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

Mouse Osmotic Stress

Cat. no. 330231 PAMM-151ZA

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™

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Description

The Mouse Osmotic Stress RT² Profiler PCR Array profiles the expression of 84 key genes involved in the cellular response to changes in osmolarity. Under normal physiological conditions, the majority of mammalian cells grow within an isotonic environment. The renal medulla, one exception to this rule, experiences not only high osmolarity during urine concentration (>10-fold normal levels), but also a broad range of potential salt concentrations at any given time. Osmolarity changes affect the expression of hundreds of genes driven by the key transcription factor TonEBP/OREBP (NFAT5). During osmotic stress, expression of water transporters, ion transport genes, and protein chaperones increases. Cells also undergo cytoskeletal rearrangement. Other typical cellular effects include oxidative stress, cell cycle arrest, transcription/translation arrest, and mitochondrial depolarization, all of which can result in DNA damage and apoptosis. In cellular systems other than the kidney medulla, a general electrolyte imbalance can lead to chronic hyponatremia and central pontine myelinolysis, a rare disease occurring in the central nervous system and involving some of the same transporters commonly expressed in the kidney medulla. This array includes molecular transporters, direct NFAT5 targets, and hormones and receptors involved in the hyperosmotic response. Genes whose expression is commonly altered during osmotic stress are also included. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in osmotic stress 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	Abcb1a	Adm	Agt	Agtr1a	Akr1b3	Akt1	Aqp1	Aqp2	Aqp3	Aqp4	Aqp5	Aqp9
B	Atf4	Atp1a1	Atp1b1	Avp	Calr	Cd9	Cftr	Cryab	Ctgf	Ddit3	Dusp1	Edn1
C	Egfr	Egr1	Egr3	Fos	Gadd45a	Gadd45b	Gadd45g	Guca2a	Hmox1	Hsp90aa1	Hspa1a	Hspa4
D	Hspa4l	Hspa5	Hspb1	Il1b	Ins2	Itgb1	Jun	Kcnj1	Lcn2	Ltb	Map2k2	Map3k1
E	Mapk1	Mapk8	Mlc1	Nfat5	Nfkbia	Nos3	Npr1	Odc1	Oxt	Pak2	Pax2	Pck2
F	Pdia4	Plat	Ptk2	Ptk2b	Sgk1	Slc14a2	Slc2a1	Slc38a2	Slc5a3	Slc6a12	Slc6a6	Slc9a2
G	Slc9a3	Snai1	Src	Tat	Tgfa	Tnf	Tpm4	Trp53	Trpv4	Vegfa	Vim	Zfp36l1
H	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.207354	NM_011076	Abcb1a	ATP-binding cassette, sub-family B (MDR/TAP), member 1A
A02	Mm.1408	NM_009627	Adm	Adrenomedullin
A03	Mm.301626	NM_007428	Agt	Angiotensinogen (serpin peptidase inhibitor, clade A, member 8)
A04	Mm.35062	NM_177322	Agtr1a	Angiotensin II receptor, type 1a
A05	Mm.451	NM_009658	Akr1b3	Aldo-keto reductase family 1, member B3 (aldose reductase)
A06	Mm.6645	NM_009652	Akt1	Thymoma viral proto-oncogene 1
A07	Mm.18625	NM_007472	Aqp1	Aquaporin 1
A08	Mm.20206	NM_009699	Aqp2	Aquaporin 2
A09	Mm.34043	NM_016689	Aqp3	Aquaporin 3
A10	Mm.250786	NM_009700	Aqp4	Aquaporin 4
A11	Mm.45580	NM_009701	Aqp5	Aquaporin 5
A12	Mm.449427	NM_022026	Aqp9	Aquaporin 9
B01	Mm.641	NM_009716	Atf4	Activating transcription factor 4
B02	Mm.280103	NM_144900	Atp1a1	ATPase, Na+/K+ transporting, alpha 1 polypeptide
B03	Mm.4550	NM_009721	Atp1b1	ATPase, Na+/K+ transporting, beta 1 polypeptide
B04	Mm.6190	NM_009732	Avp	Arginine vasopressin
B05	Mm.1971	NM_007591	Calr	Calreticulin
B06	Mm.210676	NM_007657	Cd9	CD9 antigen
B07	Mm.15621	NM_021050	Cftr	Cystic fibrosis transmembrane conductance regulator homolog
B08	Mm.178	NM_009964	Cryab	Crystallin, alpha B
B09	Mm.390287	NM_010217	Ctgf	Connective tissue growth factor
B10	Mm.110220	NM_007837	Ddit3	DNA-damage inducible transcript 3
B11	Mm.239041	NM_013642	Dusp1	Dual specificity phosphatase 1
B12	Mm.14543	NM_010104	Edn1	Endothelin 1
C01	Mm.8534	NM_007912	Egfr	Epidermal growth factor receptor
C02	Mm.181959	NM_007913	Egr1	Early growth response 1
C03	Mm.103737	NM_018781	Egr3	Early growth response 3
C04	Mm.246513	NM_010234	Fos	FBJ osteosarcoma oncogene
C05	Mm.72235	NM_007836	Gadd45a	Growth arrest and DNA-damage-inducible 45 alpha
C06	Mm.1360	NM_008655	Gadd45b	Growth arrest and DNA-damage-inducible 45 beta
C07	Mm.281298	NM_011817	Gadd45g	Growth arrest and DNA-damage-inducible 45 gamma
C08	Mm.2614	NM_008190	Guca2a	Guanylate cyclase activator 2a (guanylin)
C09	Mm.276389	NM_010442	Hmox1	Heme oxygenase (decycling) 1
C10	Mm.1843	NM_010480	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1
C11	Mm.6388	NM_010479	Hspa1a	Heat shock protein 1A
C12	Mm.239865	NM_008300	Hspa4	Heat shock protein 4
D01	Mm.39330	NM_011020	Hspa4l	Heat shock protein 4 like
D02	Mm.330160	NM_022310	Hspa5	Heat shock protein 5
D03	Mm.13849	NM_013560	Hspb1	Heat shock protein 1
D04	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D05	Mm.4946	NM_008387	Ins2	Insulin II
D06	Mm.263396	NM_010578	Itgb1	Integrin beta 1 (fibronectin receptor beta)
D07	Mm.275071	NM_010591	Jun	Jun oncogene
D08	Mm.390168	NM_019659	Kcnj1	Potassium inwardly-rectifying channel, subfamily J, member 1
D09	Mm.9537	NM_008491	Lcn2	Lipocalin 2

Position	UniGene	GenBank	Symbol	Description
D10	Mm.1715	NM_008518	Ltb	Lymphotoxin B
D11	Mm.275436	NM_023138	Map2k2	Mitogen-activated protein kinase kinase 2
D12	Mm.15918	NM_011945	Map3k1	Mitogen-activated protein kinase kinase kinase 1
E01	Mm.196581	NM_011949	Mapk1	Mitogen-activated protein kinase 1
E02	Mm.21495	NM_016700	Mapk8	Mitogen-activated protein kinase 8
E03	Mm.32780	NM_133241	Mlc1	Megalencephalic leukoencephalopathy with subcortical cysts 1 homolog (human)
E04	Mm.390057	NM_018823	Nfat5	Nuclear factor of activated T-cells 5
E05	Mm.170515	NM_010907	Nfkbia	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E06	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell
E07	Mm.4627	NM_008727	Npr1	Natriuretic peptide receptor 1
E08	Mm.34102	NM_013614	Odc1	Ornithine decarboxylase, structural 1
E09	Mm.16745	NM_011025	Oxt	Oxytocin
E10	Mm.234204	NM_177326	Pak2	P21 protein (Cdc42/Rac)-activated kinase 2
E11	Mm.192158	NM_011037	Pax2	Paired box gene 2
E12	Mm.29856	NM_028994	Pck2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)
F01	Mm.2442	NM_009787	Pdia4	Protein disulfide isomerase associated 4
F02	Mm.154660	NM_008872	Plat	Plasminogen activator, tissue
F03	Mm.254494	NM_007982	Ptk2	PTK2 protein tyrosine kinase 2
F04	Mm.21613	NM_172498	Ptk2b	PTK2 protein tyrosine kinase 2 beta
F05	Mm.28405	NM_011361	Sgk1	Serum/glucocorticoid regulated kinase 1
F06	Mm.44158	NM_030683	Slc14a2	Solute carrier family 14 (urea transporter), member 2
F07	Mm.21002	NM_011400	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
F08	Mm.46754	NM_175121	Slc38a2	Solute carrier family 38, member 2
F09	Mm.358665	NM_017391	Slc5a3	Solute carrier family 5 (inositol transporters), member 3
F10	Mm.274506	NM_133661	Slc6a12	Solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12
F11	Mm.395650	NM_009320	Slc6a6	Solute carrier family 6 (neurotransmitter transporter, taurine), member 6
F12	Mm.256414	NM_001033289	Slc9a2	Solute carrier family 9 (sodium/hydrogen exchanger), member 2
G01	Mm.261564	NM_001081060	Slc9a3	Solute carrier family 9 (sodium/hydrogen exchanger), member 3
G02	Mm.2093	NM_011427	Snai1	Snail homolog 1 (Drosophila)
G03	Mm.22845	NM_009271	Src	Rous sarcoma oncogene
G04	Mm.28110	NM_146214	Tat	Tyrosine aminotransferase
G05	Mm.137222	NM_031199	Tgfa	Transforming growth factor alpha
G06	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G07	Mm.295124	NM_001001491	Tpm4	Tropomyosin 4
G08	Mm.222	NM_011640	Trp53	Transformation related protein 53
G09	Mm.266450	NM_022017	Trpv4	Transient receptor potential cation channel, subfamily V, member 4
G10	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
G11	Mm.268000	NM_011701	Vim	Vimentin
G12	Mm.235132	NM_007564	Zfp36l1	Zinc finger protein 36, C3H type-like 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, 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.

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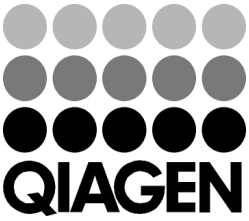

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