

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene® Format)

## Human Cancer Inflammation & Immunity

Cat. no. 330231 PAHS-181ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

### Description

The Human 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 NF- $\kappa$ B 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

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inflammation and immune crosstalk 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 the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

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).

**Note:** Open the package and store the products appropriately immediately on receipt.



## Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

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

Position	UniGene	GenBank	Symbol	Description
A01	Hs.471751	NM_020311	ACKR3	Chemokine (C-X-C motif) receptor 7
A02	Hs.149342	NM_020661	AICDA	Activation-induced cytidine deaminase
A03	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A04	Hs.516966	NM_138578	BCL2L1	BCL2-like 1
A05	Hs.143961	NM_002988	CCL18	Chemokine (C-C motif) ligand 18 (pulmonary and activation-regulated)
A06	Hs.303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2
A07	Hs.75498	NM_004591	CCL20	Chemokine (C-C motif) ligand 20
A08	Hs.57907	NM_002989	CCL21	Chemokine (C-C motif) ligand 21
A09	Hs.534347	NM_002990	CCL22	Chemokine (C-C motif) ligand 22
A10	Hs.656904	NM_148672	CCL28	Chemokine (C-C motif) ligand 28
A11	Hs.75703	NM_002984	CCL4	Chemokine (C-C motif) ligand 4
A12	Hs.514821	NM_002985	CCL5	Chemokine (C-C motif) ligand 5
B01	Hs.301921	NM_001295	CCR1	Chemokine (C-C motif) receptor 1
B02	Hs.744542	NM_016602	CCR10	Chemokine (C-C motif) receptor 10
B03	Hs.705362	NM_001123396	CCR2	Chemokine (C-C motif) receptor 2
B04	Hs.184926	NM_005508	CCR4	Chemokine (C-C motif) receptor 4
B05	Hs.370036	NM_001838	CCR7	Chemokine (C-C motif) receptor 7
B06	Hs.225946	NM_006641	CCR9	Chemokine (C-C motif) receptor 9
B07	Hs.521989	NM_014143	CD274	CD274 molecule
B08	Hs.173894	NM_000757	CSF1	Colony stimulating factor 1 (macrophage)
B09	Hs.1349	NM_000758	CSF2	Colony stimulating factor 2 (granulocyte-macrophage)
B10	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)
B11	Hs.247824	NM_005214	CTLA4	Cytotoxic T-lymphocyte-associated protein 4
B12	Hs.708652	NM_001511	CXCL1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)
C01	Hs.632586	NM_001565	CXCL10	Chemokine (C-X-C motif) ligand 10
C02	Hs.632592	NM_005409	CXCL11	Chemokine (C-X-C motif) ligand 11
C03	Hs.522891	NM_000609	CXCL12	Chemokine (C-X-C motif) ligand 12
C04	Hs.75765	NM_002089	CXCL2	Chemokine (C-X-C motif) ligand 2
C05	Hs.89714	NM_002994	CXCL5	Chemokine (C-X-C motif) ligand 5
C06	Hs.77367	NM_002416	CXCL9	Chemokine (C-X-C motif) ligand 9
C07	Hs.194778	NM_000634	CXCR1	Chemokine (C-X-C motif) receptor 1
C08	Hs.846	NM_001557	CXCR2	Chemokine (C-X-C motif) receptor 2
C09	Hs.198252	NM_001504	CXCR3	Chemokine (C-X-C motif) receptor 3
C10	Hs.593413	NM_003467	CXCR4	Chemokine (C-X-C motif) receptor 4
C11	Hs.113916	NM_001716	CXCR5	Chemokine (C-X-C motif) receptor 5
C12	Hs.419815	NM_001963	EGF	Epidermal growth factor
D01	Hs.605083	NM_005228	EGFR	Epidermal growth factor receptor
D02	Hs.2007	NM_000639	FASLG	Fas ligand (TNF superfamily, member 6)
D03	Hs.247700	NM_014009	FOXP3	Forkhead box P3
D04	Hs.62661	NM_002053	GBP1	Guanylate binding protein 1, interferon-inducible
D05	Hs.90708	NM_006144	GZMA	Granzyme A (granzyme 1, cytotoxic T-lymphocyte-associated serine esterase 3)
D06	Hs.1051	NM_004131	GZMB	Granzyme B (granzyme 2, cytotoxic T-lymphocyte-associated serine esterase 1)
D07	Hs.719495	NM_001530	HIF1A	Hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)
D08	Hs.713441	NM_002116	HLA-A	Major histocompatibility complex, class I, A
D09	Hs.77961	NM_005514	HLA-B	Major histocompatibility complex, class I, B
D10	Hs.77961	NM_002117	HLA-C	Major histocompatibility complex, class I, C
D11	Hs.840	NM_002164	IDO1	Indoleamine 2,3-dioxygenase 1
D12	Hs.856	NM_000619	IFNG	Interferon, gamma
E01	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
E02	Hs.193717	NM_000572	IL10	Interleukin 10
E03	Hs.673	NM_000882	IL12A	Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)
E04	Hs.674	NM_002187	IL12B	Interleukin 12B (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40)
E05	Hs.845	NM_002188	IL13	Interleukin 13
E06	Hs.602618	NM_000585	IL15	Interleukin 15

Position	UniGene	GenBank	Symbol	Description
E07	Hs.41724	NM_002190	IL17A	Interleukin 17A
E08	Hs.1722	NM_000575	IL1A	Interleukin 1, alpha
E09	Hs.126256	NM_000576	IL1B	Interleukin 1, beta
E10	Hs.89679	NM_000586	IL2	Interleukin 2
E11	Hs.591803	NM_016584	IL23A	Interleukin 23, alpha subunit p19
E12	Hs.73917	NM_000589	IL4	Interleukin 4
F01	Hs.654458	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
F02	Hs.624	NM_000584	IL8	Interleukin 8
F03	Hs.436061	NM_002198	IRF1	Interferon regulatory factor 1
F04	Hs.1048	NM_003994	KITLG	KIT ligand
F05	Hs.130838	NM_000247	MICA	MHC class I polypeptide-related sequence A
F06	Hs.731446	NM_005931	MICB	MHC class I polypeptide-related sequence B
F07	Hs.407995	NM_002415	MIF	Macrophage migration inhibitory factor (glycosylation-inhibiting factor)
F08	Hs.202453	NM_002467	MYC	V-myc myelocytomatosis viral oncogene homolog (avian)
F09	Hs.82116	NM_002468	MYD88	Myeloid differentiation primary response gene (88)
F10	Hs.618430	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F11	Hs.709191	NM_000625	NOS2	Nitric oxide synthase 2, inducible
F12	Hs.158297	NM_005018	PDCD1	Programmed cell death 1
G01	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
G02	Hs.313	NM_000582	SPP1	Secreted phosphoprotein 1
G03	Hs.743244	NM_007315	STAT1	Signal transducer and activator of transcription 1, 91kDa
G04	Hs.463059	NM_003150	STAT3	Signal transducer and activator of transcription 3 (acute-phase response factor)
G05	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G06	Hs.519033	NM_003264	TLR2	Toll-like receptor 2
G07	Hs.657724	NM_003265	TLR3	Toll-like receptor 3
G08	Hs.174312	NM_138554	TLR4	Toll-like receptor 4
G09	Hs.241570	NM_000594	TNF	Tumor necrosis factor
G10	Hs.478275	NM_003810	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10
G11	Hs.740601	NM_000546	TP53	Tumor protein p53
G12	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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.

<b>Product</b>	<b>Contents</b>	<b>Cat. no.</b>
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> SYBR Green ROX™ FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

\* Larger kit sizes available; please inquire.

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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.

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