

# RT<sup>2</sup> Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

## Mouse Transplant Rejection

Cat. no. 330231 PAMM-166ZA

For pathway expression analysis

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



Sample & Assay Technologies

## Description

The mouse Transplant Rejection RT<sup>2</sup> 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  $\Delta\Delta\text{CT}$  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 associated with acute and chronic transplant rejection with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

## Shipping and storage

RT<sup>2</sup> 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. RT<sup>2</sup> Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

For long term storage, keep plates at  $-20^{\circ}\text{C}$ .

**Note:** Ensure that you have the correct RT<sup>2</sup> 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 *RT<sup>2</sup> Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
<b>A</b>	Adam17	Bmp7	C3	C4b	Casp1	Casp3	Casp8	Ccl11	Ccl2	Ccl3	Ccl4	Ccl5
<b>B</b>	Ccr2	Ccr3	Ccr5	Ccr7	Cd14	Cd28	Cd40	Cd40lg	Cd44	Cd80	Cd86	Cd8a
<b>C</b>	Col1a2	Csf2	Ctgf	Ctla4	Cx3cr1	Cxcl10	Cxcl11	Cxcl9	Cxcr2	Cxcr3	Cxcr4	Fas
<b>D</b>	Fasl	Gzma	Gzmb	Icam1	Ifng	Il10	Il12a	Il13	Il16	Il1b	Il2	Il2ra
<b>E</b>	Il3	Il4	Il5	Il6	Ilga2	Ilgae	Ilgam	Mmp1a	Mmp1b	Mmp2	Mmp7	Mmp9
<b>F</b>	Ms4a1	Nfkb1	Nos2	Pecam1	Prf1	Psmb9	Stat1	Stat4	Stat6	Tap1	Tgfb1	Tgfb2
<b>G</b>	Tgfb3	Thbs1	Thbs2	Timp1	Tlr3	Tlr4	Tlr9	Tnf	Tnfaip3	Tnfsf10	Vcam1	Vegfa
<b>H</b>	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

## Gene table: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.27681	NM_009615	Adam17	A disintegrin and metallopeptidase domain 17
A02	Mm.595	NM_007557	Bmp7	Bone morphogenetic protein 7
A03	Mm.19131	NM_009778	C3	Complement component 3
A04	Mm.477109	NM_009780	C4b	Complement component 4B (Childo blood group)
A05	Mm.1051	NM_009807	Casp1	Caspase 1
A06	Mm.34405	NM_009810	Casp3	Caspase 3
A07	Mm.336851	NM_009812	Casp8	Caspase 8
A08	Mm.4686	NM_011330	Ccl11	Chemokine (C-C motif) ligand 11
A09	Mm.290320	NM_011333	Ccl2	Chemokine (C-C motif) ligand 2
A10	Mm.1282	NM_011337	Ccl3	Chemokine (C-C motif) ligand 3
A11	Mm.244263	NM_013652	Ccl4	Chemokine (C-C motif) ligand 4
A12	Mm.284248	NM_013653	Ccl5	Chemokine (C-C motif) ligand 5
B01	Mm.6272	NM_009915	Ccr2	Chemokine (C-C motif) receptor 2
B02	Mm.57050	NM_009914	Ccr3	Chemokine (C-C motif) receptor 3
B03	Mm.14302	NM_009917	Ccr5	Chemokine (C-C motif) receptor 5
B04	Mm.2932	NM_007719	Ccr7	Chemokine (C-C motif) receptor 7
B05	Mm.3460	NM_009841	Cd14	CD14 antigen
B06	Mm.255003	NM_007642	Cd28	CD28 antigen
B07	Mm.271833	NM_011611	Cd40	CD40 antigen
B08	Mm.4861	NM_011616	Cd40lg	CD40 ligand
B09	Mm.423621	NM_009851	Cd44	CD44 antigen
B10	Mm.89474	NM_009855	Cd80	CD80 antigen
B11	Mm.1452	NM_019388	Cd86	CD86 antigen
B12	Mm.1858	NM_001081110	Cd8a	CD8 antigen, alpha chain
C01	Mm.277792	NM_007743	Col1a2	Collagen, type I, alpha 2
C02	Mm.4922	NM_009969	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
C03	Mm.390287	NM_010217	Ctgf	Connective tissue growth factor
C04	Mm.390	NM_009843	Ctla4	Cytotoxic T-lymphocyte-associated protein 4
C05	Mm.44065	NM_009987	Cx3cr1	Chemokine (C-X3-C) receptor 1
C06	Mm.877	NM_021274	Cxcl10	Chemokine (C-X-C motif) ligand 10
C07	Mm.131723	NM_019494	Cxcl11	Chemokine (C-X-C motif) ligand 11
C08	Mm.766	NM_008599	Cxcl9	Chemokine (C-X-C motif) ligand 9
C09	Mm.234466	NM_009909	Cxcr2	Chemokine (C-X-C motif) receptor 2
C10	Mm.12876	NM_009910	Cxcr3	Chemokine (C-X-C motif) receptor 3
C11	Mm.1401	NM_009911	Cxcr4	Chemokine (C-X-C motif) receptor 4
C12	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member 6)
D01	Mm.3355	NM_010177	Fasl	Fas ligand (TNF superfamily, member 6)
D02	Mm.15510	NM_010370	Gzma	Granzyme A
D03	Mm.14874	NM_013542	Gzmb	Granzyme B
D04	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule 1
D05	Mm.240327	NM_008337	Ifng	Interferon gamma
D06	Mm.874	NM_010548	Il10	Interleukin 10
D07	Mm.103783	NM_008351	Il12a	Interleukin 12A
D08	Mm.1284	NM_008355	Il13	Interleukin 13
D09	Mm.10137	NM_010551	Il16	Interleukin 16

Position	UniGene	GenBank	Symbol	Description
D10	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D11	Mm.14190	NM_008366	Il2	Interleukin 2
D12	Mm.915	NM_008367	Il2ra	Interleukin 2 receptor, alpha chain
E01	Mm.983	NM_010556	Il3	Interleukin 3
E02	Mm.276360	NM_021283	Il4	Interleukin 4
E03	Mm.4461	NM_010558	Il5	Interleukin 5
E04	Mm.1019	NM_031168	Il6	Interleukin 6
E05	Mm.5007	NM_008396	Itga2	Integrin alpha 2
E06	Mm.96	NM_008399	Itgae	Integrin alpha E, epithelial-associated
E07	Mm.262106	NM_008401	Itgam	Integrin alpha M
E08	Mm.156952	NM_032006	Mmp1a	Matrix metalloproteinase 1a (interstitial collagenase)
E09	Mm.379271	NM_032007	Mmp1b	Matrix metalloproteinase 1b (interstitial collagenase)
E10	Mm.29564	NM_008610	Mmp2	Matrix metalloproteinase 2
E11	Mm.4825	NM_010810	Mmp7	Matrix metalloproteinase 7
E12	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9
F01	Mm.4046	NM_007641	Ms4a1	Membrane-spanning 4-domains, subfamily A, member 1
F02	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
F03	Mm.2893	NM_010927	Nos2	Nitric oxide synthase 2, inducible
F04	Mm.343951	NM_008816	Pecam1	Platelet/endothelial cell adhesion molecule 1
F05	Mm.240313	NM_011073	Prf1	Perforin 1 (pore forming protein)
F06	Mm.390983	NM_013585	Psmb9	Proteasome (prosome, macropain) subunit, beta type 9 (large multifunctional peptidase 2)
F07	Mm.277406	NM_009283	Stat1	Signal transducer and activator of transcription 1
F08	Mm.1550	NM_011487	Stat4	Signal transducer and activator of transcription 4
F09	Mm.121721	NM_009284	Stat6	Signal transducer and activator of transcription 6
F10	Mm.482076	NM_013683	Tap1	Transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)
F11	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
F12	Mm.18213	NM_009367	Tgfb2	Transforming growth factor, beta 2
G01	Mm.3992	NM_009368	Tgfb3	Transforming growth factor, beta 3
G02	Mm.4159	NM_011580	Thbs1	Thrombospondin 1
G03	Mm.26688	NM_011581	Thbs2	Thrombospondin 2
G04	Mm.8245	NM_011593	Timp1	Tissue inhibitor of metalloproteinase 1
G05	Mm.33874	NM_126166	Tlr3	Toll-like receptor 3
G06	Mm.38049	NM_021297	Tlr4	Toll-like receptor 4
G07	Mm.44889	NM_031178	Tlr9	Toll-like receptor 9
G08	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G09	Mm.116683	NM_009397	Tnfaip3	Tumor necrosis factor, alpha-induced protein 3
G10	Mm.1062	NM_009425	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G11	Mm.76649	NM_011693	Vcam1	Vascular cell adhesion molecule 1
G12	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
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, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> 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 <sup>2</sup> 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 <sup>2</sup> 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.

RT<sup>2</sup> 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](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

Trademarks: QIAGEN® (QIAGEN Group); Applied Biosystems®, ViiA™, StepOnePlus™, ROX™ (Applied Biosystems Corporation or its subsidiaries); Bio-Rad®, iCycler®, iQ™, MyiQ™, Chromo4™, CFX96™, DNA Engine Opticon®, CFX384™ (Bio-Rad Laboratories, Inc.); Stratagene®, Mx3005P®, Mx3000P®, Mx4000® (Stratagene); Eppendorf®, Mastercycler® (Eppendorf AG); Roche®, LightCycler® (Roche Group); Fluidigm® BioMark™ (Fluidigm Corporation); SYBR® (Molecular Probes, Inc.).

1066029 03/2011 © 2011 QIAGEN, all rights reserved.

[www.qiagen.com](http://www.qiagen.com)

Canada ■ 800-572-9613

Ireland ■ 1800 555 049

Norway ■ 800-18859

China ■ 8621-3865-3865

Italy ■ 800-787980

Singapore ■ 1800-742-4368

Denmark ■ 80-885945

Japan ■ 03-6890-7300

Spain ■ 91-630-7050

Australia ■ 1-800-243-800

Finland ■ 0800-914416

Korea (South) ■ 080-000-7145

Sweden ■ 020-790282

Austria ■ 0800/281010

France ■ 01-60-920-930

Luxembourg ■ 8002 2076

Switzerland ■ 055-254-22-11

Belgium ■ 0800-79612

Germany ■ 02103-29-12000

Mexico ■ 01-800-7742-436

UK ■ 01293-422-911

Brazil ■ 0800-557779

Hong Kong ■ 800 933 965

The Netherlands ■ 0800 0229592

USA ■ 800-426-8157



Sample & Assay Technologies