

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

Rat Transplant Rejection

Cat. no. 330231 PARN-166ZA

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 Transplant Rejection RT² Profiler PCR Array profiles the expression of 84 key genes involved in the rejection of transplanted tissue. The major barrier to successful organ transplantation, the preferred treatment method for end-stage organ failure, still remains organ rejection caused by the recipient's immune response to the transplant. During acute rejection, tissue injury incurred due to isolation, retrieval, and ischemia reperfusion activates elements of the innate immune system, which then initiate and amplify the adaptive immune response. Unchecked innate and adaptive immune responses lead to destruction and death of transplanted cells, tissues, and organs. Even though cell- or antibody-mediated immunity may dominate the acute rejection process, multiple rejection mechanisms play integrative roles in rejection. Ill-defined immunological and non-immunological mechanisms both contribute to chronic rejection by causing fibrotic tissue remodeling and vascular damage. The role and relationship between molecular pathways that lead to tissue destruction during acute and chronic transplant rejection are still not fully understood. Identifying the molecular pathways that trigger tissue injury, signal transduction, and rejection facilitates identification of targets for development of novel immunosuppressive strategies and evaluation of the effectiveness of existent ones. This array analyzes the expression of key innate and adaptive immune response genes mediating acute rejection and genes responsible for fibrosis and vascular permeability during chronic rejection. A set of controls present on each array enables data analysis using the $\Delta\Delta CT$ 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 associated with acute and chronic transplant rejection 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	Adam17	Bmp7	C3	C4b	Casp1	Casp3	Casp8	Ccl11	Ccl2	Ccl3	Ccl4	Ccl5
B	Ccr2	Ccr3	Ccr5	Ccr7	Cd14	Cd28	Cd40	Cd40lg	Cd44	Cd80	Cd86	Cd8a
C	Col1a2	Csf2	Ctgf	Ctla4	Cx3cr1	Cxcl10	Cxcl11	Cxcl9	Cxcr2	Cxcr3	Cxcr4	Fas
D	Faslg	Gzma	Gzmb	Icam1	Ifng	Il10	Il12a	Il12b	Il13	Il16	Il1b	Il2
E	Il2ra	Il3	Il4	Il5	Il6	Ilga2	Ilgae	Ilgam	Mmp1a	Mmp1b	Mmp2	Mmp7
F	Mmp9	Ms4a1	Nfkb1	Nos2	Pecam1	Prf1	Psmb9	Stat1	Stat4	Stat6	Tap1	Tgfb1
G	Tgfb2	Tgfb3	Thbs1	Thbs2	Timp1	Tlr3	Tlr4	Tlr9	Tnf	Tnfsf10	Vcam1	Vegfa
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.144585	NM_020306	Adam17	ADAM metalloproteinase domain 17
A02	Rn.18030	XM_342591	Bmp7	Bone morphogenetic protein 7
A03	Rn.11378	NM_016994	C3	Complement component 3
A04	Rn.81052	NM_031504	C4b	Complement component 4B (Chido blood group)
A05	Rn.37508	NM_012762	Casp1	Caspase 1
A06	Rn.10562	NM_012922	Casp3	Caspase 3
A07	Rn.54474	NM_022277	Casp8	Caspase 8
A08	Rn.10632	NM_019205	Ccl11	Chemokine (C-C motif) ligand 11
A09	Rn.4772	NM_031530	Ccl2	Chemokine (C-C motif) ligand 2
A10	Rn.10139	NM_013025	Ccl3	Chemokine (C-C motif) ligand 3
A11	Rn.37880	NM_053858	Ccl4	Chemokine (C-C motif) ligand 4
A12	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
B01	Rn.211983	NM_021866	Ccr2	Chemokine (C-C motif) receptor 2
B02	Rn.9890	NM_053958	Ccr3	Chemokine (C-C motif) receptor 3
B03	Rn.10736	NM_053960	Ccr5	Chemokine (C-C motif) receptor 5
B04	Rn.16815	NM_199489	Ccr7	Chemokine (C-C motif) receptor 7
B05	Rn.42942	NM_021744	Cd14	CD14 molecule
B06	Rn.10327	NM_013121	Cd28	CD28 molecule
B07	Rn.25180	NM_134360	Cd40	CD40 molecule, TNF receptor superfamily member 5
B08	Rn.44218	NM_053353	Cd40lg	CD40 ligand
B09	Rn.1120	NM_012924	Cd44	CD44 molecule
B10	Rn.10138	NM_012926	Cd80	CD80 molecule
B11	Rn.6734	NM_020081	Cd86	CD86 molecule
B12	Rn.10306	NM_031538	Cd8a	CD8a molecule
C01	Rn.107239	NM_053356	Col1a2	Collagen, type I, alpha 2
C02	Rn.44285	XM_340799	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
C03	Rn.17145	NM_022266	Ctgf	Connective tissue growth factor
C04	Rn.10259	NM_031674	Ctla4	Cytotoxic T-lymphocyte-associated protein 4
C05	Rn.10482	NM_133534	Cx3cr1	Chemokine (C-X3-C motif) receptor 1
C06	Rn.10584	NM_139089	Cxcl10	Chemokine (C-X-C motif) ligand 10
C07	Rn.13664	NM_182952	Cxcl11	Chemokine (C-X-C motif) ligand 11
C08	Rn.7391	NM_145672	Cxcl9	Chemokine (C-X-C motif) ligand 9
C09	Rn.90347	NM_017183	Cxcr2	Chemokine (C-X-C motif) receptor 2
C10	Rn.24787	NM_053415	Cxcr3	Chemokine (C-X-C motif) receptor 3
C11	Rn.44431	NM_022205	Cxcr4	Chemokine (C-X-C motif) receptor 4
C12	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
D01	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
D02	Rn.22283	NM_153468	Gzma	Granzyme A
D03	Rn.21395	NM_138517	Gzmb	Granzyme B
D04	Rn.12	NM_012967	Icam1	Intercellular adhesion molecule 1
D05	Rn.10795	NM_138880	Ifng	Interferon gamma
D06	Rn.9868	NM_012854	Il10	Interleukin 10
D07	Rn.207199	NM_053390	Il12a	Interleukin 12a
D08	Rn.48686	NM_022611	Il12b	Interleukin 12b
D09	Rn.9921	NM_053828	Il13	Interleukin 13

Position	UniGene	GenBank	Symbol	Description
D10	Rn.104665	NM_001105749	Il16	Interleukin 16
D11	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
D12	Rn.9871	NM_053836	Il2	Interleukin 2
E01	Rn.9872	NM_013163	Il2ra	Interleukin 2 receptor, alpha
E02	Rn.10652	NM_031513	Il3	Interleukin 3
E03	Rn.108255	NM_201270	Il4	Interleukin 4
E04	Rn.44227	NM_021834	Il5	Interleukin 5
E05	Rn.9873	NM_012589	Il6	Interleukin 6
E06	Rn.83597	XM_345156	Itga2	Integrin, alpha 2
E07	Rn.29975	NM_031768	Itgae	Integrin, alpha E
E08	Rn.54465	NM_012711	Itgam	Integrin, alpha M
E09	Rn.79007	NM_001134530	Mmp1a	Matrix metalloproteinase 1a (interstitial collagenase)
E10	Rn.127177	XM_235849	Mmp1b	Matrix metalloproteinase 1b (interstitial collagenase)
E11	Rn.6422	NM_031054	Mmp2	Matrix metalloproteinase 2
E12	Rn.10282	NM_012864	Mmp7	Matrix metalloproteinase 7
F01	Rn.10209	NM_031055	Mmp9	Matrix metalloproteinase 9
F02	Rn.16385	NM_001107578	Ms4a1	Membrane-spanning 4-domains, subfamily A, member 1
F03	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F04	Rn.10400	NM_012611	Nos2	Nitric oxide synthase 2, inducible
F05	Rn.1878	NM_031591	Pecam1	Platelet/endothelial cell adhesion molecule 1
F06	Rn.11206	NM_017330	Prf1	Perforin 1 (pore forming protein)
F07	Rn.13686	NM_012708	Psmb9	Proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)
F08	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
F09	Rn.137580	NM_001012226	Stat4	Signal transducer and activator of transcription 4
F10	Rn.6880	NM_001044250	Stat6	Signal transducer and activator of transcription 6
F11	Rn.10763	NM_032055	Tap1	Transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)
F12	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G01	Rn.24539	NM_031131	Tgfb2	Transforming growth factor, beta 2
G02	Rn.7018	NM_013174	Tgfb3	Transforming growth factor, beta 3
G03	Rn.185771	NM_001013062	Thbs1	Thrombospondin 1
G04	Rn.165619	NM_001169138	Thbs2	Thrombospondin 2
G05	Rn.25754	NM_053819	Timp1	TIMP metalloproteinase inhibitor 1
G06	Rn.15273	NM_198791	Tlr3	Toll-like receptor 3
G07	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G08	Rn.92495	NM_198131	Tlr9	Toll-like receptor 9
G09	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G10	Rn.83627	NM_145681	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G11	Rn.11267	NM_012889	Vcam1	Vascular cell adhesion molecule 1
G12	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
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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