

RT² Profiler™ PCR Array:

Human Cell Surface Markers

Catalog Number

PAHS-055A

PAHS-055C

PAHS-055D

PAHS-055E

PAHS-055F

PAHS-055G

For Real-Time Instruments:

ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4; and Stratagene Mx3005p, Mx3000p

ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus

Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000

ABI 7900HT 384-Well Block

Roche LightCycler 480 96-well Blocks

Roche LightCycler 480 384-well Blocks

Description

The Human Cell Surface Markers RT² Profiler™ PCR Array profiles the expression of 84 genes relevant to research at the cell surface marker level. These markers have been used in studies including: 1) determination of the extent of leukocyte infiltration among cancer tissues; 2) characterization of cell populations isolated from patients with chronic inflammatory diseases such as atherosclerosis, asthma, inflammatory bowel disease, and arthritis; 3) determination of T- and B-cell lineage and clonality; 4) characterization of leukocyte populations for use in the prognosis of disease stage and progression; and 5) analysis of the composition of immune infiltrates and their association with organ rejection. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to cell surface markers with this array.

Functional Gene Groupings**B-cell Surface Markers:**Activated B-cells: CD28, CD38, CD69, CD80, CD83, CD86, DPP4, FCER2, IL2RA, TNFRSF8, CD70 (TNFSF7).Mature B-cells: CD19, CD22, CD24, CD37, CD40, CD72, CD74, CD79A, CD79B, CR2, IL1R2, ITGA2, ITGA3, MS4A1, ST6GAL1.Other B-cell Surface Markers: CD1C, CHST10, HLA-A, HLA-DRA, NT5E.**T-cell surface markers:**Cytotoxic T-cells: CD8A, CD8B1.Helper T-cells: CD4.Activated T-cells: ALCAM, CD2, CD38, CD40LG, CD69, CD83, CD96, CTLA4, DPP4, HLA-DRA, IL12RB1, IL2RA, ITGA1, TNFRSF4, TNFRSF8, CD70 (TNFSF7).Other T-cell Surface Markers: CD160, CD28, CD37, CD3D, CD3G, CD3Z, CD5, CD6, CD7, FAS, KLRB1, KLRD1, NT5E, ST6GAL1.**Natural Killer (NK) Cell Surface Markers:** CD2, CD244, CD3Z, CD7, CD96, CHST10, IL12RB1, KLRB1, KLRC1, KLRD1, NCAM1.**Monocyte and Macrophage Cell Surface Markers:**Activated Macrophages: CD69, ENG, FCER2, IL2RA.Other Monocyte and Macrophage Surface Markers: C5R1, CD163, CD40, CD63, CD74, CD86, CHST10, CSF1R, DPP4, FCGR1A, HLA-DRA, ICAM2, IL1R2, ITGA1, ITGA2, S100A8, TNFRSF8, CD70 (TNFSF7).**Endothelial Cell Surface Markers:** ENG, ICAM2, NOS3, PECAM1, SELP, TEK, VCAM1, VWF.**Smooth Muscle Cell Surface Markers:** MYH10, MYH9, MYOCD.**Continued:** (next page)

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Dendritic Cell Surface Markers: CD1A, CD209, CD40, CD83, CD86, CR2, FCER2.

Mast Cell Surface Markers: C5R1, FCER1A, FCER2, TPSAB1.

Fibroblast (Stromal) Surface Markers: ALCAM, COL1A1, COL1A2.

Epithelial Cell Surface Markers: CD1D, KRT18, KRT5, KRT8, TACSTD1.

Adipocyte Surface Markers: RETN.

Storage Conditions

Please check the kit components immediately after you receive this package. We are only responsible for missing items reported within two (2) business days of receipt.

Storage Conditions: PCR Arrays are shipped at ambient temperature. Keep plates at -20 °C for long-term storage.

NOTE: Be sure that you have the correct PCR Array format for your instrument before starting the experiment.

References

1. Danièle Gagné, Michèle Rivard, Martin Pagé, Kamran Shazand, Patrice Hugo and Diane Gosselin Blood leukocyte subsets are modulated in patients with endometriosis, *Fertility and Sterility, Volume 80, Issue 1, July 2003, Pages 43-53*
2. Mason DY, Andre P, Bensussan A, Buckley C, Civin C, Clark E, de Haas M, Goyert S, Hadam M, Hart D, Horejsi V, Meuer S, Morissey J, Schwartz-Albiez R, Shaw S, Simmons D, Uguccioni M, van der Schoot E, Viver E, Zola H. CD antigens 2001. *Tissue Antigens*. 2001 Dec;58(6):425-30.
3. Iwamoto M, Shinohara H, Miyamoto A, Okuzawa M, Mabuchi H, Nohara T, Gon G, Toyoda M, Tanigawa N. Prognostic value of tumor-infiltrating dendritic cells expressing CD83 in human breast carcinomas. *Int J Cancer*. 2003 Mar 10;104(1):92-7.
4. Shirakawa T, Gotoh A, Wada Y, Kamidono S, Ko SC, Kao C, Gardner TA, Chung LW. Tissue-specific promoters in gene therapy for the treatment of prostate cancer. *Mol Urol*. 2000 Summer;4(2):73-82.
5. Cecilia Garlanda; ; Elisabetta Dejana Heterogeneity of endothelial cells. Specific markers. *Arterioscler Thromb Vasc Biol*. 1997 Jul;17(7):1193-202.
6. Baeten D, Demetter P, Cuvelier CA, Kruithof E, Van Damme N, De Vos M, Veys EM, De Keyser F. Macrophages expressing the scavenger receptor CD163: a link between immune alterations of the gut and synovial inflammation in spondyloarthritis. *J Pathol*. 2002 Mar;196(3):343-50.
7. Buckley CD. Why do leucocytes accumulate within chronically inflamed joints? *Rheumatology (Oxford)*. 2003 Jun 27
8. Carson JA, Culberson DE, Thompson RW, Fillmore RA, Zimmer W. Smooth muscle gamma-actin promoter regulation by RhoA and serum response factor signaling. *Biochim Biophys Acta*. 2003 Jul 28;1628(2):133-9.
9. Yoshida T, Sinha S, Dandre F, Wamhoff BR, Hoofnagle MH, Kremer BE, Wang DZ, Olson EN, Owens GK. Myocardin is a key regulator of CArG-dependent transcription of multiple smooth muscle marker genes. *Circ Res*. 2003 May 2;92(8):856-64. Epub 2003 Mar 27.
10. T Petruschke and H Hauner. Tumor necrosis factor-alpha prevents the differentiation of human adipocyte precursor cells and causes delipidation of newly developed fat cells. *Journal of Clinical Endocrinology & Metabolism*, Vol 76, 742-747.
11. Perou CM, Sorlie T, Eisen MB, van de Rijn M, Jeffrey SS, Rees CA, Pollack JR, Ross DT, Johnsen H, Akslen LA, Fluge O, Pergamenschikov A, Williams C, Zhu SX, Lonning PE, Borresen-Dale AL, Brown PO, Botstein D. Molecular portraits of human breast tumours. *Nature*. 2000 Aug 17;406(6797):747-52.

Product Specification Sheet

Array Layout: Human Cell Surface Markers RT² Profiler™ PCR Array

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|--------|--------|--------|---------|---------|---------|-------|---------|---------|--------|-------|--------|
| A | ALCAM | C5AR1 | CD160 | CD163 | CD19 | CD1A | CD1C | CD1D | CD2 | CD209 | CD22 | CD24 |
| B | CD244 | CD247 | CD28 | CD37 | CD38 | CD3D | CD3G | CD4 | CD40 | CD40LG | CD5 | CD6 |
| C | CD63 | CD69 | CD7 | CD70 | CD72 | CD74 | CD79A | CD79B | CD80 | CD83 | CD86 | CD8A |
| D | CD8B | CD96 | CHST10 | COL1A1 | COL1A2 | CR2 | CSF1R | CTLA4 | DPP4 | ENG | FAS | FCER1A |
| E | FCER2 | FCGR1A | HLA-A | HLA-DRA | ICAM2 | IL12RB1 | IL1R2 | IL2RA | ITGA1 | ITGA2 | ITGA3 | KLRB1 |
| F | KLRC1 | KLRD1 | KRT18 | KRT5 | KRT8 | MS4A1 | MYH10 | MYH9 | MYOCD | NCAM1 | NOS3 | NT5E |
| G | PECAM1 | RETN | S100A8 | SELP | ST6GAL1 | TACSTD1 | TEK | TNFRSF4 | TNFRSF8 | TPSAB1 | VCAM1 | VWF |
| H | B2M | HPRT1 | RPL13A | GAPDH | ACTB | HGDC | RTC | RTC | RTC | PPC | PPC | PPC |

Gene Table

| Position | UniGene | GenBank | Symbol | Description |
|----------|-----------|-----------|--------|--|
| A01 | Hs.591293 | NM_001627 | ALCAM | Activated leukocyte cell adhesion molecule |
| A02 | Hs.2161 | NM_001736 | C5AR1 | Complement component 5a receptor 1 |
| A03 | Hs.488237 | NM_007053 | CD160 | CD160 molecule |
| A04 | Hs.504641 | NM_004244 | CD163 | CD163 molecule |
| A05 | Hs.652262 | NM_001770 | CD19 | CD19 molecule |
| A06 | Hs.1309 | NM_001763 | CD1A | CD1a molecule |
| A07 | Hs.132448 | NM_001765 | CD1C | CD1c molecule |
| A08 | Hs.1799 | NM_001766 | CD1D | CD1d molecule |
| A09 | Hs.523500 | NM_001767 | CD2 | CD2 molecule |
| A10 | Hs.278694 | NM_021155 | CD209 | CD209 molecule |
| A11 | Hs.652118 | NM_001771 | CD22 | CD22 molecule |
| A12 | Hs.644105 | NM_013230 | CD24 | CD24 molecule |
| B01 | Hs.157872 | NM_016382 | CD244 | CD244 molecule, natural killer cell receptor 2B4 |
| B02 | Hs.156445 | NM_000734 | CD247 | CD247 molecule |
| B03 | Hs.591629 | NM_006139 | CD28 | CD28 molecule |
| B04 | Hs.166556 | NM_001774 | CD37 | CD37 molecule |
| B05 | Hs.479214 | NM_001775 | CD38 | CD38 molecule |
| B06 | Hs.504048 | NM_000732 | CD3D | CD3d molecule, delta (CD3-TCR complex) |
| B07 | Hs.2259 | NM_000073 | CD3G | CD3g molecule, gamma (CD3-TCR complex) |
| B08 | Hs.631659 | NM_000616 | CD4 | CD4 molecule |
| B09 | Hs.472860 | NM_001250 | CD40 | CD40 molecule, TNF receptor superfamily member 5 |
| B10 | Hs.592244 | NM_000074 | CD40LG | CD40 ligand (TNF superfamily, member 5, hyper-IgM syndrome) |
| B11 | Hs.58685 | NM_014207 | CD5 | CD5 molecule |
| B12 | Hs.653185 | NM_006725 | CD6 | CD6 molecule |
| C01 | Hs.445570 | NM_001780 | CD63 | CD63 molecule |
| C02 | Hs.208854 | NM_001781 | CD69 | CD69 molecule |
| C03 | Hs.36972 | NM_006137 | CD7 | CD7 molecule |
| C04 | Hs.501497 | NM_001252 | CD70 | CD70 molecule |
| C05 | Hs.116481 | NM_001782 | CD72 | CD72 molecule |
| C06 | Hs.436568 | NM_004355 | CD74 | CD74 molecule, major histocompatibility complex, class II invariant chain |
| C07 | Hs.631567 | NM_001783 | CD79A | CD79a molecule, immunoglobulin-associated alpha |
| C08 | Hs.89575 | NM_000626 | CD79B | CD79b molecule, immunoglobulin-associated beta |
| C09 | Hs.838 | NM_005191 | CD80 | CD80 molecule |
| C10 | Hs.484703 | NM_004233 | CD83 | CD83 molecule |
| C11 | Hs.171182 | NM_006889 | CD86 | CD86 molecule |
| C12 | Hs.85258 | NM_001768 | CD8A | CD8a molecule |
| D01 | Hs.405667 | NM_004931 | CD8B | CD8b molecule |
| D02 | Hs.142023 | NM_005816 | CD96 | CD96 molecule |
| D03 | Hs.516370 | NM_004854 | CHST10 | Carbohydrate sulfotransferase 10 |
| D04 | Hs.172928 | NM_000088 | COL1A1 | Collagen, type I, alpha 1 |
| D05 | Hs.489142 | NM_000089 | COL1A2 | Collagen, type I, alpha 2 |
| D06 | Hs.445757 | NM_001877 | CR2 | Complement component (3d/Epstein Barr virus) receptor 2 |
| D07 | Hs.483829 | NM_005211 | CSF1R | Colony stimulating factor 1 receptor, formerly McDonough feline sarcoma viral (v-fms) oncogene homolog |
| D08 | Hs.247824 | NM_005214 | CTLA4 | Cytotoxic T-lymphocyte-associated protein 4 |
| D09 | Hs.368912 | NM_001935 | DPP4 | Dipeptidyl-peptidase 4 (CD26, adenosine deaminase complexing protein 2) |
| D10 | Hs.76753 | NM_000118 | ENG | Endoglin (Osler-Rendu-Weber syndrome 1) |
| D11 | Hs.244139 | NM_000043 | FAS | Fas (TNF receptor superfamily, member 6) |
| D12 | Hs.897 | NM_002001 | FCER1A | Fc fragment of IgE, high affinity I, receptor for; alpha polypeptide |
| E01 | Hs.465778 | NM_002002 | FCER2 | Fc fragment of IgE, low affinity II, receptor for (CD23) |
| E02 | Hs.77424 | NM_000566 | FCGR1A | Fc fragment of IgG, high affinity Ia, receptor (CD64) |
| E03 | Hs.181244 | NM_002116 | HLA-A | Major histocompatibility complex, class I, A |

Product Specification Sheet

| Position | UniGene | GenBank | Symbol | Description |
|----------|-----------|-----------|---------|---|
| E04 | Hs.520048 | NM_019111 | HLA-DRA | Major histocompatibility complex, class II, DR alpha |
| E05 | Hs.431460 | NM_000873 | ICAM2 | Intercellular adhesion molecule 2 |
| E06 | Hs.567294 | NM_005535 | IL12RB1 | Interleukin 12 receptor, beta 1 |
| E07 | Hs.25333 | NM_004633 | IL1R2 | Interleukin 1 receptor, type II |
| E08 | Hs.231367 | NM_000417 | IL2RA | Interleukin 2 receptor, alpha |
| E09 | Hs.652204 | NM_181501 | ITGA1 | Integrin, alpha 1 |
| E10 | Hs.482077 | NM_002203 | ITGA2 | Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor) |
| E11 | Hs.265829 | NM_002204 | ITGA3 | Integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor) |
| E12 | Hs.169824 | NM_002258 | KLRB1 | Killer cell lectin-like receptor subfamily B, member 1 |
| F01 | Hs.512576 | NM_002259 | KLRC1 | Killer cell lectin-like receptor subfamily C, member 1 |
| F02 | Hs.562457 | NM_002262 | KLRD1 | Killer cell lectin-like receptor subfamily D, member 1 |
| F03 | Hs.406013 | NM_000224 | KRT18 | Keratin 18 |
| F04 | Hs.433845 | NM_000424 | KRT5 | Keratin 5 (epidermolysis bullosa simplex, Dowling-Meara/Kobner/Weber-Cockayne types) |
| F05 | Hs.533782 | NM_002273 | KRT8 | Keratin 8 |
| F06 | Hs.438040 | NM_021950 | MS4A1 | Membrane-spanning 4-domains, subfamily A, member 1 |
| F07 | Hs.16355 | NM_005964 | MYH10 | Myosin, heavy chain 10, non-muscle |
| F08 | Hs.474751 | NM_002473 | MYH9 | Myosin, heavy chain 9, non-muscle |
| F09 | Hs.567641 | NM_153604 | MYOCD | Myocardin |
| F10 | Hs.503878 | NM_000615 | NCAM1 | Neural cell adhesion molecule 1 |
| F11 | Hs.653170 | NM_000603 | NOS3 | Nitric oxide synthase 3 (endothelial cell) |
| F12 | Hs.153952 | NM_002526 | NT5E | 5'-nucleotidase, ecto (CD73) |
| G01 | Hs.514412 | NM_000442 | PECAM1 | Platelet/endothelial cell adhesion molecule (CD31 antigen) |
| G02 | Hs.283091 | NM_020415 | RETN | Resistin |
| G03 | Hs.416073 | NM_002964 | S100A8 | S100 calcium binding protein A8 |
| G04 | Hs.73800 | NM_003005 | SELP | Selectin P (granule membrane protein 140kDa, antigen CD62) |
| G05 | Hs.207459 | NM_003032 | ST6GAL1 | ST6 beta-galactosamide alpha-2,6-sialyltransferase 1 |
| G06 | Hs.645285 | NM_002354 | TACSTD1 | Tumor-associated calcium signal transducer 1 |
| G07 | Hs.89640 | NM_000459 | TEK | TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal) |
| G08 | Hs.129780 | NM_003327 | TNFRSF4 | Tumor necrosis factor receptor superfamily, member 4 |
| G09 | Hs.1314 | NM_001243 | TNFRSF8 | Tumor necrosis factor receptor superfamily, member 8 |
| G10 | Hs.405479 | NM_003294 | TPSAB1 | Tryptase alpha/beta 1 |
| G11 | Hs.109225 | NM_001078 | VCAM1 | Vascular cell adhesion molecule 1 |
| G12 | Hs.440848 | NM_000552 | VWF | Von Willebrand factor |
| H01 | Hs.534255 | NM_004048 | B2M | Beta-2-microglobulin |
| H02 | Hs.412707 | NM_000194 | HPRT1 | Hypoxanthine phosphoribosyltransferase 1 (Lesch-Nyhan syndrome) |
| H03 | Hs.546356 | NM_012423 | RPL13A | Ribosomal protein L13a |
| H04 | Hs.544577 | NM_002046 | GAPDH | Glyceraldehyde-3-phosphate dehydrogenase |
| H05 | Hs.520640 | NM_001101 | ACTB | Actin, beta |
| 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 |