

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

## Rat T Helper Cell Differentiation

Cat. no. 330231 PARN-503ZR

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 Rat T Helper Cell Differentiation RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes regulating the commitment of precursor T cells to differentiate into specific effector subtypes. The two more well-known and characterized T helper cell subtypes, Th1 and Th2 cells, mediate cellular and humoral immune responses. Many published research studies find that one subtype population and its immune response tends to dominate in immune disorders such as allergy, asthma, autoimmunity, diabetes, hypersensitivity, and rheumatoid arthritis. The genes represented by this array include cytokines, cytokine receptors, transcription factors, and other signaling molecules regulating differentiation into Th1 or Th2 cells as well as specific markers for these subtypes. Profiling your research RNA samples from T cell population sources will help you correlate sub-type specific gene expression with experimentally-induced cellular or humoral immune responses. The results of this array can also help you provide insights into the molecular mechanisms and biological pathways behind T helper cell lineage commitment decisions in your model system. Using real-time PCR, your research study can easily and reliably analyze the expression of a focused panel of genes involved in T helper cell differentiation 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.

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**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.



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## 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	Rn.98677	NM_001011984	Asb2	Ankyrin repeat and SOCS box-containing 2
A02	Rn.39125	NM_053701	Cacna1f	Calcium channel, voltage-dependent, L type, alpha 1F subunit
A03	Rn.10632	NM_019205	Ccl11	Chemokine (C-C motif) ligand 11
A04	Rn.37880	NM_053858	Ccl4	Chemokine (C-C motif) ligand 4
A05	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
A06	Rn.26815	NM_001007612	Ccl7	Chemokine (C-C motif) ligand 7
A07	Rn.9890	NM_053958	Ccr3	Chemokine (C-C motif) receptor 3
A08	Rn.81076	NM_133532	Ccr4	Chemokine (C-C motif) receptor 4
A09	Rn.10736	NM_053960	Ccr5	Chemokine (C-C motif) receptor 5
A10	Rn.161767	NM_001013145	Ccr6	Chemokine (C-C motif) receptor 6
A11	Rn.6479	NM_024125	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
A12	Rn.37783	NM_001107906	Chd7	Chromodomain helicase DNA binding protein 7
B01	Rn.44285	XM_340799	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
B02	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
B03	Rn.11306	NM_012953	Fosl1	Fos-like antigen 1
B04	Rn.177272	NM_001108250	Foxp3	Forkhead box P3
B05	Rn.92350	NM_133293	Gata3	GATA binding protein 3
B06	Rn.26251	NM_144730	Gata4	GATA binding protein 4
B07	Rn.10935	NM_012566	Gfi1	Growth factor independent 1 transcription repressor
B08	Rn.198542	NM_001012070	Gpr44	G protein-coupled receptor 44
B09	Rn.219486	NM_001100762	Havcr2	Hepatitis A virus cellular receptor 2
B10	Rn.2989	NM_133621	Hopx	HOP homeobox
B11	Rn.852	NM_001129878	Hoxa10	Homeo box A10
B12	Rn.168816	NM_022610	Icos	Inducible T-cell co-stimulator
C01	Rn.3272	NM_013060	Id2	Inhibitor of DNA binding 2
C02	Rn.10795	NM_138880	Ifng	Interferon gamma
C03	Rn.204094	NM_133542	Igsf6	Immunoglobulin superfamily, member 6
C04	Rn.163079	NM_001106916	Ikzf2	IKAROS family zinc finger 2
C05	Rn.48686	NM_022611	Il12b	Interleukin 12b
C06	Rn.207395	XM_231873	Il12rb2	Interleukin 12 receptor, beta 2
C07	Rn.9921	NM_053828	Il13	Interleukin 13
C08	Rn.81210	NM_145789	Il13ra1	Interleukin 13 receptor, alpha 1
C09	Rn.218513	NM_001106897	Il17a	Interleukin 17A
C10	Rn.129068	NM_001004091	Il17re	Interleukin 17 receptor E
C11	Rn.11118	NM_019165	Il18	Interleukin 18
C12	Rn.149181	NM_001106905	Il18r1	Interleukin 18 receptor 1
D01	Rn.105609	NM_184047	Il18rap	Interleukin 18 receptor accessory protein
D02	Rn.9758	NM_013123	Il1r1	Interleukin 1 receptor, type I
D03	Rn.10758	NM_053953	Il1r2	Interleukin 1 receptor, type II
D04	Rn.10072	NM_013037	Il1rl1	Interleukin 1 receptor-like 1
D05	Rn.9871	NM_053836	Il2	Interleukin 2
D06	Rn.214949	NM_001108943	Il21	Interleukin 21
D07	Rn.81073	NM_130410	Il23a	Interleukin 23, alpha subunit p19
D08	N/A	XM_344962	Il27	Interleukin 27
D09	Rn.9872	NM_013163	Il2ra	Interleukin 2 receptor, alpha
D10	Rn.108255	NM_201270	Il4	Interleukin 4
D11	Rn.10471	NM_133380	Il4ra	Interleukin 4 receptor, alpha
D12	Rn.44227	NM_021834	Il5	Interleukin 5
E01	Rn.92374	NM_001105747	Il9	Interleukin 9
E02	Rn.6396	NM_012591	Irf1	Interferon regulatory factor 1
E03	Rn.82114	NM_001106108	Irf4	Interferon regulatory factor 4
E04	Rn.3765	NM_001008722	Irf8	Interferon regulatory factor 8
E05	Rn.90191	NM_053466	Jak1	Janus kinase 1
E06	Rn.10726	NM_019318	Maf	V-maf musculoaponeurotic fibrosarcoma oncogene homolog (avian)
E07	Rn.214090	NM_001107805	Nfatc2	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
E08	Rn.101030	NM_001007692	Nfatc2ip	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2 interacting protein

Position	UniGene	GenBank	Symbol	Description
E09	Rn.10000	NM_024388	Nr4a1	Nuclear receptor subfamily 4, group A, member 1
E10	Rn.62694	NM_017352	Nr4a3	Nuclear receptor subfamily 4, group A, member 3
E11	Rn.101762	NM_001106265	Perp	PERP, TP53 apoptosis effector
E12	Rn.198353	XM_573552	Plk2	Polycystic kidney disease 2
F01	Rn.155998	XM_341802	Pou2f2	POU class 2 homeobox 2
F02	Rn.23443	NM_013124	Pparg	Peroxisome proliferator-activated receptor gamma
F03	Rn.106948	XM_223688	Rel	V-rel reticuloendotheliosis viral oncogene homolog (avian)
F04	Rn.43530	NM_001106834	Rora	RAR-related orphan receptor A
F05	Rn.21421	XM_347322	Rorc	RAR-related orphan receptor C
F06	Rn.11201	NM_017325	Runx1	Runt-related transcription factor 1
F07	Rn.205217	NM_130425	Runx3	Runt-related transcription factor 3
F08	Rn.82754	NM_145879	Socs1	Suppressor of cytokine signaling 1
F09	Rn.47568	NM_001109274	Socs5	Suppressor of cytokine signaling 5
F10	Rn.137580	NM_001012226	Stat4	Signal transducer and activator of transcription 4
F11	Rn.6880	NM_001044250	Stat6	Signal transducer and activator of transcription 6
F12	Rn.144930	NM_001107043	Tbx21	T-box 21
G01	Rn.154349	NM_001015020	Tgfb1	TGFB-induced factor homeobox 1
G02	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G03	Rn.163249	NM_207604	Tlr6	Toll-like receptor 6
G04	Rn.162983	NM_001013432	Tmed1	Transmembrane emp24 protein transport domain containing 1
G05	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G06	Rn.22307	NM_001025773	Tnfrsf9	Tumor necrosis factor receptor superfamily, member 9
G07	Rn.64517	NM_057149	Tnfrsf11	Tumor necrosis factor (ligand) superfamily, member 11
G08	Rn.161967	NM_001108654	Tox	Thymocyte selection-associated high mobility group box
G09	Rn.48267	NM_181084	Tp53inp1	Tumor protein p53 inducible nuclear protein 1
G10	Rn.48886	NM_019160	Uts2	Urotensin 2
G11	Rn.73830	NM_001106446	Zbtb7b	Zinc finger and BTB domain containing 7B
G12	Rn.10600	NM_013164	Zeb1	Zinc finger E-box binding homeobox 1
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 ROX <sup>™</sup> 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.

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