

RT² Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

Rat Macular Degeneration

Cat. no. 330231 PARN-171ZA

For pathway expression analysis

| Format | For use with the following real-time cyclers |
|--|--|
| RT ² 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 ² Profiler PCR Array, Format C | Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block) |
| RT ² Profiler PCR Array, Format D | Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon [®] , DNA Engine Opticon 2; Stratagene Mx4000 [®] |
| RT ² Profiler PCR Array, Format E | Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™ |
| RT ² Profiler PCR Array, Format F | Roche [®] LightCycler [®] 480 (96-well block) |
| RT ² Profiler PCR Array, Format G | Roche LightCycler 480 (384-well block) |
| RT ² Profiler PCR Array, Format H | Fluidigm [®] BioMark™ |



Sample & Assay Technologies

Description

The Rat Macular Degeneration RT² Profiler PCR Array profiles the expression of 84 genes involved in the pathogenesis of age-related macular degeneration (AMD). AMD usually affects older adults and can make it difficult or impossible to read or recognize faces, although enough peripheral vision remains to allow other daily life activities. AMD is an ocular disease that involves an aspect-specific region of the retina called the macula. The macula facilitates central vision and permits high-resolution visual acuity due to its dense concentration of cone photoreceptors. AMD starts with characteristic yellow deposits (drusen) in the macula between the retinal pigment epithelium and the underlying choroid, with pigmentary abnormalities. The late stage is divided into two groups: dry (non-exudative) and wet (exudative/neovascular) forms. The dry form is characterized by atrophic changes in the macula and clinically has a slower deterioration and better preservation of visual acuity. Wet AMD involves choroidal neovascularization, which is the formation of new abnormal blood vessels in the choriocapillaries through Bruch's membrane. These vessels have a greater tendency of leakage and bleeding into the macula, ultimately leading to irreversible damage to the photoreceptors if left untreated. The molecular pathways underlying AMD's onset and progression remain poorly delineated. The genes profiled with this array include inflammatory and endothelial cell markers for vascularization as well as AMD-associated markers for drusen, Bruch's membrane, and retinal abnormalities. A set of controls present on each array enables data analysis using the $\Delta\Delta$ CT method of relative quantification and assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in age-related macular degeneration with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² 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. RT² 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 RT² 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 (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT² Profiler PCR Array Handbook* for layout.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------|--------|-------|-------|--------|----------|----------|---------|---------|-------|-------|-------|-------|
| A | Abca1 | Abca4 | Ace | Alb | Anxa2 | Anxa5 | ApoE | C2 | C3 | C4b | C5 | C9 |
| B | Ccl11 | Ccl2 | Cfb | Cfh | Cfh1 | Cfi | Clu | Col14a1 | Cp | Crp | Cryaa | Cryab |
| C | Crygd | Cst3 | Ctgf | Ctsd | Cx3cr1 | Cxcl12 | Dicer1 | Efemp1 | Eln | Ercc6 | Fancg | Faslg |
| D | Fbln5 | Fn1 | Gfap | Gstm1 | Gstp1 | Gstl1 | Hif1a | Hmcn1 | Hmox1 | Hmox2 | Htra1 | Icam1 |
| E | Igf1 | Il6 | Lep | Lipc | Lpl | Mmp2 | Mmp9 | Nos1 | Nos3 | Plg | Pon1 | Rho |
| F | Rlibp1 | Rpe65 | Sag | Scarb1 | Serpine1 | Serpinf1 | Serpin1 | Slc4a1 | Sod2 | Sparc | Stmn1 | Tf |
| G | Tgfb1 | Thy1 | Timp1 | Timp3 | Tlr3 | Tlr4 | Tnmd | Vegfa | Vim | Vldlr | Vtn | Vwf |
| H | Actb | B2m | Hprt1 | Ldha | Rplp1 | RGDC | RTC | RTC | RTC | PPC | PPC | PPC |

Gene table: RT² Profiler PCR Array

| Position | UniGene | GenBank | Symbol | Description |
|----------|-----------|--------------|---------|---|
| A01 | Rn.148916 | NM_178095 | Abca1 | ATP-binding cassette, subfamily A (ABC1), member 1 |
| A02 | Rn.40415 | NM_001107721 | Abca4 | ATP-binding cassette, subfamily A (ABC1), member 4 |
| A03 | Rn.10149 | NM_012544 | Ace | Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1 |
| A04 | Rn.202968 | NM_134326 | Alb | Albumin |
| A05 | Rn.90546 | NM_019905 | Anxa2 | Annexin A2 |
| A06 | Rn.3318 | NM_013132 | Anxa5 | Annexin A5 |
| A07 | Rn.32351 | NM_138828 | ApoE | Apolipoprotein E |
| A08 | Rn.98333 | NM_172222 | C2 | Complement component 2 |
| A09 | Rn.11378 | NM_016994 | C3 | Complement component 3 |
| A10 | Rn.81052 | NM_031504 | C4b | Complement component 4B (Chido blood group) |
| A11 | Rn.21259 | XM_342421 | C5 | Complement component 5 |
| A12 | Rn.10252 | NM_057146 | C9 | Complement component 9 |
| B01 | Rn.10632 | NM_019205 | Ccl11 | Chemokine (C-C motif) ligand 11 |
| B02 | Rn.4772 | NM_031530 | Ccl2 | Chemokine (C-C motif) ligand 2 |
| B03 | Rn.109148 | NM_212466 | Cfb | Complement factor B |
| B04 | Rn.101777 | NM_130409 | Cfh | Complement factor H |
| B05 | Rn.203038 | NM_001044227 | Cfh1 | Complement component factor h-like 1 |
| B06 | Rn.7424 | NM_024157 | Cfi | Complement factor I |
| B07 | Rn.1780 | NM_053021 | Clu | Clusterin |
| B08 | Rn.99441 | NM_001130548 | Col14a1 | Collagen, type XIV, alpha 1 |
| B09 | Rn.32777 | NM_012532 | Cp | Ceruloplasmin |
| B10 | Rn.16463 | NM_017096 | Crp | C-reactive protein, pentraxin-related |
| B11 | Rn.127769 | NM_012534 | Cryaa | Crystallin, alpha A |
| B12 | Rn.98208 | NM_012935 | Cryab | Crystallin, alpha B |
| C01 | Rn.64655 | NM_033095 | Crygd | Crystallin, gamma D |
| C02 | Rn.106351 | NM_012837 | Cst3 | Cystatin C |
| C03 | Rn.17145 | NM_022266 | Ctgf | Connective tissue growth factor |
| C04 | Rn.11085 | NM_134334 | Ctsd | Cathepsin D |
| C05 | Rn.10482 | NM_133534 | Cx3cr1 | Chemokine (C-X3-C motif) receptor 1 |
| C06 | Rn.54439 | NM_022177 | Cxcl12 | Chemokine (C-X-C motif) ligand 12 (stromal cell-derived factor 1) |
| C07 | Rn.205881 | XM_001068155 | Dicer1 | Dicer 1, ribonuclease type III |
| C08 | Rn.163265 | NM_001012039 | Efemp1 | EGF-containing fibulin-like extracellular matrix protein 1 |
| C09 | Rn.54384 | NM_012722 | Eln | Elastin |
| C10 | Rn.19370 | NM_001107296 | Ercc6 | Excision repair cross-complementing rodent repair deficiency, complementation group 6 |
| C11 | Rn.198713 | XM_001076851 | Fancg | Fanconi anemia, complementation group G |
| C12 | Rn.9725 | NM_012908 | Faslg | Fas ligand (TNF superfamily, member 6) |
| D01 | Rn.1699 | NM_019153 | Fbln5 | Fibulin 5 |
| D02 | Rn.1604 | NM_019143 | Fn1 | Fibronectin 1 |
| D03 | Rn.91512 | NM_017009 | Gfap | Glial fibrillary acidic protein |
| D04 | Rn.202944 | NM_017014 | Gstm1 | Glutathione S-transferase mu 1 |
| D05 | Rn.87063 | NM_012577 | Gstp1 | Glutathione S-transferase pi 1 |
| D06 | Rn.11122 | NM_053293 | Gstl1 | Glutathione S-transferase theta 1 |
| D07 | Rn.10852 | NM_024359 | Hif1a | Hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor) |

| Position | UniGene | GenBank | Symbol | Description |
|----------|-----------|--------------|----------|--|
| D08 | Rn.52931 | XM_222716 | Hmcn1 | Hemicentin 1 |
| D09 | Rn.3160 | NM_012580 | Hmox1 | Heme oxygenase (decycling) 1 |
| D10 | Rn.10241 | NM_024387 | Hmox2 | Heme oxygenase (decycling) 2 |
| D11 | Rn.2782 | NM_031721 | Htra1 | Htra serine peptidase 1 |
| D12 | Rn.12 | NM_012967 | Icam1 | Intercellular adhesion molecule 1 |
| E01 | Rn.6282 | NM_178866 | Igf1 | Insulin-like growth factor 1 |
| E02 | Rn.9873 | NM_012589 | Il6 | Interleukin 6 |
| E03 | Rn.44444 | NM_013076 | Lep | Leptin |
| E04 | Rn.1195 | NM_012597 | Lipc | Lipase, hepatic |
| E05 | Rn.3834 | NM_012598 | Lpl | Lipoprotein lipase |
| E06 | Rn.6422 | NM_031054 | Mmp2 | Matrix metalloproteinase 2 |
| E07 | Rn.10209 | NM_031055 | Mmp9 | Matrix metalloproteinase 9 |
| E08 | Rn.10573 | NM_052799 | Nos1 | Nitric oxide synthase 1, neuronal |
| E09 | Rn.44265 | NM_021838 | Nos3 | Nitric oxide synthase 3, endothelial cell |
| E10 | Rn.20178 | NM_053491 | Plg | Plasminogen |
| E11 | Rn.20732 | NM_032077 | Pon1 | Paraoxonase 1 |
| E12 | Rn.92530 | NM_033441 | Rho | Rhodopsin |
| F01 | Rn.41007 | NM_001106274 | Rlbp1 | Retinaldehyde binding protein 1 |
| F02 | Rn.76724 | NM_053562 | Rpe65 | Retinal pigment epithelium 65 |
| F03 | Rn.9856 | NM_013023 | Sag | S-antigen; retina and pineal gland (arrestin) |
| F04 | Rn.88169 | NM_031541 | Scarb1 | Scavenger receptor class B, member 1 |
| F05 | Rn.29367 | NM_012620 | Serpine1 | Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1 |
| F06 | Rn.16993 | NM_177927 | Serpinf1 | Serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1 |
| F07 | Rn.100285 | NM_199093 | Serping1 | Serine (or cysteine) peptidase inhibitor, clade G, member 1 |
| F08 | Rn.32202 | NM_012651 | Slc4a1 | Solute carrier family 4 (anion exchanger), member 1 |
| F09 | Rn.10488 | NM_017051 | Sod2 | Superoxide dismutase 2, mitochondrial |
| F10 | Rn.98989 | NM_012656 | Sparc | Secreted protein, acidic, cysteine-rich (osteonectin) |
| F11 | Rn.555 | NM_017166 | Stmn1 | Stathmin 1 |
| F12 | Rn.91296 | NM_001013110 | Tf | Transferrin |
| G01 | Rn.40136 | NM_021578 | Tgfb1 | Transforming growth factor, beta 1 |
| G02 | Rn.108198 | NM_012673 | Thy1 | Thy-1 cell surface antigen |
| G03 | Rn.25754 | NM_053819 | Timp1 | TIMP metalloproteinase inhibitor 1 |
| G04 | Rn.119634 | NM_012886 | Timp3 | TIMP metalloproteinase inhibitor 3 |
| G05 | Rn.15273 | NM_198791 | Tlr3 | Toll-like receptor 3 |
| G06 | Rn.14534 | NM_019178 | Tlr4 | Toll-like receptor 4 |
| G07 | Rn.26691 | NM_022290 | Tnmd | Tenomodulin |
| G08 | Rn.1923 | NM_031836 | Vegfa | Vascular endothelial growth factor A |
| G09 | Rn.2710 | NM_031140 | Vim | Vimentin |
| G10 | Rn.9975 | NM_013155 | Vldlr | Very low density lipoprotein receptor |
| G11 | Rn.87493 | NM_019156 | Vtn | Vitronectin |
| G12 | Rn.35561 | XM_342759 | Vwf | Von Willebrand factor |
| 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, RT² Profiler PCR Arrays should be used together with the RT² First Strand Kit for cDNA synthesis and RT² SYBR[®] Green qPCR Mastermixes for PCR.

| Product | Contents | Cat. no. |
|--|---|----------|
| RT ² First Strand Kit (12) | Enzymes and reagents for cDNA synthesis | 330401 |
| RT ² 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 ² SYBR Green ROX™ 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 ² 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.

RT² 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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