RT² Profiler PCR Array (Rotor-Gene® Format)

Human Cystic Fibrosis

Cat. no. 330231 PAHS-167ZR

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 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 ΔΔCT 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	Hs.654434	NM_000789	ACE	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Hs.371642	NM_024551	ADIPOR2	Adiponectin receptor 2
A03	Hs.656586	NM_001123	ADK	Adenosine kinase
A04	Hs.591251	NM_000024	ADRB2	Adrenergic, beta-2-, receptor, surface
A05	Hs.204041	NM_012111	AHSA1	AHA1, activator of heat shock 90kDa protein ATPase homolog 1 (yeast)
A06	Hs.136574	NM_001139	ALOX12B	Arachidonate 12-lipoxygenase, 12R type
A07	Hs.515162	NM_004343	CALR	Calreticulin
A08	Hs.699155	NM_001746	CANX	Calnexin
A09	Hs.303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2
A10	Hs.489786	NM_000492	CFTR	Cystic fibrosis transmembrane conductance regulator (ATP-binding cassette sub-family C, member 7)
A11	Hs.436657	NM_001831	CLU	Clusterin
A12	Hs.789	NM_001511	CXCL1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)
B01	Hs.590921	NM_002089	CXCL2	Chemokine (C-X-C motif) ligand 2
B02	Hs.846	NM_001557	CXCR2	Chemokine (C-X-C motif) receptor 2
B03	Hs.32949	NM_005218	DEFB1	Defensin, beta 1
B04	Hs.445203	NM_001539	DNAJA1	DnaJ (Hsp40) homolog, subfamily A, member 1
B05	Hs.164419	NM_025219	DNAJC5	DnaJ (Hsp40) homolog, subfamily C, member 5
B06	Hs.171695	NM_004417	DUSP1	Dual specificity phosphatase 1
B07	Hs.511899	NM_001955	EDN1	Endothelin 1
B08	Hs.183713	NM_001957	EDNRA	Endothelin receptor type A
B09	Hs.546467	NM_033255	EPSTI1	Epithelial stromal interaction 1 (breast)
B10	Hs.487027	NM_003379	EZR	Ezrin
B11	Hs.244139	NM_000043	FAS	Fas (TNF receptor superfamily, member 6)
B12	Hs.654465	NM_001498	GCLC	Glutamate-cysteine ligase, catalytic subunit
C01	Hs.191539	NM_020399	GOPC	Golgi-associated PDZ and coiled-coil motif containing
C02	Hs.301961	NM_000561	GSTM1	Glutathione S-transferase mu 1
C03	Hs.525600	NM_001017963	HSP90AA1	Heat shock protein 90kDa alpha (cytosolic), class A member 1
C04	Hs.728810	NM_005345	HSPA1A	Heat shock 70kDa protein 1A
C05	Hs.90093	NM_002154	HSPA4	Heat shock 70kDa protein 4
C06	Hs.702021	NM_006597	HSPA8	Heat shock 70kDa protein 8
C07	Hs.36927	NM_006644	HSPH1	Heat shock 105kDa/110kDa protein 1
C08	Hs.643447	NM_000201	ICAM1	Intercellular adhesion molecule 1
C09	Hs.7879	NM_001550	IFRD1	Interferon-related developmental regulator 1
C10	Hs.607212	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5
C11	Hs.193717	NM_000572	IL10	Interleukin 10
C12	Hs.126256	NM_000576	IL1B	Interleukin 1, beta
D01	Hs.654458	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
D02	Hs.591742	NM_002185	IL7R	Interleukin 7 receptor
D03	Hs.624	NM_000584	IL8	Interleukin 8
D04	Hs.482077	NM_002203	ITGA2	Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
D05	Hs.375957	NM_000211	ITGB2	Integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)
D06	Hs.121495	NM_000219	KCNE1	Potassium voltage-gated channel, Isk-related family, member 1
D07	Hs.479754	NM_000222	KIT	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog
D08	Hs.204238	NM_005564	LCN2	Lipocalin 2
D09	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1
D10	Hs.499674	NM_000242	MBL2	Mannose-binding lectin (protein C) 2, soluble
D11	Hs.132966	NM_000245	MET	Met proto-oncogene (hepatocyte growth factor receptor)
D12	Hs.490981	NM_012331	MSRA	Methionine sulfoxide reductase A
E01	Hs.654408	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E02	Hs.81328	NM_020529	NFKBIA	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E03	Hs.118638	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed in
E04	Hs.707978	NM_000603	NOS3	Nitric oxide synthase 3 (endothelial cell)
E05	Hs.563344	NM_006186	NR4A2	Nuclear receptor subfamily 4, group A, member 2
E06	Hs.444751	NM_002614	PDZK1	PDZ domain containing 1
E07	Hs.319438	NM_000929	PLA2G5	Phospholipase A2, group V

Position	UniGene	GenBank	Symbol	Description
E08	Hs.400740	NM_021131	PPP2R4	Protein phosphatase 2A activator, regulatory subunit 4
E09	Hs.43322	NM_006251	PRKAA1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
E10	Hs.437039	NM_006252	PRKAA2	Protein kinase, AMP-activated, alpha 2 catalytic subunit
E11	Hs.580351	NM_005400	PRKCE	Protein kinase C, epsilon
E12	Hs.928	NM_002777	PRTN3	Proteinase 3
F01	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
F02	Hs.416073	NM_002964	S100A8	S100 calcium binding protein A8
F03	Hs.414614	NM_000336	SCNN1B	Sodium channel, nonvoltage-gated 1, beta
F04	Hs.371727	NM_001039	SCNN1G	Sodium channel, nonvoltage-gated 1, gamma
F05	Hs.525557	NM_000295	SERPINA1	Serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1
F06	Hs.512690	NM_000542	SFTPB	Surfactant protein B
F07	Hs.1650	NM_000111	SLC26A3	Solute carrier family 26, member 3
F08	Hs.728760	NM_004252	SLC9A3R1	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 1
F09	Hs.440896	NM_004785	SLC9A3R2	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 2
F10	Hs.517070	NM_003064	SLPI	Secretory leukocyte peptidase inhibitor
F11	Hs.511149	NM_003825	SNAP23	Synaptosomal-associated protein, 23kDa
F12	Hs.647024	NM_004603	STX1A	Syntaxin 1A (brain)
G01	Hs.431109	NM_004853	STX8	Syntaxin 8
G02	Hs.593995	NM_030756	TCF7L2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G03	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G04	Hs.510833	NM_175610	TJP1	Tight junction protein 1 (zona occludens 1)
G05	Hs.519033	NM_003264	TLR2	Toll-like receptor 2
G06	Hs.174312	NM_138554	TLR4	Toll-like receptor 4
G07	Hs.604542	NM_003268	TLR5	Toll-like receptor 5
G08	Hs.241570	NM_000594	TNF	Tumor necrosis factor
G09	Hs.204044	NM_003839	TNFRSF11A	Tumor necrosis factor receptor superfamily, member 11a, NFKB activator
G10	Hs.279594	NM_001065	TNFRSF1A	Tumor necrosis factor receptor superfamily, member 1A
G11	Hs.478275	NM_003810	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10
G12	Hs.529782	NM_007126	VCP	Valosin containing protein
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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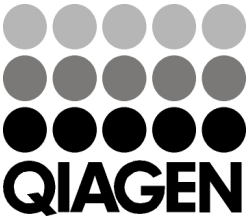

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