

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

## Rhesus Macaque Th1 & Th2 Responses

Cat. no. 330231 PAQQ-034ZA

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 Rhesus macaque Th1 & Th2 Responses RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes involved in T helper cell (Th cell) immune responses. Adaptive immunity involves activation of T cells and B cells, lymphocytes that initiate a tailored immune response to a specific pathogen. Th cells cannot destroy pathogens alone, but instead communicate with B cells to mediate appropriate immune responses. The 2 well-known and characterized Th cell subtypes, Th1 and Th2 cells, have specific immune functions and are identified by their secreted cytokines and specific receptors. Th1 cells promote cell-mediated immunity, and secrete cytokines such as IFNG. Th2 cells promote humoral immunity and produce immunogenic factors such as IL13 and IgE. Unnecessary immune responses caused by the activation of the inappropriate Th subtype can contribute to asthma, allergies, and some autoimmune diseases. Analyzing T cell gene expression and regulation can distinguish the relative roles and importance of both subtypes to an experimental model system. This array includes markers for Th1 and Th2 cells as well as genes involved in Th1 and Th2 function and immune responses. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes important for Th1 and Th2 responses 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°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.

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## 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        |
|---|-------|-------|-----------|-----------|-----------|-----------|-------|-----------|-----------|-----------|-----------|-----------|
| A | BCL6  | CCL11 | CCL5      | CCR10     | CCR2B     | CCR3      | CCR4  | CCR5      | CD27      | CD28      | CD4       | CD40LG    |
| B | CD80  | CD86  | CREBBP    | CSF2      | CTLA4     | CXCR3     | FASLG | GATA3     | GFI1      | GPR44     | ICOS      | IFNG      |
| C | IL10  | IL12B | IL12RB2   | IL13      | IL15      | IL17RE    | IL18  | IL1R1     | IL1RL1    | IL2       | IL2RA     | IL3       |
| D | IL4   | IL4R  | IL5       | IL6       | IL6R      | IL7       | IL7R  | IL9R      | IRF1      | IRF4      | JAK1      | JAK2      |
| E | LAG3  | LAT   | LOC708678 | LOC712292 | LOC712657 | LOC713191 | IL25  | LOC714751 | LOC714891 | LOC717370 | LOC717818 | LOC719799 |
| F | LTA   | MAPK8 | NFATC1    | PCGF2     | SFTPD     | SLC11A1   | SOC51 | SOC52     | SOC55     | SPP1      | STAT1     | STAT4     |
| G | STAT6 | TBK21 | TFPC2     | TGFB3     | TLR4      | TLR6      | TNF   | TNFRSF8   | TNFRSF9   | TNFSF4    | TYK2      | VEGFA     |
| H | ACTB  | B2M   | GAPDH     | LOC709186 | RPL13A    | QGDC      | RTC   | RTC       | RTC       | PPC       | PPC       | PPC       |

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

| Position | UniGene   | GenBank      | Symbol  | Description                                                                                               |
|----------|-----------|--------------|---------|-----------------------------------------------------------------------------------------------------------|
| A01      | Mmu.3212  | XM_001103860 | BCL6    | B-cell CLL/lymphoma 6                                                                                     |
| A02      | Mmu.3651  | NM_001032874 | CCL11   | Chemokine (C-C motif) ligand 11                                                                           |
| A03      | Mmu.3698  | NM_001032850 | CCL5    | Chemokine (C-C motif) ligand 5                                                                            |
| A04      | Mmu.15553 | XM_001111554 | CCR10   | Chemokine (C-C motif) receptor 10                                                                         |
| A05      | Mmu.3460  | NM_001032806 | CCR2B   | Chemokine receptor                                                                                        |
| A06      | Mmu.10058 | NM_001047140 | CCR3    | Chemokine (C-C motif) receptor 3                                                                          |
| A07      | Mmu.14927 | XM_001098807 | CCR4    | Chemokine (C-C motif) receptor 4                                                                          |
| A08      | Mmu.3440  | NM_001042773 | CCR5    | Chemokine (C-C motif) receptor 5                                                                          |
| A09      | Mmu.1817  | XM_001104337 | CD27    | CD27 antigen-like                                                                                         |
| A10      | Mmu.3578  | NM_001042641 | CD28    | CD28 molecule                                                                                             |
| A11      | Mmu.3291  | NM_001042662 | CD4     | CD4 molecule                                                                                              |
| A12      | Mmu.3581  | NM_001032839 | CD40LG  | CD40 ligand                                                                                               |
| B01      | Mmu.3359  | NM_001042642 | CD80    | CD80 molecule                                                                                             |
| B02      | Mmu.3580  | NM_001042644 | CD86    | CD86 molecule                                                                                             |
| B03      | Mmu.11203 | XM_001095225 | CREBBP  | CREB binding protein                                                                                      |
| B04      | Mmu.3665  | NM_001032949 | CSF2    | Colony stimulating factor 2 (granulocyte-macrophage)                                                      |
| B05      | Mmu.3582  | NM_001044739 | CTLA4   | Cytotoxic T-lymphocyte-associated protein 4                                                               |
| B06      | Mmu.8534  | NM_001145040 | CXCR3   | Chemokine (C-X-C motif) receptor 3                                                                        |
| B07      | Mmu.3579  | NM_001032838 | FASLG   | Fas ligand (TNF superfamily, member 6)                                                                    |
| B08      | Mmu.16194 | XM_001108337 | GATA3   | GATA binding protein 3                                                                                    |
| B09      | Mmu.13454 | XM_001099499 | GFI1    | Growth factor independent 1 transcription repressor                                                       |
| B10      | N/A       | XM_001084746 | GPR44   | G protein-coupled receptor 44                                                                             |
| B11      | Mmu.15916 | XM_001104581 | ICOS    | Inducible T-cell co-stimulator                                                                            |
| B12      | Mmu.3373  | NM_001032905 | IFNG    | Interferon-gamma                                                                                          |
| C01      | Mmu.3374  | NM_001044727 | IL10    | Interleukin 10                                                                                            |
| C02      | Mmu.3413  | NM_001044725 | IL12B   | Interleukin 12B (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40) |
| C03      | Mmu.12301 | XM_001094235 | IL12RB2 | Interleukin 12 receptor, beta 2                                                                           |
| C04      | Mmu.3675  | NM_001032929 | IL13    | Interleukin 13                                                                                            |
| C05      | Mmu.3414  | NM_001044731 | IL15    | Interleukin 15                                                                                            |
| C06      | Mmu.162   | XM_001091392 | IL17RE  | Interleukin 17 receptor E                                                                                 |
| C07      | Mmu.3545  | NM_001032834 | IL18    | Interleukin 18 (interferon-gamma-inducing factor)                                                         |
| C08      | Mmu.12735 | XM_001107510 | IL1R1   | Interleukin 1 receptor, type I                                                                            |
| C09      | Mmu.15834 | XM_001107813 | IL1RL1  | Interleukin 1 receptor-like 1                                                                             |
| C10      | Mmu.3415  | NM_001047130 | IL2     | Interleukin 2                                                                                             |
| C11      | Mmu.3810  | NM_001032917 | IL2RA   | Interleukin 2 receptor, alpha                                                                             |
| C12      | Mmu.16387 | NM_001101734 | IL3     | Interleukin 3 (colony-stimulating factor, multiple)                                                       |
| D01      | Mmu.3375  | NM_001032904 | IL4     | Interleukin 4                                                                                             |
| D02      | Mmu.3507  | XM_001093763 | IL4R    | Interleukin 4 receptor                                                                                    |
| D03      | Mmu.3362  | NM_001047133 | IL5     | Interleukin 5 (colony-stimulating factor, eosinophil)                                                     |
| D04      | Mmu.3376  | NM_001042733 | IL6     | Interleukin 6 (interferon, beta 2)                                                                        |
| D05      | Mmu.13612 | XM_001114404 | IL6R    | Interleukin 6 receptor                                                                                    |
| D06      | Mmu.3574  | NM_001032846 | IL7     | Interleukin 7                                                                                             |
| D07      | Mmu.12488 | XM_001092582 | IL7R    | Interleukin 7 receptor                                                                                    |
| D08      | Mmu.15228 | XM_001100521 | IL9R    | Interleukin 9 receptor                                                                                    |

| Position | UniGene   | GenBank      | Symbol    | Description                                                                                               |
|----------|-----------|--------------|-----------|-----------------------------------------------------------------------------------------------------------|
| D09      | Mmu.11578 | XM_001104294 | IRF1      | Interferon regulatory factor 1                                                                            |
| D10      | Mmu.15461 | XM_001094391 | IRF4      | Interferon regulatory factor 4                                                                            |
| D11      | Mmu.2703  | XM_002801620 | JAK1      | Janus kinase 1                                                                                            |
| D12      | Mmu.12996 | XM_001082883 | JAK2      | Janus kinase 2                                                                                            |
| E01      | Mmu.16029 | XM_001108923 | LAG3      | Lymphocyte-activation gene 3                                                                              |
| E02      | Mmu.12152 | XM_001102058 | LAT       | Linker for activation of T cells                                                                          |
| E03      | N/A       | XM_001097165 | LOC708678 | Interleukin-27 subunit alpha-like                                                                         |
| E04      | Mmu.16382 | XM_001110897 | LOC712292 | Interleukin-9-like                                                                                        |
| E05      | Mmu.9587  | XR_012672    | LOC712657 | Receptor-type tyrosine-protein phosphatase C-like                                                         |
| E06      | Mmu.808   | XM_001102454 | LOC713191 | CCAAT/enhancer-binding protein beta-like                                                                  |
| E07      | N/A       | XM_001107906 | IL25      | Interleukin-25                                                                                            |
| E08      | N/A       | XM_001113381 | LOC714751 | C-C motif chemokine 7-like                                                                                |
| E09      | Mmu.16365 | XR_092206    | LOC714891 | Hypothetical LOC714891                                                                                    |
| E10      | Mmu.9942  | XM_002805207 | LOC717370 | Transcriptional repressor protein YY1-like                                                                |
| E11      | N/A       | XM_001109725 | LOC717818 | C-Maf-inducing protein-like                                                                               |
| E12      | Mmu.15225 | XM_001114492 | LOC719799 | Similar to Interleukin-13 receptor alpha-1 chain precursor (IL-13R-alpha-1) (IL-13RA-1) (CD213a1 antigen) |
| F01      | Mmu.10857 | NM_001047148 | LTA       | Lymphotoxin alpha (TNF superfamily, member 1)                                                             |
| F02      | Mmu.3822  | XM_001108815 | MAPK8     | Mitogen-activated protein kinase 8                                                                        |
| F03      | Mmu.15464 | XM_001087929 | NFATC1    | Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1                                 |
| F04      | Mmu.17122 | XM_001083817 | PCGF2     | Polycomb group ring finger 2                                                                              |
| F05      | Mmu.9527  | NM_001040193 | SFTPD     | Surfactant protein D                                                                                      |
| F06      | Mmu.12026 | XM_001089328 | SLC11A1   | Solute carrier family 11 (proton-coupled divalent metal ion transporters), member 1                       |
| F07      | Mmu.12396 | XM_001104595 | SOCS1     | Suppressor of cytokine signaling 1                                                                        |
| F08      | Mmu.3088  | XM_001106151 | SOCS2     | Suppressor of cytokine signaling 2                                                                        |
| F09      | Mmu.12081 | XM_001113221 | SOCS5     | Suppressor of cytokine signaling 5                                                                        |
| F10      | Mmu.225   | XM_001093307 | SPP1      | Secreted phosphoprotein 1                                                                                 |
| F11      | Mmu.3514  | XM_002799015 | STAT1     | Signal transducer and activator of transcription 1, 91kDa                                                 |
| F12      | Mmu.13224 | XM_001082561 | STAT4     | Signal transducer and activator of transcription 4                                                        |
| G01      | Mmu.11577 | XM_001115686 | STAT6     | Signal transducer and activator of transcription 6, interleukin-4 induced                                 |
| G02      | Mmu.13939 | XM_001082367 | TBX21     | T-box 21                                                                                                  |
| G03      | Mmu.3737  | XM_001087537 | TFCP2     | Transcription factor CP2                                                                                  |
| G04      | Mmu.16252 | XM_001100053 | TGFB3     | Transforming growth factor, beta 3                                                                        |
| G05      | Mmu.3814  | NM_001037092 | TLR4      | Toll-like receptor 4                                                                                      |
| G06      | Mmu.3816  | NM_001130430 | TLR6      | Toll-like receptor 6                                                                                      |
| G07      | Mmu.3364  | NM_001047149 | TNF       | Tumor necrosis factor                                                                                     |
| G08      | N/A       | XM_001118873 | TNFRSF8   | Tumor necrosis factor receptor superfamily, member 8                                                      |
| G09      | N/A       | XM_001096166 | TNFRSF9   | Tumor necrosis factor receptor superfamily, member 9                                                      |
| G10      | N/A       | XM_001101190 | TNFSF4    | Tumor necrosis factor (ligand) superfamily, member 4                                                      |
| G11      | Mmu.3516  | XM_001101130 | TYK2      | Tyrosine kinase 2                                                                                         |
| G12      | Mmu.3550  | XM_001089925 | VEGFA     | Vascular endothelial growth factor A                                                                      |
| H01      | Mmu.4974  | NM_001033084 | ACTB      | Actin, beta                                                                                               |
| H02      | Mmu.5037  | NM_001047137 | B2M       | Beta-2-microglobulin                                                                                      |
| H03      | Mmu.3145  | XM_001105471 | GAPDH     | Glyceraldehyde-3-phosphate dehydrogenase                                                                  |
| H04      | Mmu.12316 | XM_001097691 | LOC709186 | Hypoxanthine-guanine phosphoribosyltransferase-like                                                       |
| H05      | Mmu.2512  | XM_001115079 | RPL13A    | Ribosomal protein L13A                                                                                    |
| H06      | N/A       | SA_00125     | QGDC      | Rhesus Macaque 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 <sup>™</sup> 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.

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