn.77463	NM_199398	Panx3	Pannexin 3
E04	Rn.55127	NM_012802	Pdgfra	Platelet derived growth factor receptor, alpha polypeptide
E05	Rn.98311	NM_031525	Pdgfrb	Platelet derived growth factor receptor, beta polypeptide
E06	Rn.45523	NM_001077641	Plcb1	Phospholipase C, beta 1 (phosphoinositide-specific)
E07	Rn.30033	NM_053478	Plcb2	Phospholipase C, beta 2
E08	Rn.16983	NM_033350	Plcb3	Phospholipase C, beta 3 (phosphatidylinositol-specific)
E09	Rn.6155	NM_024353	Plcb4	Phospholipase C, beta 4

Position	UniGene	GenBank	Symbol	Description
E10	Rn.20	NM_001100922	Prkaca	Protein kinase, cAMP-dependent, catalytic, alpha
E11	Rn.202491	NM_001077645	Prkacb	Protein kinase, cAMP dependent, catalytic, beta
E12	Rn.207908	NM_001105713	Prkca	Protein kinase C, alpha
F01	Rn.91118	NM_012713	Prkcb	Protein kinase C, beta
F02	Rn.9747	NM_012628	Prkcg	Protein kinase C, gamma
F03	Rn.204724	NM_001105731	Prkg1	Protein kinase, cGMP-dependent, type 1
F04	Rn.87721	NM_013012	Prkg2	Protein kinase, cGMP-dependent, type II
F05	Rn.33262	NM_012639	Raf1	V-raf-leukemia viral oncogene 1
F06	Rn.91844	NM_001100716	Sos1	Son of sevenless homolog 1 (Drosophila)
F07	Rn.4226	NM_001135561	Sos2	Son of sevenless homolog 2 (Drosophila)
F08	Rn.112600	NM_031977	Src	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)
F09	Rn.18395	NM_001108203	Tjap1	Tight junction associated protein 1
F10	Rn.101871	NM_001106266	Tjp1	Tight junction protein 1
F11	Rn.10965	NM_053773	Tjp2	Tight junction protein 2
F12	Rn.99661	NM_022298	Tuba1a	Tubulin, alpha 1A
G01	Rn.154526	NM_001011995	Tuba1c	Tubulin, alpha 1C
G02	Rn.155649	NM_001040008	Tuba3a	Tubulin, alpha 3A
G03	Rn.92961	NM_001007004	Tuba4a	Tubulin, alpha 4A
G04	Rn.37849	NM_001013886	Tubb2b	Tubulin, beta 2b
G05	Rn.110562	NM_199094	Tubb2c	Tubulin, beta 2c
G06	Rn.43958	NM_139254	Tubb3	Tubulin, beta 3
G07	Rn.195342	NM_080882	Tubb4	Tubulin, beta 4
G08	Rn.2458	NM_173102	Tubb5	Tubulin, beta 5
G09	Rn.98430	NM_001025675	Tubb6	Tubulin, beta 6
G10	Rn.204893	NM_001105826	Tubd1	Tubulin, delta 1
G11	Rn.101545	NM_001108536	Tube1	Tubulin, epsilon 1
G12	Rn.154431	NM_145778	Tubg1	Tubulin, gamma 1
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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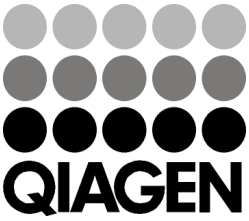

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