

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

## Human Protease Activated Receptor Signaling

Cat. no. 330231 PAHS-159ZR

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 Protease-Activated Receptor Signaling RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in the activation and response of protease-activated receptors (PARs). The PAR family is a class of G protein-coupled receptors that are activated by proteolytic cleavage of their extracellular domain. Thrombin (F2) activates PAR1, PAR2, and PAR4, whereas trypsin activates PAR3. However, these 4 receptors can also be activated by several other proteases. Each enzyme cleaves specific sites on the receptors, resulting in different downstream responses. The majority of the proteases that activate PAR signaling play a central role in hemostasis, or the formation and degradation of blood clots. Specific PAR signaling pathways and responses have been identified for some of these proteases, such as tissue factor (F3), activated protein C (PROC), factor VIIa (F7), and factor Xa (F10). PAR signaling also cross-talks with other cellular receptors, such as EPCR (PROCR), TLR4, and S1PR3. These signaling pathways have been identified in multiple cell types, affecting biological processes such as adhesion, proliferation, and migration. PAR signaling dysregulation can be involved in cancer progression. In addition, cancer patients are often diagnosed with coagulopathies, caused by dysregulation of either PAR ligands or target genes involved in hemostasis. PAR signaling target genes also include cytokines and other proteins regulating the inflammatory response, as well as angiogenic genes. This array includes ligands and receptors involved in PAR signaling, as well as downstream effectors and target genes identified for specific PAR signaling pathways. The results of this array can suggest which PARs and specific pathways are involved in a model system of interest. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in PAR signaling with this array.

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For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

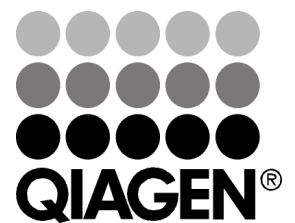
## Shipping and storage

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.513578 | NM_001114 | ADCY7  | Adenylate cyclase 7  |
| A02      | Hs.525622 | NM_005163 | AKT1   | V-akt murine thymoma viral oncogene homolog 1  |
| A03      | Hs.303649 | NM_002982 | CCL2   | Chemokine (C-C motif) ligand 2   |
| A04      | Hs.126517 | NM_000574 | CD55   | CD55 molecule, decay accelerating factor for complement (Cromer blood group)                 |
| A05      | Hs.370771 | NM_000389 | CDKN1A | Cyclin-dependent kinase inhibitor 1A (p21, Cip1)   |
| A06      | Hs.591402 | NM_000757 | CSF1   | Colony stimulating factor 1 (macrophage)   |
| A07      | Hs.1349   | NM_000758 | CSF2   | Colony stimulating factor 2 (granulocyte-macrophage)   |
| A08      | Hs.591346 | NM_001901 | CTGF   | Connective tissue growth factor  |
| A09      | Hs.421724 | NM_001911 | CTSG   | Cathepsin G  |
| A10      | Hs.789    | NM_001511 | CXCL1  | Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)               |
| A11      | Hs.8867   | NM_001554 | CYR61  | Cysteine-rich, angiogenic inducer, 61  |
| A12      | Hs.40499  | NM_012242 | DKK1   | Dickkopf homolog 1 (Xenopus laevis)  |
| B01      | Hs.326035 | NM_001964 | EGR1   | Early growth response 1  |
| B02      | Hs.181128 | NM_005229 | ELK1   | ELK1, member of ETS oncogene family  |
| B03      | Hs.369438 | NM_005238 | ETS1   | V-ets erythroblastosis virus E26 oncogene homolog 1 (avian)                                  |
| B04      | Hs.361463 | NM_000504 | F10    | Coagulation factor X   |
| B05      | Hs.655207 | NM_000506 | F2     | Coagulation factor II (thrombin)   |
| B06      | Hs.482562 | NM_001992 | F2R    | Coagulation factor II (thrombin) receptor  |
| B07      | Hs.154299 | NM_005242 | F2RL1  | Coagulation factor II (thrombin) receptor-like 1   |
| B08      | Hs.42502  | NM_004101 | F2RL2  | Coagulation factor II (thrombin) receptor-like 2   |
| B09      | Hs.137574 | NM_003950 | F2RL3  | Coagulation factor II (thrombin) receptor-like 3   |
| B10      | Hs.62192  | NM_001993 | F3     | Coagulation factor III (thromboplastin, tissue factor)                                       |
| B11      | Hs.36989  | NM_000131 | F7     | Coagulation factor VII (serum prothrombin conversion accelerator)                            |
| B12      | Hs.367725 | NM_032638 | GATA2  | GATA binding protein 2   |
| C01      | Hs.74471  | NM_000165 | GJA1   | Gap junction protein, alpha 1, 43kDa   |
| C02      | Hs.134587 | NM_002069 | GNAI1  | Guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 1      |
| C03      | Hs.799    | NM_001945 | HBEGF  | Heparin-binding EGF-like growth factor   |
| C04      | Hs.643495 | NM_000859 | HMGCR  | 3-hydroxy-3-methylglutaryl-CoA reductase   |
| C05      | Hs.37003  | NM_005343 | HRAS   | V-Ha-ras Harvey rat sarcoma viral oncogene homolog   |
| C06      | Hs.716396 | NM_005347 | HSPA5  | Heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)                                |
| C07      | Hs.643447 | NM_000201 | ICAM1  | Intercellular adhesion molecule 1  |
| C08      | Hs.597664 | NM_001556 | IKBKB  | Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta                   |
| C09      | Hs.193717 | NM_000572 | IL10   | Interleukin 10   |
| C10      | Hs.845    | NM_002188 | IL13   | Interleukin 13   |
| C11      | Hs.126256 | NM_000576 | IL1B   | Interleukin 1, beta  |
| C12      | Hs.73917  | NM_000589 | IL4    | Interleukin 4  |
| D01      | Hs.654458 | NM_000600 | IL6    | Interleukin 6 (interferon, beta 2)   |
| D02      | Hs.624    | NM_000584 | IL8    | Interleukin 8  |
| D03      | Hs.172631 | NM_000632 | ITGAM  | Integrin, alpha M (complement component 3 receptor 3 subunit)                                |
| D04      | Hs.643813 | NM_002211 | ITGB1  | Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12) |
| D05      | Hs.25292  | NM_002229 | JUNB   | Jun B proto-oncogene   |
| D06      | Hs.479756 | NM_002253 | KDR    | Kinase insert domain receptor (a type III receptor tyrosine kinase)                          |
| D07      | Hs.1048   | NM_003994 | KITLG  | KIT ligand   |
| D08      | Hs.145442 | NM_002755 | MAP2K1 | Mitogen-activated protein kinase kinase 1  |
| D09      | Hs.485233 | NM_001315 | MAPK14 | Mitogen-activated protein kinase 14  |
| D10      | Hs.407995 | NM_002415 | MIF    | Macrophage migration inhibitory factor (glycosylation-inhibiting factor)                     |
| D11      | Hs.83169  | NM_002421 | MMP1   | Matrix metalloproteinase 1 (interstitial collagenase)  |
| D12      | Hs.513617 | NM_004530 | MMP2   | Matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)       |
| E01      | Hs.159223 | NM_005967 | NAB2   | NGFI-A binding protein 2 (EGR1 binding protein 2)  |
| E02      | Hs.534074 | NM_172390 | NFATC1 | Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1                    |
| E03      | Hs.654408 | NM_003998 | NFKB1  | Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1                         |
| E04      | Hs.77274  | NM_002658 | PLAU   | Plasminogen activator, urokinase   |
| E05      | Hs.466871 | NM_002659 | PLAUR  | Plasminogen activator, urokinase receptor  |

| Position | UniGene   | GenBank   | Symbol   | Description   |
|----------|-----------|-----------|----------|---|
| E06      | Hs.468840 | NM_002664 | PLEK     | Pleckstrin  |
| E07      | Hs.143436 | NM_000301 | PLG      | Plasminogen   |
| E08      | Hs.531704 | NM_002737 | PRKCA    | Protein kinase C, alpha   |
| E09      | Hs.580351 | NM_005400 | PRKCE    | Protein kinase C, epsilon   |
| E10      | Hs.224698 | NM_000312 | PROC     | Protein C (inactivator of coagulation factors Va and VIIIa)                                   |
| E11      | Hs.647450 | NM_006404 | PROCR    | Protein C receptor, endothelial   |
| E12      | Hs.196384 | NM_000963 | PTGS2    | Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)         |
| F01      | Hs.395482 | NM_005607 | PTK2     | PTK2 protein tyrosine kinase 2  |
| F02      | Hs.506852 | NM_002834 | PTPN11   | Protein tyrosine phosphatase, non-receptor type 11  |
| F03      | Hs.631886 | NM_002908 | REL      | V-rel reticuloendotheliosis viral oncogene homolog (avian)                                    |
| F04      | Hs.502875 | NM_021975 | RELA     | V-rel reticuloendotheliosis viral oncogene homolog A (avian)                                  |
| F05      | Hs.247077 | NM_001664 | RHOA     | Ras homolog gene family, member A   |
| F06      | Hs.654594 | NM_004310 | RHOH     | Ras homolog gene family, member H   |
| F07      | Hs.463642 | NM_003161 | RPS6KB1  | Ribosomal protein S6 kinase, 70kDa, polypeptide 1   |
| F08      | Hs.154210 | NM_001400 | S1PR1    | Sphingosine-1-phosphate receptor 1  |
| F09      | Hs.585118 | NM_005226 | S1PR3    | Sphingosine-1-phosphate receptor 3  |
| F10      | Hs.89546  | NM_000450 | SELE     | Selectin E  |
| F11      | Hs.73800  | NM_003005 | SELP     | Selectin P (granule membrane protein 140kDa, antigen CD62)                                    |
| F12      | Hs.594481 | NM_002575 | SERPINB2 | Serpin peptidase inhibitor, clade B (ovalbumin), member 2                                     |
| G01      | Hs.55279  | NM_002639 | SERPINB5 | Serpin peptidase inhibitor, clade B (ovalbumin), member 5                                     |
| G02      | Hs.414795 | NM_000602 | SERPINE1 | Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1 |
| G03      | Hs.195659 | NM_005417 | SRC      | V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)                             |
| G04      | Hs.516578 | NM_006287 | TFPI     | Tissue factor pathway inhibitor (lipoprotein-associated coagulation inhibitor)                |
| G05      | Hs.645227 | NM_000660 | TGFB1    | Transforming growth factor, beta 1  |
| G06      | Hs.2030   | NM_000361 | THBD     | Thrombomodulin  |
| G07      | Hs.164226 | NM_003246 | THBS1    | Thrombospondin 1  |
| G08      | Hs.241570 | NM_000594 | TNF      | Tumor necrosis factor   |
| G09      | Hs.654481 | NM_000546 | TP53     | Tumor protein p53   |
| G10      | Hs.109225 | NM_001078 | VCAM1    | Vascular cell adhesion molecule 1   |
| G11      | Hs.73793  | NM_003376 | VEGFA    | Vascular endothelial growth factor A  |
| G12      | Hs.435215 | NM_005429 | VEGFC    | Vascular endothelial growth factor C  |
| 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 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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