

RT² Profiler PCR Array (Rotor-Gene® Format)

Mouse Cystic Fibrosis

Cat. no. 330231 PAMM-167ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Mouse Cystic Fibrosis RT² Profiler PCR Array profiles the expression of 84 key genes that are either differentially expressed during cystic fibrosis (CF) or that interact with the cystic fibrosis transmembrane conductance regulator (CFTR). CF is an autosomal recessive disease caused by genetic mutations in CFTR, a chloride channel expressed in epithelial cells. CFTR mutations cause dysregulation of the digestive system and respiratory system. Current medical therapies successfully treat CF patients' digestive system ailments. Therefore, most research focuses on CF lung pathology, which progressively deteriorates during the life of the patient. Proactive medical treatments have extended the average lifespan of CF patients to 40 years. CF patients present with varying degrees of thickened bronchial mucus and neutrophil activation, although the exact molecular mechanisms causing these phenotypes are unknown. These patients also suffer from chronic lung inflammation, which can lead to fibrosis and reduced lung function. This inflammation may be due to the multiple infections CF patients suffer from, although some studies suggest that the inflammation occurs even in the absence of lung infection. The varying CFTR mutations have different functional consequences, such as reduced activity or protein misfolding. However, the full spectrum of CF patient phenotypes is thought to occur via additional modifying genes that may vary from patient to patient and play a part in the molecular mechanisms of CFTR function. The modifying genes represented by this array include ion transporters, genes involved in the immune or inflammatory response, and genes whose exact relationship to CFTR function is unknown. Some of these genes were identified in microarray gene expression studies that compared CF patients with a known common CFTR mutation that have either a mild or a severe CF phenotype. A set of controls present on each array enables data analysis using the $\Delta\Delta\text{CT}$ method of relative quantification, assessment of reverse transcription performance, genomic DNA

contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in CFTR molecular mechanisms 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	Mm.754	NM_009598	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Mm.291826	NM_197985	Adipor2	Adiponectin receptor 2
A03	Mm.188734	NM_134079	Adk	Adenosine kinase
A04	Mm.5598	NM_007420	Adrb2	Adrenergic receptor, beta 2
A05	Mm.22626	NM_146036	Ahsa1	AHA1, activator of heat shock protein ATPase homolog 1 (yeast)
A06	Mm.340329	NM_009659	Alox12b	Arachidonate 12-lipoxygenase, 12R type
A07	Mm.1971	NM_007591	Calr	Calreticulin
A08	Mm.248827	NM_007597	Canx	Calnexin
A09	Mm.867	NM_011331	Ccl12	Chemokine (C-C motif) ligand 12
A10	Mm.15621	NM_021050	Cfr	Cystic fibrosis transmembrane conductance regulator homolog
A11	Mm.200608	NM_013492	Clu	Clusterin
A12	Mm.21013	NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1
B01	Mm.244289	NM_203320	Cxcl3	Chemokine (C-X-C motif) ligand 3
B02	Mm.234466	NM_009909	Cxcr2	Chemokine (C-X-C motif) receptor 2
B03	Mm.431316	NM_007843	Defb1	Defensin beta 1
B04	Mm.27897	NM_008298	Dnaja1	DnaJ (Hsp40) homolog, subfamily A, member 1
B05	Mm.140761	NM_016775	Dnajc5	DnaJ (Hsp40) homolog, subfamily C, member 5
B06	Mm.239041	NM_013642	Dusp1	Dual specificity phosphatase 1
B07	Mm.14543	NM_010104	Edn1	Endothelin 1
B08	Mm.283168	NM_010332	Ednra	Endothelin receptor type A
B09	Mm.68134	NM_029495	Epsti1	Epithelial stromal interaction 1 (breast)
B10	Mm.277812	NM_009510	Ezr	Ezrin
B11	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member 6)
B12	Mm.485389	NM_010295	Gclc	Glutamate-cysteine ligase, catalytic subunit
C01	Mm.390258	NM_053187	Gopc	Golgi associated PDZ and coiled-coil motif containing
C02	Mm.440086	NM_008183	Gstm2	Glutathione S-transferase, mu 2
C03	Mm.1843	NM_010480	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1
C04	Mm.6388	NM_010479	Hspa1a	Heat shock protein 1A
C05	Mm.239865	NM_008300	Hspa4	Heat shock protein 4
C06	Mm.336743	NM_031165	Hspa8	Heat shock protein 8
C07	Mm.270681	NM_013559	Hsph1	Heat shock 105kDa/110kDa protein 1
C08	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule 1
C09	Mm.168	NM_013562	Ifrd1	Interferon-related developmental regulator 1
C10	Mm.405761	NM_010518	Igfbp5	Insulin-like growth factor binding protein 5
C11	Mm.874	NM_010548	Il10	Interleukin 10
C12	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D01	Mm.1019	NM_031168	Il6	Interleukin 6
D02	Mm.389	NM_008372	Il7r	Interleukin 7 receptor
D03	Mm.5007	NM_008396	Itga2	Integrin alpha 2
D04	Mm.1137	NM_008404	Itgb2	Integrin beta 2
D05	Mm.299425	NM_008424	Kcne1	Potassium voltage-gated channel, Isk-related subfamily, member 1
D06	Mm.247073	NM_021099	Kit	Kit oncogene
D07	Mm.9537	NM_008491	Lcn2	Lipocalin 2
D08	Mm.196581	NM_011949	Mapk1	Mitogen-activated protein kinase 1
D09	Mm.30045	NM_010776	Mbl2	Mannose-binding lectin (protein C) 2
D10	Mm.86844	NM_008591	Met	Met proto-oncogene
D11	Mm.26713	NM_026322	Msra	Methionine sulfoxide reductase A
D12	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
E01	Mm.170515	NM_010907	Nfkb1a	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E02	Mm.439702	NM_008704	Nme1	Non-metastatic cells 1, protein (NM23A) expressed in
E03	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell
E04	Mm.3507	NM_013613	Nr4a2	Nuclear receptor subfamily 4, group A, member 2
E05	Mm.482226	NM_021517	Pdzk1	PDZ domain containing 1
E06	Mm.23347	NM_011110	Pla2g5	Phospholipase A2, group V
E07	Mm.275393	NM_138748	Ppp2r4	Protein phosphatase 2A, regulatory subunit B (PR 53)
E08	Mm.207004	NM_001013367	Prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit

Position	UniGene	GenBank	Symbol	Description
E09	Mm.48638	NM_178143	Prkaa2	Protein kinase, AMP-activated, alpha 2 catalytic subunit
E10	Mm.24614	NM_011104	Prkce	Protein kinase C, epsilon
E11	Mm.2364	NM_011178	Prtn3	Proteinase 3
E12	Mm.292547	NM_011198	Ptgs2	Prostaglandin-endoperoxide synthase 2
F01	Mm.21567	NM_013650	S100a8	S100 calcium binding protein A8 (calgranulin A)
F02	Mm.2128	NM_009114	S100a9	S100 calcium binding protein A9 (calgranulin B)
F03	Mm.7709	NM_011325	Scnn1b	Sodium channel, nonvoltage-gated 1 beta
F04	Mm.35247	NM_011326	Scnn1g	Sodium channel, nonvoltage-gated 1 gamma
F05	Mm.312593	NM_009247	Serpina1e	Serine (or cysteine) peptidase inhibitor, clade A, member 1e
F06	Mm.46033	NM_147779	Sftpb	Surfactant associated protein B
F07	Mm.283281	NM_021353	Slc26a3	Solute carrier family 26, member 3
F08	Mm.27842	NM_012030	Slc9a3r1	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 1
F09	Mm.21587	NM_023055	Slc9a3r2	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 2
F10	Mm.371583	NM_011414	Slpi	Secretory leukocyte peptidase inhibitor
F11	Mm.245715	NM_009222	Snap23	Synaptosomal-associated protein 23
F12	Mm.6225	NM_016801	Stx1a	Syntaxin 1A (brain)
G01	Mm.3973	NM_018768	Stx8	Syntaxin 8
G02	Mm.139815	NM_009333	Tcf7l2	Transcription factor 7-like 2, T-cell specific, HMG-box
G03	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
G04	Mm.4342	NM_009386	Tjp1	Tight junction protein 1
G05	Mm.87596	NM_011905	Tlr2	Toll-like receptor 2
G06	Mm.38049	NM_021297	Tlr4	Toll-like receptor 4
G07	Mm.116894	NM_016928	Tlr5	Toll-like receptor 5
G08	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G09	Mm.6251	NM_009399	Tnfrsf11a	Tumor necrosis factor receptor superfamily, member 11a
G10	Mm.1258	NM_011609	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G11	Mm.1062	NM_009425	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G12	Mm.245976	NM_009503	Vcp	Valosin containing protein
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.
RT ² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT ² 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.

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