

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

## Human Antifungal Response

Cat. no. 330231 PAHS-147ZA

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 Human Antifungal Response RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in the innate immune response to fungi. Three different families of pattern recognition receptors (PRRs) (toll-like (TLRs), Nod-like (NLRs), and RIG-I-like receptors) initiate innate immunity, the inborn general host response to common pathogens. During the initial stages of a fungal infection, TLR and NLR family members, as well as other PRRs, recognize fungal pathogen-associated molecular patterns (PAMPs) including  $\beta$ -(1,3)-glucans, mannan, and chitin. PAMP-receptor binding then activates the innate immune response, initiates downstream signaling, and induces expression of inflammatory cytokines. The downstream signaling of some fungal-associated PRRs is not widely characterized, but recent microarray studies have identified many genes affected during the initial stages of fungal infections. This array includes PRRs involved in fungal pathogen recognition and represents their downstream signaling pathways. This array also includes genes responsive to initial *Candida albicans*, *Aspergillus fumigatus*, or *Cryptococcus neoformans* infection. The results of this array may yield insights into innate immune mechanisms to fungal infection. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in the initial fungal pathogen response 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.

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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 | BCL10  | C3     | C5AR1 | CARD9   | CASP1 | CASP8 | CCL2   | CCL20  | CCL5    | CCR1   | CD14   | CD207 |
| B | CD209  | CD36   | CD40  | CD5     | CD83  | CHIA  | CLEC6A | CLEC7A | COLEC12 | CSF2   | CSF3   | CXCL1 |
| C | CXCL10 | CXCL11 | CXCL2 | CXCL9   | F2RL1 | F3    | FCGR1A | FCGR2A | FCGR3A  | FCN1   | FOS    | IFNG  |
| D | IKKBK  | IL10   | IL12A | IL12B   | IL18  | IL1A  | IL1B   | IL1R1  | IL2     | IL23A  | IL6    | IL8   |
| E | IRAK1  | IRAK4  | ITGAM | ITGB2   | JUN   | LYN   | MALT1  | MAP2K4 | MAP3K7  | MAPK14 | MAPK8  | MBL2  |
| F | MRC1   | MYD88  | NFKB1 | NFKBIA  | NLRP3 | NPTX1 | PLCG2  | PTGS2  | PTPN6   | PTX3   | PYCARD | RAF1  |
| G | SCARF1 | SFTPD  | SOC33 | ST3GAL5 | STAT1 | SYK   | TIRAP  | TLR2   | TLR4    | TLR9   | TNF    | TRAF6 |
| H | ACTB   | B2M    | GAPDH | HPRT1   | RPLP0 | HGDC  | RTC    | RTC    | RTC     | PPC    | PPC    | PPC   |

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

| Position | UniGene   | GenBank      | Symbol  | Description                                                                                               |
|----------|-----------|--------------|---------|-----------------------------------------------------------------------------------------------------------|
| A01      | Hs.193516 | NM_003921    | BCL10   | B-cell CLL/lymphoma 10                                                                                    |
| A02      | Hs.529053 | NM_000064    | C3      | Complement component 3                                                                                    |
| A03      | Hs.2161   | NM_001736    | C5AR1   | Complement component 5a receptor 1                                                                        |
| A04      | Hs.694071 | NM_052813    | CARD9   | Caspase recruitment domain family, member 9                                                               |
| A05      | Hs.2490   | NM_033292    | CASP1   | Caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)                         |
| A06      | Hs.599762 | NM_001228    | CASP8   | Caspase 8, apoptosis-related cysteine peptidase                                                           |
| A07      | Hs.303649 | NM_002982    | CCL2    | Chemokine (C-C motif) ligand 2                                                                            |
| A08      | Hs.75498  | NM_004591    | CCL20   | Chemokine (C-C motif) ligand 20                                                                           |
| A09      | Hs.514821 | NM_002985    | CCL5    | Chemokine (C-C motif) ligand 5                                                                            |
| A10      | Hs.301921 | NM_001295    | CCR1    | Chemokine (C-C motif) receptor 1                                                                          |
| A11      | Hs.163867 | NM_000591    | CD14    | CD14 molecule                                                                                             |
| A12      | Hs.199731 | NM_015717    | CD207   | CD207 molecule, langerin                                                                                  |
| B01      | Hs.278694 | NM_021155    | CD209   | CD209 molecule                                                                                            |
| B02      | Hs.120949 | NM_000072    | CD36    | CD36 molecule (thrombospondin receptor)                                                                   |
| B03      | Hs.472860 | NM_001250    | CD40    | CD40 molecule, TNF receptor superfamily member 5                                                          |
| B04      | Hs.58685  | NM_014207    | CD5     | CD5 molecule                                                                                              |
| B05      | Hs.595133 | NM_004233    | CD83    | CD83 molecule                                                                                             |
| B06      | Hs.128814 | NM_001653    | CHIA    | Chitinase, acidic                                                                                         |
| B07      | Hs.591147 | NM_001007033 | CLEC6A  | C-type lectin domain family 6, member A                                                                   |
| B08      | Hs.143929 | NM_022570    | CLEC7A  | C-type lectin domain family 7, member A                                                                   |
| B09      | Hs.464422 | NM_130386    | COLEC12 | Collectin sub-family member 12                                                                            |
| B10      | Hs.1349   | NM_000758    | CSF2    | Colony stimulating factor 2 (granulocyte-macrophage)                                                      |
| B11      | Hs.2233   | NM_000759    | CSF3    | Colony stimulating factor 3 (granulocyte)                                                                 |
| B12      | Hs.789    | 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.590921 | NM_002089    | CXCL2   | Chemokine (C-X-C motif) ligand 2                                                                          |
| C04      | Hs.77367  | NM_002416    | CXCL9   | Chemokine (C-X-C motif) ligand 9                                                                          |
| C05      | Hs.154299 | NM_005242    | F2RL1   | Coagulation factor II (thrombin) receptor-like 1                                                          |
| C06      | Hs.62192  | NM_001993    | F3      | Coagulation factor III (thromboplastin, tissue factor)                                                    |
| C07      | Hs.77424  | NM_000566    | FCGR1A  | Fc fragment of IgG, high affinity Ia, receptor (CD64)                                                     |
| C08      | Hs.352642 | NM_021642    | FCGR2A  | Fc fragment of IgG, low affinity IIa, receptor (CD32)                                                     |
| C09      | Hs.372679 | NM_000569    | FCGR3A  | Fc fragment of IgG, low affinity IIIa, receptor (CD16a)                                                   |
| C10      | Hs.440898 | NM_002003    | FCN1    | Ficolin (collagen/fibrinogen domain containing) 1                                                         |
| C11      | Hs.728789 | NM_005252    | FOS     | FBJ murine osteosarcoma viral oncogene homolog                                                            |
| C12      | Hs.856    | NM_000619    | IFNG    | Interferon, gamma                                                                                         |
| D01      | Hs.597664 | NM_001556    | IKBKB   | Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta                                |
| D02      | Hs.193717 | NM_000572    | IL10    | Interleukin 10                                                                                            |
| D03      | Hs.673    | NM_000882    | IL12A   | Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35) |
| D04      | Hs.674    | NM_002187    | IL12B   | Interleukin 12B (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40) |
| D05      | Hs.83077  | NM_001562    | IL18    | Interleukin 18 (interferon-gamma-inducing factor)                                                         |
| D06      | Hs.1722   | NM_000575    | IL1A    | Interleukin 1, alpha                                                                                      |
| D07      | Hs.126256 | NM_000576    | IL1B    | Interleukin 1, beta                                                                                       |

| Position | UniGene   | GenBank      | Symbol  | Description                                                                           |
|----------|-----------|--------------|---------|---------------------------------------------------------------------------------------|
| D08      | Hs.701982 | NM_000877    | IL1R1   | Interleukin 1 receptor, type I                                                        |
| D09      | Hs.89679  | NM_000586    | IL2     | Interleukin 2                                                                         |
| D10      | Hs.98309  | NM_016584    | IL23A   | Interleukin 23, alpha subunit p19                                                     |
| D11      | Hs.654458 | NM_000600    | IL6     | Interleukin 6 (interferon, beta 2)                                                    |
| D12      | Hs.624    | NM_000584    | IL8     | Interleukin 8                                                                         |
| E01      | Hs.522819 | NM_001569    | IRAK1   | Interleukin-1 receptor-associated kinase 1                                            |
| E02      | Hs.138499 | NM_016123    | IRAK4   | Interleukin-1 receptor-associated kinase 4                                            |
| E03      | Hs.172631 | NM_000632    | ITGAM   | Integrin, alpha M (complement component 3 receptor 3 subunit)                         |
| E04      | Hs.375957 | NM_000211    | ITGB2   | Integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)                    |
| E05      | Hs.714791 | NM_002228    | JUN     | Jun proto-oncogene                                                                    |
| E06      | Hs.699154 | NM_002350    | LYN     | V-src-1 Yamaguchi sarcoma viral related oncogene homolog                              |
| E07      | Hs.601217 | NM_173844    | MALT1   | Mucosa associated lymphoid tissue lymphoma translocation gene 1                       |
| E08      | Hs.514681 | NM_003010    | MAP2K4  | Mitogen-activated protein kinase kinase 4                                             |
| E09      | Hs.644143 | NM_003188    | MAP3K7  | Mitogen-activated protein kinase kinase kinase 7                                      |
| E10      | Hs.485233 | NM_001315    | MAPK14  | Mitogen-activated protein kinase 14                                                   |
| E11      | Hs.138211 | NM_002750    | MAPK8   | Mitogen-activated protein kinase 8                                                    |
| E12      | Hs.499674 | NM_000242    | MBL2    | Mannose-binding lectin (protein C) 2, soluble                                         |
| F01      | Hs.751182 | NM_002438    | MRC1    | Mannose receptor, C type 1                                                            |
| F02      | Hs.82116  | NM_002468    | MYD88   | Myeloid differentiation primary response gene (88)                                    |
| F03      | Hs.654408 | NM_003998    | NFKB1   | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1                  |
| F04      | Hs.81328  | NM_020529    | NFKBIA  | Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha   |
| F05      | Hs.159483 | NM_183395    | NLRP3   | NLR family, pyrin domain containing 3                                                 |
| F06      | Hs.514556 | NM_002522    | NPTX1   | Neuronal pentraxin I                                                                  |
| F07      | Hs.413111 | NM_002661    | PLCG2   | Phospholipase C, gamma 2 (phosphatidylinositol-specific)                              |
| F08      | Hs.196384 | NM_000963    | PTGS2   | Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase) |
| F09      | Hs.63489  | NM_002831    | PTPN6   | Protein tyrosine phosphatase, non-receptor type 6                                     |
| F10      | Hs.591286 | NM_002852    | PTX3    | Pentraxin 3, long                                                                     |
| F11      | Hs.499094 | NM_013258    | PYCARD  | PYD and CARD domain containing                                                        |
| F12      | Hs.159130 | NM_002880    | RAF1    | V-raf-1 murine leukemia viral oncogene homolog 1                                      |
| G01      | Hs.647430 | NM_003693    | SCARF1  | Scavenger receptor class F, member 1                                                  |
| G02      | Hs.253495 | NM_003019    | SFTPD   | Surfactant protein D                                                                  |
| G03      | Hs.527973 | NM_003955    | SOC3    | Suppressor of cytokine signaling 3                                                    |
| G04      | Hs.415117 | NM_003896    | ST3GAL5 | ST3 beta-galactoside alpha-2,3-sialyltransferase 5                                    |
| G05      | Hs.642990 | NM_007315    | STAT1   | Signal transducer and activator of transcription 1, 91kDa                             |
| G06      | Hs.371720 | NM_003177    | SYK     | Spleen tyrosine kinase                                                                |
| G07      | Hs.537126 | NM_001039661 | TIRAP   | Toll-interleukin 1 receptor (TIR) domain containing adaptor protein                   |
| G08      | Hs.519033 | NM_003264    | TLR2    | Toll-like receptor 2                                                                  |
| G09      | Hs.174312 | NM_138554    | TLR4    | Toll-like receptor 4                                                                  |
| G10      | Hs.87968  | NM_017442    | TLR9    | Toll-like receptor 9                                                                  |
| G11      | Hs.241570 | NM_000594    | TNF     | Tumor necrosis factor                                                                 |
| G12      | Hs.591983 | NM_004620    | TRAF6   | TNF receptor-associated factor 6                                                      |
| H01      | Hs.520640 | NM_001101    | ACTB    | Actin, beta                                                                           |
| H02      | Hs.534255 | NM_004048    | B2M     | Beta-2-microglobulin                                                                  |
| H03      | Hs.592355 | 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.

| 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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