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

Rat Cystic Fibrosis

Cat. no. 330231 PARN-167ZA

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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Sample & Assay Technologies

Description

The Rat 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 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	Ace	Adipor2	Adk	Adrb2	Alox12b	Calr	Canx	Ccl12	Ccl5	Cftr	Clu	Cxcl1
B	Cxcl3	Cxcr2	Cxcr4	Defb1	Dnaja1	Dnajc5	Dusp1	Edn1	Ednra	Epsti1	Ezr	Fas
C	Gclc	Gopc	Gstm2	Hsp90aa1	Hspa1b	Hspa4	Hsph1	Icam1	Ifrd1	Igfbp5	Il10	Il1b
D	Il6	Il7r	Itga2	Itgb2	Kcne1	Kit	Lcn2	Mapk1	Mbl2	Met	Msra	Nfkb1
E	Nfkbia	Nme1	Nos3	Nr4a2	Pdzk1	Pla2g5	Ppp2r4	Prkaa1	Prkaa2	Prkce	Prtn3	Ptgs2
F	S100a8	S100a9	Scnn1b	Scnn1g	Serpina1	Sftpb	Slc26a3	Slc9a3r1	Slc9a3r2	Slpi	Snap23	Stx1a
G	Stx8	Tcf7l2	Tgfb1	Tjp1	Tlr2	Tlr4	Tlr5	Tnf	Tnfrsf11a	Tnfrsf1a	Tnfsf10	Vcp
H	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.10149	NM_012544	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Rn.101984	NM_001037979	Adipor2	Adiponectin receptor 2
A03	Rn.64165	NM_012895	Adk	Adenosine kinase
A04	Rn.10206	NM_012492	Adrb2	Adrenergic, beta-2-, receptor, surface
A05	Rn.160588	NM_001039377	Alox12b	Arachidonate 12-lipoxygenase, 12R type
A06	Rn.974	NM_022399	Calr	Calreticulin
A07	Rn.1762	NM_172008	Canx	Calnexin
A08	Rn.137780	NM_001105822	Ccl12	Chemokine (C-C motif) ligand 12
A09	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
A10	Rn.124539	NM_031506	Cftr	Cystic fibrosis transmembrane conductance regulator homolog (human)
A11	Rn.1780	NM_053021	Clu	Clusterin
A12	Rn.10907	NM_030845	Cxcl1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)
B01	Rn.10525	NM_138522	Cxcl3	Chemokine (C-X-C motif) ligand 3
B02	Rn.90347	NM_017183	Cxcr2	Chemokine (C-X-C motif) receptor 2
B03	Rn.44431	NM_022205	Cxcr4	Chemokine (C-X-C motif) receptor 4
B04	Rn.31800	NM_031810	Defb1	Defensin beta 1
B05	Rn.64562	NM_022934	Dnaja1	DnaJ (Hsp40) homolog, subfamily A, member 1
B06	Rn.100120	NM_024161	Dnajc5	DnaJ (Hsp40) homolog, subfamily C, member 5
B07	Rn.98260	NM_053769	Dusp1	Dual specificity phosphatase 1
B08	Rn.10918	NM_012548	Edn1	Endothelin 1
B09	Rn.10915	NM_012550	Ednra	Endothelin receptor type A
B10	Rn.202726	NM_001044257	Epsti1	Epithelial stromal interaction 1 (breast)
B11	Rn.773	NM_019357	Ezr	Ezrin
B12	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
C01	Rn.8365	NM_012815	Gclc	Glutamate-cysteine ligase, catalytic subunit
C02	Rn.27865	NM_001107631	Gopc	Golgi associated PDZ and coiled-coil motif containing
C03	Rn.625	NM_177426	Gstm2	Glutathione S-transferase mu 2
C04	Rn.119867	NM_175761	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1
C05	Rn.1950	NM_212504	Hspa1b	Heat shock 70kD protein 1B (mapped)
C06	Rn.163092	NM_153629	Hspa4	Heat shock protein 4
C07	Rn.37805	NM_001011901	Hsph1	Heat shock 105/110 protein 1
C08	Rn.12	NM_012967	Icam1	Intercellular adhesion molecule 1
C09	Rn.3723	NM_019242	Ifrd1	Interferon-related developmental regulator 1
C10	Rn.1593	NM_012817	Igfbp5	Insulin-like growth factor binding protein 5
C11	Rn.9868	NM_012854	Il10	Interleukin 10
C12	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
D01	Rn.9873	NM_012589	Il6	Interleukin 6
D02	Rn.6633	NM_001106418	Il7r	Interleukin 7 receptor
D03	Rn.83597	XM_345156	Itga2	Integrin, alpha 2
D04	Rn.42962	NM_001037780	Itgb2	Integrin, beta 2
D05	Rn.9734	NM_012973	Kcne1	Potassium voltage-gated channel, Isk-related family, member 1
D06	Rn.54004	NM_022264	Kit	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog
D07	Rn.11303	NM_130741	Lcn2	Lipocalin 2
D08	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
D09	Rn.9667	NM_022704	Mbl2	Mannose-binding lectin (protein C) 2

Position	UniGene	GenBank	Symbol	Description
D10	Rn.10617	NM_031517	Met	Met proto-oncogene
D11	Rn.163306	NM_053307	Msra	Methionine sulfoxide reductase A
D12	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E01	Rn.12550	NM_001105720	Nfkbia	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E02	Rn.6236	NM_138548	Nme1	Non-metastatic cells 1, protein (NM23A) expressed in
E03	Rn.44265	NM_021838	Nos3	Nitric oxide synthase 3, endothelial cell
E04	Rn.88129	NM_019328	Nr4a2	Nuclear receptor subfamily 4, group A, member 2
E05	Rn.19842	NM_031712	Pdzk1	PDZ domain containing 1
E06	Rn.20244	NM_017174	Pla2g5	Phospholipase A2, group V
E07	Rn.24600	NM_001108577	Ppp2r4	Protein phosphatase 2A activator, regulatory subunit 4
E08	Rn.87789	NM_019142	Prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
E09	Rn.64583	NM_023991	Prkaa2	Protein kinase, AMP-activated, alpha 2 catalytic subunit
E10	Rn.216481	NM_017171	Prkce	Protein kinase C, epsilon
E11	Rn.47765	NM_001024264	Prtn3	Proteinase 3
E12	Rn.44369	NM_017232	Ptgs2	Prostaglandin-endoperoxide synthase 2
F01	Rn.31839	NM_053822	S100a8	S100 calcium binding protein A8
F02	Rn.6703	NM_053587	S100a9	S100 calcium binding protein A9
F03	Rn.9807	NM_012648	Scnn1b	Sodium channel, nonvoltage-gated 1, beta
F04	Rn.10360	NM_017046	Scnn1g	Sodium channel, nonvoltage-gated 1, gamma
F05	Rn.1419	NM_022519	Serpina1	Serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1
F06	Rn.1952	NM_138842	Sftpb	Surfactant protein B
F07	Rn.81026	NM_053755	Slc26a3	Solute carrier family 26, member 3
F08	Rn.35142	NM_021594	Slc9a3r1	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 1
F09	Rn.39351	NM_053811	Slc9a3r2	Solute carrier family 9 (sodium/hydrogen exchanger), member 3 regulator 2
F10	Rn.18560	NM_053372	Slpi	Secretory leukocyte peptidase inhibitor
F11	Rn.14789	NM_022689	Snap23	Synaptosomal-associated protein 23
F12	Rn.9943	NM_053788	Stx1a	Syntaxin 1A (brain)
G01	Rn.20291	NM_031656	Stx8	Syntaxin 8
G02	Rn.105849	XM_001054844	Tcf7l2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G03	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G04	Rn.101871	NM_001106266	Tjp1	Tight junction protein 1
G05	Rn.46387	NM_198769	Tlr2	Toll-like receptor 2
G06	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G07	Rn.198962	NM_001145828	Tlr5	Toll-like receptor 5
G08	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G09	Rn.180134	XM_001063501	Tnfrsf11a	Tumor necrosis factor receptor superfamily, member 11a
G10	Rn.11119	NM_013091	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G11	Rn.83627	NM_145681	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G12	Rn.98891	NM_053864	Vcp	Valosin-containing protein
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 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.

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