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

# Horse Mesenchymal Stem Cell

### Cat. no. 330231 PAEC-082ZA

### For pathway expression analysis

| Format | For use with the following real-time cyclers |
|---|---|
| RT² 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 |
| RT² Profiler PCR Array, Format C | Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block) |
| RT² Profiler PCR Array, Format D | Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000® |
| RT² Profiler PCR Array, Format E | Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™ |
| RT² Profiler PCR Array, Format F | Roche® LightCycler® 480 (96-well block) |
| RT² Profiler PCR Array, Format G | Roche LightCycler 480 (384-well block) |
| RT² Profiler PCR Array, Format H | Fluidigm® BioMark™ |

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## Description

The Horse Mesenchymal Stem Cell RT² Profiler PCR Array profiles the expression of 84 key genes involved in maintaining pluripotency and self-renewal status. Mesenchymal stem cells (MSC) are multipotent adult stem cells able to differentiate into a variety of cell types such as osteoblasts, chondrocytes, myocytes, adipocytes, and beta-pancreatic islets cells. Because MSC can easily be isolated from a variety of tissues and expanded in vitro, they may serve as a valuable resource for regenerative medicine. However, diverse MSC isolation protocols make it difficult to compare results between laboratories. Examining gene expression profiles with this PCR array may help you better interpret the nature of initial MSC isolates and their subsequent behavior. The array includes genes that define the "stemness" of these cells and that maintain their pluripotency and self-renewal characteristics. The array has a collection of MSC-specific marker genes which distinguish MSC from embryonic stem cells (ESC). The array also includes differentiation markers that can be used to monitor early MSC differentiation events. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in mesenchymal stem cell maintenance and differentiation 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 | ABCB1 | ACAN | ACTA1 | ACTA2 | ALCAM | ANPEP | BDNF | BMP2 | BMP4 | BMP6 | BMP7 | BMPR1A |
| B | CASP3 | CD44 | COL1A1 | COL2A1 | CSF3 | CTNNB1 | ENG | ERBB2 | FGF2 | GDF5 | GDF6 | GM-CSF |
| C | IFNG | IGF1 | IL10 | IL1B | IL6 | ITGA6 | ITGAV | ITGAX | ITGB1 | JAG1 | KAT2B | KDR |
| D | KITLG | LOC100049848 | LOC100051258 | LOC100052565 | LOC100052655 | LOC100053343 | LOC100054499 | LOC100055254 | LOC100057208 | LOC100060077 | LOC100060960 | LOC100064555 |
| E | LOC100070281 | LOC100071665 | LOC100072241 | LOC100073236 | LOC100629131 | LOC100630695 | MCAM | MITF | MMP2 | MYOD1 | NES | NOTCH1 |
| F | NT5E | PIGS | PROM1 | PTK2 | PTPRC | RUNX2 | SLC2A4 | SMAD3 | SMAD4 | SMURF1 | SMURF2 | SOX2 |
| G | SOX9 | SREBF1 | TBX5 | TGFB1 | TGFB3 | THY1 | TNF | VCAM | VEGFA | VIM | VWF | WNT3 |
| H | ACTB | B2M | GAPDH | HPRT1 | LOC100056766 | EGDC | RTC | RTC | RTC | PPC | PPC | PPC |

## Gene table: RT² Profiler PCR Array

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| A01 | Eca.12665 | XM_001492023 | ABCB1 | ATP-binding cassette, sub-family B (MDR/TAP), member 1 |
| A02 | Eca.4371 | XM_001917528 | ACAN | Aggrecan |
| A03 | N/A | XM_001497713 | ACTA1 | Actin, alpha 1, skeletal muscle |
| A04 | N/A | XM_001503035 | ACTA2 | Actin, alpha 2, smooth muscle, aorta |
| A05 | N/A | XM_001503380 | ALCAM | Activated leukocyte cell adhesion molecule |
| A06 | Eca.16119 | XM_003363579 | ANPEP | Alanyl (membrane) aminopeptidase |
| A07 | Eca.12477 | NM_001081787 | BDNF | Brain-derived neurotrophic factor |
| A08 | Eca.1530 | XM_001493895 | BMP2 | Bone morphogenetic protein 2 |
| A09 | Eca.12760 | NM_001163970 | BMP4 | Bone morphogenetic protein 4 |
| A10 | Eca.12936 | XM_001493686 | BMP6 | Bone morphogenetic protein 6 |
| A11 | Eca.17234 | NM_001195158 | BMP7 | Bone morphogenetic protein 7 |
| A12 | N/A | XM_001500907 | BMPR1A | Bone morphogenetic protein receptor, type IA |
| B01 | Eca.2296 | NM_001163961 | CASP3 | Caspase 3, apoptosis-related cysteine peptidase |
| B02 | Eca.16842 | NM_001085435 | CD44 | CD44 molecule (Indian blood group) |
| B03 | Eca.1955 | XM_001499586 | COL1A1 | Collagen, type I, alpha 1 |
| B04 | Eca.5282 | NM_001081764 | COL2A1 | Collagen, type II, alpha 1 |
| B05 | Eca.426 | NM_001081860 | CSF3 | Colony stimulating factor 3 (granulocyte) |
| B06 | Eca.16809 | NM_001122762 | CTNNB1 | Catenin (cadherin-associated protein), beta 1, 88kDa |
| B07 | N/A | XM_001500078 | ENG | Endoglin |
| B08 | N/A | XM_001501105 | ERBB2 | V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian) |
| B09 | Eca.12651 | NM_001195221 | FGF2 | Fibroblast growth factor 2 (basic) |
| B10 | Eca.13387 | NM_001082520 | GDF5 | Growth differentiation factor 5 |
| B11 | N/A | XM_001915579 | GDF6 | Growth differentiation factor 6 |
| B12 | Eca.10972 | NM_001081882 | GM-CSF | Granulocyte-macrophage colony-stimulating-factor |
| C01 | Eca.721 | NM_001081949 | IFNG | Interferon, gamma |
| C02 | Eca.12985 | NM_001082498 | IGF1 | Insulin-like growth factor 1 (somatomedin C) |
| C03 | Eca.13090 | NM_001082490 | IL10 | Interleukin 10 |
| C04 | Eca.13475 | NM_001082526 | IL1B | Interleukin 1, beta |
| C05 | Eca.12956 | NM_001082496 | IL6 | Interleukin 6 (interferon, beta 2) |
| C06 | N/A | XM_001495066 | ITGA6 | Integrin, alpha 6 |
| C07 | Eca.16157 | XM_001498530 | ITGAV | Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51) |
| C08 | Eca.16159 | NM_001114177 | ITGAX | Integrin, alpha X (complement component 3 receptor 4 subunit) |
| C09 | Eca.1720 | XM_001492665 | ITGB1 | Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12) |
| C10 | N/A | XM_001495238 | JAG1 | Jagged 1 |
| C11 | N/A | XM_001493724 | KAT2B | K(lysine) acetyltransferase 2B |
| C12 | Eca.12647 | XM_001916946 | KDR | Kinase insert domain receptor (a type III receptor tyrosine kinase) |
| D01 | Eca.12984 | NM_001163962 | KITLG | KIT ligand |
| | | | LOC100049 | |

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| D02 | N/A | XM_001487849 | 848 | Hepatocyte growth factor-like |
| D03 | N/A | XM_001492411 | LOC100051258 | Peroxisome proliferator-activated receptor gamma-like |
| D04 | N/A | XM_001488389 | LOC100052565 | Uncharacterized protein C12orf43 homolog |
| D05 | N/A | XM_001498109 | LOC100052655 | Fibroblast growth factor 10-like |
| D06 | Eca.16383 | XM_001497759 | LOC100053343 | Transforming protein RhoA-like |
| D07 | N/A | XM_001917269 | LOC100054499 | Galactoside 2-alpha-L-fucosyltransferase 1-like |
| D08 | N/A | XM_001489519 | LOC100055254 | Zinc finger protein 42 homolog |
| D09 | Eca.5947 | XM_001918179 | LOC100057208 | Collagen alpha-1(IX) chain-like |
| D10 | N/A | XM_001496805 | LOC100060077 | Insulin-like |
| D11 | Eca.1171 | XM_001493058 | LOC100060960 | Transcription factor IIIA-like |
| D12 | N/A | XM_001495425 | LOC100064555 | Intestinal-type alkaline phosphatase-like |
| E01 | Eca.915 | XM_001499936 | LOC100070281 | Histone deacetylase 1-like |
| E02 | N/A | XM_001501493 | LOC100071665 | Beta-type platelet-derived growth factor receptor-like |
| E03 | Eca.2917 | XM_001503130 | LOC100072241 | Annexin A5-like |
| E04 | N/A | XM_003362885 | LOC100073236 | POU domain, class 5, transcription factor 2-like |
| E05 | N/A | XM_003365488 | LOC100629131 | Leukemia inhibitory factor-like |
| E06 | N/A | XM_003363842 | LOC100630695 | Telomerase reverse transcriptase-like |
| E07 | N/A | XM_001917594 | MCAM | Melanoma cell adhesion molecule |
| E08 | Eca.12983 | NM_001163874 | MITF | Microphthalmia-associated transcription factor |
| E09 | Eca.12657 | XM_001493281 | MMP2 | Matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase) |
| E10 | N/A | XM_001504953 | MYOD1 | Myogenic differentiation 1 |
| E11 | N/A | XM_001915709 | NES | Nestin |
| E12 | N/A | XM_001498582 | NOTCH1 | Notch 1 |
| F01 | N/A | XM_001500115 | NT5E | 5'-nucleotidase, ecto (CD73) |
| F02 | N/A | XM_001504143 | PIGS | Phosphatidylinositol glycan anchor biosynthesis, class S |
| F03 | N/A | XM_001498679 | PROM1 | Prominin 1 |
| F04 | N/A | XM_001499837 | PTK2 | PTK2 protein tyrosine kinase 2 |
| F05 | Eca.12926 | XM_003364560 | PTPRC | Protein tyrosine phosphatase, receptor type, C |
| F06 | Eca.13032 | XM_001502519 | RUNX2 | Runt-related transcription factor 2 |
| F07 | Eca.12623 | NM_001081866 | SLC2A4 | Solute carrier family 2 (facilitated glucose transporter), member 4 |
| F08 | Eca.12965 | XM_001496822 | SMAD3 | SMAD family member 3 |
| F09 | Eca.12964 | XM_003365557 | SMAD4 | SMAD family member 4 |
| F10 | N/A | XM_001494542 | SMURF1 | SMAD specific E3 ubiquitin protein ligase 1 |
| F11 | N/A | XM_001917106 | SMURF2 | SMAD specific E3 ubiquitin protein ligase 2 |
| F12 | Eca.16902 | XM_003363345 | SOX2 | SRY (sex determining region Y)-box 2 |
| G01 | Eca.5281 | XM_001498424 | SOX9 | SRY (sex determining region Y)-box 9 |
| G02 | N/A | XM_001918214 | SREBF1 | Sterol regulatory element binding transcription factor 1 |
| G03 | N/A | XM_001489960 | TBX5 | T-box 5 |
| G04 | Eca.6371 | NM_001081849 | TGFB1 | Transforming growth factor, beta 1 |
| G05 | N/A | XM_001492687 | TGFB3 | Transforming growth factor, beta 3 |
| G06 | Eca.14475 | XM_001503225 | THY1 | Thy-1 cell surface antigen |
| G07 | Eca.13019 | NM_001081819 | TNF | Tumor necrosis factor |
| G08 | Eca.14427 | NM_001101650 | VCAM | Vascular cell adhesion molecule |
| G09 | Eca.12648 | NM_001081821 | VEGFA | Vascular endothelial growth factor A |
| G10 | Eca.13250 | NM_001243145 | VIM | Vimentin |
| G11 | N/A | NM_001242566 | VWF | Von Willebrand factor |
| G12 | N/A | XM_001487899 | WNT3 | Wingless-type MMTV integration site family, member 3 |
| H01 | Eca.15483 | NM_001081838 | ACTB | Actin, beta |
| H02 | Eca.13489 | NM_001082502 | B2M | Beta-2-microglobulin |
| H03 | Eca.487 | NM_001163856 | GAPDH | Glyceraldehyde-3-phosphate dehydrogenase |
| H04 | Eca.12727 | XM_001490189 | HPRT1 | Hypoxanthine phosphoribosyltransferase 1 |
| H05 | Eca.13629 | XM_001492042 | LOC100056766 | 60S ribosomal protein L32-like |
| H06 | N/A horse | SA_00139 | EGDC | Horse Genomic DNA Contamination |
| | | | | |

| Position | UniGene | GenBank | Symbol | Description |
|---|---|---|---|---|
| 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. |
|---|---|---|
| RT² First Strand Kit (12) | Enzymes and reagents for cDNA synthesis | 330401 |
| RT² 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 |
| RT² 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 |
| RT² 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.

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 or can be requested from QIAGEN Technical Services or your local distributor.



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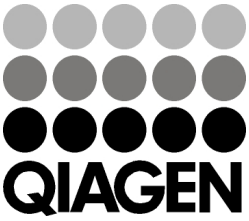


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