

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

Rat Cardiovascular Disease

Cat. no. 330231 PARN-174ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² 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
RT ² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT ² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon [®] , DNA Engine Opticon 2; Stratagene Mx4000 [®]
RT ² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format F	Roche [®] LightCycler [®] 480 (96-well block)
RT ² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT ² Profiler PCR Array, Format H	Fluidigm [®] BioMark™



Sample & Assay Technologies

Description

The Rat Cardiovascular Disease RT² Profiler PCR Array profiles the expression of 84 genes linked to cardiac disease. Cardiovascular disease is the most important cause of morbidity and mortality in developed countries, causing twice as many deaths as cancer in the United States. Multiple genetic and environmental factors, as well as the interactions between them, increase the risk for developing major cardiovascular diseases such as coronary artery disease (CAD), myocardial infarction (MI), and congestive heart failure (CHF), to name a few. The underlying pathogenic mechanisms for these disorders are still largely unknown, but observed gene expression changes may play a central role in the development and progression of cardiovascular disease. Microarray studies have characterized gene expression patterns in diseased and non-diseased patients leading to the identification of unique subsets of genes associated with the cardiac disease process. The genes profiled with this array play roles in molecular processes such as apoptosis, cardiac remodeling, cell cycle, cell growth, stress and immune responses, transcriptional regulation, and signal transduction. Genes encoding sarcomere structural proteins are represented as well. A set of controls present on each array enables data analysis using the $\Delta\Delta\text{CT}$ method of relative quantification and 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 related to cardiovascular disease 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	Actc1	Adra1a	Adra1b	Adra1d	Adrb1	Adrb2	Adrb3	Aebp1	Agtr1a	Anxa4	Ar
B	Atp2a2	Atp5a1	C6	Ccl11	Ccl2	Ccnd1	Cdkn1b	Col11a1	Col1a1	Col3a1	Creb5	Crem
C	Cryab	Crym	Ctgf	Cxcl12	Dcn	Dmd	Dusp6	Enah	Epor	F2r	Fn1	Frzb
D	G0s2	Gja1	Hmgcl	Hmgcr	Hmgcn2	Klhl3	Maoa	Mapk1	Mapk8	Mmp13	Msi2	Myh10
E	Myh6	Ndufb5	Nebi	Nfia	Nlx2-5	Nppa	Nppb	Npr1	Npr2	Npr3	Nr3c1	Nr3c2
F	Pde3a	Pde3b	Pde5a	Pde7a	Postn	Ptn	Rarres1	Rassf1	Ren	Rtn4	S100a1	S100a8
G	Serpina3n	Sfrp4	Slc12a1	Snea	Spock1	Slat1	Tcf4	Thbs2	Tnni3	Tnni2	Ubb	Zyx
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.3114	NM_019183	Actc1	Actin, alpha, cardiac muscle 1
A03	Rn.9991	NM_017191	Adra1a	Adrenergic, alpha-1A-, receptor
A04	Rn.10032	NM_016991	Adra1b	Adrenergic, alpha-1B-, receptor
A05	Rn.11314	NM_024483	Adra1d	Adrenergic, alpha-1D-, receptor
A06	Rn.87064	NM_012701	Adrb1	Adrenergic, beta-1-, receptor
A07	Rn.10206	NM_012492	Adrb2	Adrenergic, beta-2-, receptor, surface
A08	Rn.10100	NM_013108	Adrb3	Adrenergic, beta-3-, receptor
A09	Rn.37157	NM_001100970	Aebp1	AE binding protein 1
A10	Rn.9814	NM_030985	Agtr1a	Angiotensin II receptor, type 1a
A11	Rn.19270	NM_024155	Anxa4	Annexin A4
A12	Rn.9813	NM_012502	Ar	Androgen receptor
B01	Rn.2305	NM_001110139	Atp2a2	ATPase, Ca++ transporting, cardiac muscle, slow twitch 2
B02	Rn.40255	NM_023093	Atp5a1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle
B03	Rn.16145	NM_176074	C6	Complement component 6
B04	Rn.10632	NM_019205	Ccl11	Chemokine (C-C motif) ligand 11
B05	Rn.4772	NM_031530	Ccl2	Chemokine (C-C motif) ligand 2
B06	Rn.22279	NM_171992	Ccnd1	Cyclin D1
B07	Rn.29897	NM_031762	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
B08	Rn.260	NM_013117	Col11a1	Collagen, type XI, alpha 1
B09	Rn.2953	NM_053304	Col1a1	Collagen, type I, alpha 1
B10	Rn.3247	NM_032085	Col3a1	Collagen, type III, alpha 1
B11	Rn.210235	NM_001134621	Creb5	CAMP responsive element binding protein 5
B12	Rn.10251	NM_001110860	Crem	CAMP responsive element modulator
C01	Rn.98208	NM_012935	Cryab	Crystallin, alpha B
C02	Rn.24561	NM_053955	Crym	Crystallin, mu
C03	Rn.17145	NM_022266	Ctgf	Connective tissue growth factor
C04	Rn.54439	NM_022177	Cxcl12	Chemokine (C-X-C motif) ligand 12 (stromal cell-derived factor 1)
C05	Rn.106103	NM_024129	Dcn	Decorin
C06	Rn.10307	NM_012698	Dmd	Dystrophin
C07	Rn.4313	NM_053883	Dusp6	Dual specificity phosphatase 6
C08	Rn.163240	NM_001012150	Enah	Enabled homolog (Drosophila)
C09	Rn.22394	NM_017002	Epor	Erythropoietin receptor
C10	Rn.2609	NM_012950	F2r	Coagulation factor II (thrombin) receptor
C11	Rn.1604	NM_019143	Fn1	Fibronectin 1
C12	Rn.12034	NM_001100527	Frzb	Frizzled-related protein
D01	Rn.1040	NM_001009632	G0s2	G0/G1 switch 2
D02	Rn.10346	NM_012567	Gja1	Gap junction protein, alpha 1
D03	Rn.12297	NM_024386	Hmgcl	3-hydroxymethyl-3-methylglutaryl-Coenzyme A lyase
D04	Rn.9437	NM_013134	Hmgcr	3-hydroxy-3-methylglutaryl-Coenzyme A reductase
D05	Rn.3517	NM_001025624	Hmgcn2	High mobility group nucleosomal binding domain 2
D06	N/A	XM_006253568	Klhl3	Kelch-like family member 3
D07	Rn.224544	NM_033653	Maoa	Monoamine oxidase A
D08	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1

Position	UniGene	GenBank	Symbol	Description
D09	Rn.4090	NM_053829	Mapk8	Mitogen-activated protein kinase 8
D10	Rn.10997	NM_133530	Mmp13	Matrix metalloproteinase 13
D11	N/A	XM_008768240	Msi2	Musashi RNA-binding protein 2
D12	Rn.98166	NM_031520	Myh10	Myosin, heavy chain 10, non-muscle
E01	Rn.54399	NM_017239	Myh6	Myosin, heavy chain 6, cardiac muscle, alpha
E02	Rn.3367	NM_001106426	Ndufb5	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5
E03	Rn.234519	NM_001191694	Neb1	Nebulette
E04	Rn.10550	NM_012988	Nfia	Nuclear factor I/A
E05	Rn.6179	NM_053651	Nkx2-5	NK2 transcription factor related, locus 5 (Drosophila)
E06	Rn.2004	NM_012612	Nppa	Natriuretic peptide precursor A
E07	Rn.3835	NM_031545	Nppb	Natriuretic peptide precursor B
E08	Rn.10463	NM_012613	Npr1	Natriuretic peptide receptor A/guanylate cyclase A (atrionatriuretic peptide receptor A)
E09	Rn.32984	NM_053838	Npr2	Natriuretic peptide receptor B/guanylate cyclase B (atrionatriuretic peptide receptor B)
E10	Rn.11297	NM_012868	Npr3	Natriuretic peptide receptor C/guanylate cyclase C (atrionatriuretic peptide receptor C)
E11	Rn.90070	NM_012576	Nr3c1	Nuclear receptor subfamily 3, group C, member 1
E12	Rn.9678	NM_013131	Nr3c2	Nuclear receptor subfamily 3, group C, member 2
F01	Rn.44403	NM_017337	Pde3a	Phosphodiesterase 3A, cGMP inhibited
F02	Rn.10322	NM_017229	Pde3b	Phosphodiesterase 3B, cGMP-inhibited
F03	Rn.10861	NM_133584	Pde5a	Phosphodiesterase 5A, cGMP-specific
F04	Rn.39142	NM_031080	Pde7a	Phosphodiesterase 7A
F05	Rn.30516	NM_001108550	Postn	Periostin, osteoblast specific factor
F06	Rn.1653	NM_017066	Ptn	Pleiotrophin
F07	Rn.16737	NM_001014790	Rarres1	Retinoic acid receptor responder (tazarotene induced) 1
F08	Rn.83042	NM_001007754	Rassf1	Ras association (RalGDS/AF-6) domain family member 1
F09	Rn.9831	NM_012642	Ren	Renin
F10	Rn.1348	NM_031831	Rtn4	Reticulon 4
F11	Rn.11091	NM_001007636	S100a1	S100 calcium binding protein A1
F12	Rn.31839	NM_053822	S100a8	S100 calcium binding protein A8
G01	Rn.202939	NM_031531	Serpina3n	Serine (or cysteine) peptidase inhibitor, clade A, member 3N
G02	Rn.10788	NM_053544	Sfrp4	Secreted frizzled-related protein 4
G03	Rn.14799	NM_019134	Slc12a1	Solute carrier family 12 (sodium/potassium/chloride transporters), member 1
G04	Rn.1827	NM_019169	Snca	Synuclein, alpha (non A4 component of amyloid precursor)
G05	Rn.44057	NM_001271297	Spock1	Sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican) 1
G06	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
G07	Rn.23354	NM_053369	Tcf4	Transcription factor 4
G08	Rn.165619	NM_001169138	Thbs2	Thrombospondin 2
G09	Rn.64141	NM_017144	Tnni3	Troponin I type 3 (cardiac)
G10	Rn.9965	NM_012676	Tnnt2	Troponin T type 2 (cardiac)
G11	Rn.1253	NM_138895	Ubb	Ubiquitin B
G12	Rn.107363	NM_053761	Zyx	Zyxin
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.
RT ² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT ² 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
RT ² 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
RT ² 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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