

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

## Rat Cancer Inflammation & Immunity Crosstalk

Cat. no. 330231 PARN-181Z

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 Rat Cancer Inflammation & Immunity Crosstalk RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in mediating communication between tumor cells and the cellular mediators of inflammation and immunity. In addition to epithelial and stromal compartments, the tumor microenvironment contains several cell types of the innate and adaptive immune systems including B and T lymphocytes, dendritic cells, and macrophages. In response to tumor-associated antigens presented via MHC Class I molecules, or to abnormal molecular patterns recognized by Toll-like receptors, the immune system eliminates target cells using a variety of effector enzymes and the engagement of pro-apoptotic signals including TRAIL and FAS ligand. If normal homeostasis is not resolved quickly, a state of chronic inflammation can ensue, including locally increased levels of reactive oxygen and nitrogen species that promote genomic instability. Immune cells produce a variety of cytokines that coordinate the inflammatory response, which is fueled by positive feedback loops commonly involving the STAT and NFκB signaling pathways in tumor cells. The resulting upregulation of antiapoptotic and immunosuppressive factors enables transformed cells to proliferate unchecked by the immune system. During cancer progression, the repertoire of chemokines, cytokines, and growth factors that orchestrates normal immune responses can be commandeered to create an immunosuppressive state that facilitates invasion and metastasis. The genes profiled with this array include mediators and effectors of the cross-talk between tumors and the immune system that influences the course of cancer progression. A set of controls present on each array enables data analysis using the Delta-Delta CT method of relative quantification as well as assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, researchers can easily and reliably analyze the expression of a focused panel of genes involved in cancer inflammation and immune crosstalk with this array.

The RT<sup>2</sup> Profiler PCR Arrays are intended for molecular biology applications. This product is not intended for the diagnosis, prevention, or treatment of a disease.

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°C.

**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

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**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>	Aicda	Bcl2	Bcl2l1	Ccl2	Ccl20	Ccl21	Ccl22	Ccl28	Ccl4	Ccl5	Ccr1	Ccr10
<b>B</b>	Ccr2	Ccr4	Ccr5	Ccr7	Ccr9	Cd274	Csf1	Csf2	Csf3	Ctla4	Cxcl1	Cxcl10
<b>C</b>	Cxcl11	Cxcl12	Cxcl2	Cxcl5	Cxcl9	Cxcr1	Cxcr2	Cxcr3	Cxcr4	Cxcr5	Cxcr7	Egf
<b>D</b>	Egfr	Faslg	Foxp3	Gbp1	Gzma	Gzmb	Hif1a	Ido1	Ifng	Igf1	Il10	Il12a
<b>E</b>	Il12b	Il13	Il15	Il17a	Il1a	Il1b	Il1r1	Il2	Il22	Il23a	Il4	Il6
<b>F</b>	Irf1	Kilg	Micb	Mif	Myc	Myd88	Nfk1	Nos2	Pdcd1	Ptgs2	RT1-A1	RT1-N2
<b>G</b>	Spp1	Stat1	Stat3	Tgfb1	Tlr2	Tlr3	Tlr4	Tlr7	Tnf	Tnfrsf10	Tp53	Vegfa
<b>H</b>	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description
A01	Rn.118188	NM_001100779	Aicda	Activation-induced cytidine deaminase
A02	Rn.9996	NM_016993	Bcl2	B-cell CLL/lymphoma 2
A03	Rn.10323	NM_031535	Bcl2l1	Bcl2-like 1
A04	Rn.4772	NM_031530	Ccl2	Chemokine (C-C motif) ligand 2
A05	Rn.10722	NM_019233	Ccl20	Chemokine (C-C motif) ligand 20
A06	Rn.39658	NM_001008513	Ccl21	Chemokine (C-C motif) ligand 21
A07	Rn.48727	NM_057203	Ccl22	Chemokine (C-C motif) ligand 22
A08	Rn.195764	NM_053700	Ccl28	Chemokine (C-C motif) ligand 28
A09	Rn.37880	NM_053858	Ccl4	Chemokine (C-C motif) ligand 4
A10	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
A11	Rn.34673	NM_020542	Ccr1	Chemokine (C-C motif) receptor 1
A12	Rn.49607	NM_001108836	Ccr10	Chemokine (C-C motif) receptor 10
B01	Rn.211983	NM_021866	Ccr2	Chemokine (C-C motif) receptor 2
B02	Rn.81076	NM_133532	Ccr4	Chemokine (C-C motif) receptor 4
B03	Rn.10736	NM_053960	Ccr5	Chemokine (C-C motif) receptor 5
B04	Rn.229736	NM_199489	Ccr7	Chemokine (C-C motif) receptor 7
B05	Rn.91140	NM_172329	Ccr9	Chemokine (C-C motif) receptor 9
B06	Rn.228198	NM_001191954	Cd274	CD274 molecule
B07	Rn.83632	NM_023981	Csf1	Colony stimulating factor 1 (macrophage)
B08	Rn.44285	NM_053852	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
B09	Rn.53973	NM_017104	Csf3	Colony stimulating factor 3 (granulocyte)
B10	Rn.10259	NM_031674	Ctla4	Cytotoxic T-lymphocyte-associated protein 4
B11	Rn.10907	NM_030845	Cxcl1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)
B12	Rn.10584	NM_139089	Cxcl10	Chemokine (C-X-C motif) ligand 10
C01	Rn.13664	NM_182952	Cxcl11	Chemokine (C-X-C motif) ligand 11
C02	Rn.54439	NM_022177	Cxcl12	Chemokine (C-X-C motif) ligand 12 (stromal cell-derived factor 1)
C03	Rn.10230	NM_053647	Cxcl2	Chemokine (C-X-C motif) ligand 2
C04	Rn.44449	NM_022214	Cxcl5	Chemokine (C-X-C motif) ligand 5
C05	Rn.7391	NM_145672	Cxcl9	Chemokine (C-X-C motif) ligand 9
C06	Rn.138115	NM_019310	Cxcr1	Interleukin 8 receptor, alpha
C07	Rn.90347	NM_017183	Cxcr2	Chemokine (C-X-C motif) receptor 2
C08	Rn.24787	NM_053415	Cxcr3	Chemokine (C-X-C motif) receptor 3
C09	Rn.44431	NM_022205	Cxcr4	Chemokine (C-X-C motif) receptor 4
C10	Rn.127121	NM_053303	Cxcr5	Chemokine (C-X-C motif) receptor 5
C11	Rn.12959	NM_053352	Cxcr7	Chemokine (C-X-C motif) receptor 7
C12	Rn.6075	NM_012842	Egf	Epidermal growth factor
D01	Rn.37227	NM_031507	Egfr	Epidermal growth factor receptor
D02	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
D03	Rn.177272	NM_001108250	Foxp3	Forkhead box P3
D04	N/A	XM_006224278	Gbp1	Guanylate binding protein 1, interferon-inducible
D05	Rn.22283	NM_153468	Gzma	Granzyme A
D06	Rn.132115	NM_138517	Gzmb	Granzyme B
D07	Rn.10852	NM_024359	Hif1a	Hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)
D08	Rn.64513	NM_023973	Ido1	Indoleamine 2,3-dioxygenase 1

Position	UniGene	GenBank	Symbol	Description
D09	Rn.10795	NM_138880	Ifng	Interferon gamma
D10	Rn.201887	NM_178866	Igf1	Insulin-like growth factor 1
D11	Rn.9868	NM_012854	Il10	Interleukin 10
D12	Rn.207199	NM_053390	Il12a	Interleukin 12a
E01	Rn.48686	NM_022611	Il12b	Interleukin 12b
E02	Rn.9921	NM_053828	Il13	Interleukin 13
E03	Rn.2490	NM_013129	Il15	Interleukin 15
E04	Rn.218513	NM_001106897	Il17a	Interleukin 17A
E05	Rn.12300	NM_017019	Il1a	Interleukin 1 alpha
E06	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
E07	Rn.9758	NM_013123	Il1r1	Interleukin 1 receptor, type I
E08	Rn.9871	NM_053836	Il2	Interleukin 2
E09	Rn.195879	NM_001191988	Il22	Interleukin 22
E10	Rn.81073	NM_130410	Il23a	Interleukin 23, alpha subunit p19
E11	Rn.108255	NM_201270	Il4	Interleukin 4
E12	Rn.9873	NM_012589	Il6	Interleukin 6
F01	Rn.6396	NM_012591	Irf1	Interferon regulatory factor 1
F02	Rn.44216	NM_021843	Kitlg	KIT ligand
F03	Rn.215725	NM_001017468	Micb	MHC class I polypeptide-related sequence B
F04	Rn.2661	NM_031051	Mif	Macrophage migration inhibitory factor
F05	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene
F06	Rn.37341	NM_198130	Myd88	Myeloid differentiation primary response gene 88
F07	Rn.2411	NM_001276711	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F08	Rn.10400	NM_012611	Nos2	Nitric oxide synthase 2, inducible
F09	Rn.105023	NM_001106927	Pdcd1	Programmed cell death 1
F10	Rn.217585	NM_017232	Ptgs2	Prostaglandin-endoperoxide synthase 2
F11	Rn.233151	NM_001008827	RT1-A1	RT1 class Ia, locus A1
F12	Rn.234331	NM_001008854	RT1-N2	RT1 class Ib, locus N2
G01	Rn.8871	NM_012881	Spp1	Secreted phosphoprotein 1
G02	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
G03	Rn.10247	NM_012747	Stat3	Signal transducer and activator of transcription 3
G04	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G05	Rn.46387	NM_198769	Tlr2	Toll-like receptor 2
G06	Rn.15273	NM_198791	Tlr3	Toll-like receptor 3
G07	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G08	Rn.14819	NM_001097582	Tlr7	Toll-like receptor 7
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.54443	NM_030989	Tp53	Tumor protein p53
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, 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.

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