

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

## Mouse Gap Junctions

Cat. no. 330231 PAMM-144ZR

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 Mouse Gap Junctions RT<sup>2</sup> 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 cytoplasm, 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 *RT<sup>2</sup> Profiler PCR Array Handbook*.

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## 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.

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

Position	UniGene	GenBank	Symbol	Description
A01	Mm.259733	NM_009622	Adcy1	Adenylate cyclase 1
A02	Mm.390617	NM_153534	Adcy2	Adenylate cyclase 2
A03	Mm.70546	NM_138305	Adcy3	Adenylate cyclase 3
A04	Mm.5598	NM_007420	Adrb2	Adrenergic receptor, beta 2
A05	Mm.28278	NM_007616	Cav1	Caveolin 1, caveolae protein
A06	Mm.281367	NM_007659	Cdk1	Cyclin-dependent kinase 1
A07	Mm.216227	NM_139059	Csnk1d	Casein kinase 1, delta
A08	Mm.291928	NM_007614	Cttnb1	Catenin (cadherin associated protein), beta 1
A09	Mm.19016	NM_019813	Dbrn1	Drebrin 1
A10	Mm.8534	NM_007912	Egfr	Epidermal growth factor receptor
A11	Mm.378921	NM_010288	Gja1	Gap junction protein, alpha 1
A12	Mm.57207	NM_016975	Gja3	Gap junction protein, alpha 3
B01	Mm.24615	NM_008120	Gja4	Gap junction protein, alpha 4
B02	Mm.281816	NM_008121	Gja5	Gap junction protein, alpha 5
B03	Mm.123113	NM_001001496	Gja6	Gap junction protein, alpha 6
B04	Mm.468160	NM_008123	Gja8	Gap junction protein, alpha 8
B05	Mm.21198	NM_008124	Gjb1	Gap junction protein, beta 1
B06	Mm.390683	NM_008125	Gjb2	Gap junction protein, beta 2
B07	Mm.90003	NM_008126	Gjb3	Gap junction protein, beta 3
B08	Mm.56906	NM_008127	Gjb4	Gap junction protein, beta 4
B09	Mm.26859	NM_010291	Gjb5	Gap junction protein, beta 5
B10	Mm.25652	NM_008128	Gjb6	Gap junction protein, beta 6
B11	Mm.40016	NM_175452	Gjc2	Gap junction protein, gamma 2
B12	Mm.377888	NM_080450	Gjc3	Gap junction protein, gamma 3
C01	Mm.389394	NM_010290	Gjd2	Gap junction protein, delta 2
C02	Mm.332771	NM_029722	Gje1	Gap junction protein, epsilon 1
C03	Mm.254629	NM_010305	Gnai1	Guanine nucleotide binding protein (G protein), alpha inhibiting 1
C04	Mm.439649	NM_008163	Grb2	Growth factor receptor bound protein 2
C05	Mm.391904	NM_016976	Grm1	Glutamate receptor, metabotropic 1
C06	Mm.143831	NM_021896	Gucy1a3	Guanylate cyclase 1, soluble, alpha 3
C07	Mm.9445	NM_017469	Gucy1b3	Guanylate cyclase 1, soluble, beta 3
C08	Mm.334313	NM_008284	Hras	Harvey rat sarcoma virus oncogene 1
C09	Mm.214351	NM_172812	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
C10	Mm.227912	NM_010585	Itp1	Inositol 1,4,5-trisphosphate receptor 1
C11	Mm.393003	NM_019923	Itp2	Inositol 1,4,5-trisphosphate receptor 2
C12	Mm.383182	NM_021284	Kras	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog
D01	Mm.4772	NM_010336	Lpar1	Lysophosphatidic acid receptor 1
D02	Mm.248907	NM_008927	Map2k1	Mitogen-activated protein kinase kinase 1
D03	Mm.275436	NM_023138	Map2k2	Mitogen-activated protein kinase kinase 2
D04	Mm.325746	NM_011840	Map2k5	Mitogen-activated protein kinase kinase 5
D05	Mm.211762	NM_011946	Map3k2	Mitogen-activated protein kinase kinase kinase 2
D06	Mm.196581	NM_011949	Mapk1	Mitogen-activated protein kinase 1
D07	Mm.8385	NM_011952	Mapk3	Mitogen-activated protein kinase 3
D08	Mm.38172	NM_011841	Mapk7	Mitogen-activated protein kinase 7
D09	Mm.5167	NM_010930	Nov	Nephroblastoma overexpressed gene
D10	Mm.400954	NM_010937	Nras	Neuroblastoma ras oncogene
D11	Mm.142253	NM_019482	Panx1	Pannexin 1
D12	Mm.483059	NM_001002005	Panx2	Pannexin 2
E01	Mm.217159	NM_172454	Panx3	Pannexin 3
E02	Mm.221403	NM_011058	Pdgfra	Platelet derived growth factor receptor, alpha polypeptide
E03	Mm.4146	NM_008809	Pdgfrb	Platelet derived growth factor receptor, beta polypeptide
E04	Mm.330607	NM_019677	Plcb1	Phospholipase C, beta 1
E05	Mm.215156	NM_177568	Plcb2	Phospholipase C, beta 2
E06	Mm.19111	NM_008854	Prkaca	Protein kinase, cAMP dependent, catalytic, alpha
E07	Mm.16766	NM_011100	Prkacb	Protein kinase, cAMP dependent, catalytic, beta
E08	Mm.222178	NM_011101	Prkca	Protein kinase C, alpha
E09	Mm.207496	NM_008855	Prkcb	Protein kinase C, beta

Position	UniGene	GenBank	Symbol	Description
E10	Mm.7980	NM_011102	Prkcc	Protein kinase C, gamma
E11	Mm.381172	NM_011160	Prkg1	Protein kinase, cGMP-dependent, type I
E12	Mm.263002	NM_008926	Prkg2	Protein kinase, cGMP-dependent, type II
F01	Mm.184163	NM_029780	Raf1	V-raf-leukemia viral oncogene 1
F02	Mm.434583	NM_009231	Sos1	Son of sevenless homolog 1 (Drosophila)
F03	Mm.3770	NM_001135559	Sos2	Son of sevenless homolog 2 (Drosophila)
F04	Mm.22845	NM_009271	Src	Rous sarcoma oncogene
F05	Mm.284594	NM_028751	Tjap1	Tight junction associated protein 1
F06	Mm.4342	NM_009386	Tjp1	Tight junction protein 1
F07	Mm.104744	NM_011597	Tjp2	Tight junction protein 2
F08	Mm.439690	NM_011653	Tuba1a	Tubulin, alpha 1A
F09	Mm.392113	NM_011654	Tuba1b	Tubulin, alpha 1B
F10	Mm.88212	NM_009448	Tuba1c	Tubulin, alpha 1C
F11	Mm.287784	NM_009446	Tuba3a	Tubulin, alpha 3A
F12	Mm.1155	NM_009447	Tuba4a	Tubulin, alpha 4A
G01	Mm.32884	NM_017379	Tuba8	Tubulin, alpha 8
G02	Mm.45285	NM_001080971	Tubb1	Tubulin, beta 1
G03	Mm.422827	NM_009450	Tubb2a	Tubulin, beta 2a
G04	Mm.379227	NM_023716	Tubb2b	Tubulin, beta 2b
G05	Mm.227260	NM_146116	Tubb2c	Tubulin, beta 2c
G06	Mm.40068	NM_023279	Tubb3	Tubulin, beta 3
G07	Mm.7420	NM_009451	Tubb4	Tubulin, beta 4
G08	Mm.273538	NM_011655	Tubb5	Tubulin, beta 5
G09	Mm.181860	NM_026473	Tubb6	Tubulin, beta 6
G10	Mm.383207	NM_019756	Tubd1	Tubulin, delta 1
G11	Mm.297956	NM_028006	Tube1	Epsilon-tubulin 1
G12	Mm.479145	NM_134024	Tubg1	Tubulin, gamma 1
H01	Mm.328431	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
H06	N/A	SA_00106	MGDC	Mouse 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, 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.

<b>Product</b>	<b>Contents</b>	<b>Cat. no.</b>
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> 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.

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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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