

# RT<sup>2</sup> Profiler™ PCR Array:

## Human Extracellular Matrix and Adhesion Molecules

**Catalog Number****For Real-Time Instruments:**

PAHS-013A	ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4 and Stratagene Mx3005p, Mx3000p
PAHS-013C	ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus
PAHS-013D	Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000
PAHS-013E	ABI 7900HT 384-Well Block
PAHS-013F	Roche LightCycler 480 96-well Block
PAHS-013G	Roche LightCycler 480 384-well Block

**Description**

The Human Extracellular Matrix and Adhesion Molecules RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes important for cell-cell and cell-matrix interactions. This array contains extracellular matrix (ECM) proteins including basement membrane constituents, collagens, and genes playing a role in ECM structure. Proteases involved in remodeling of the ECM are included as well as their inhibitors. This array also represents molecules important to cell adhesion including molecules involved in cell-cell and cell-matrix adhesion, transmembrane molecules, and others. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to cell adhesion with this array.

**Functional Gene Groupings****Cell Adhesion Molecules:**

Transmembrane Molecules: CD44, CDH1, HAS1, ICAM1, ITGA1, ITGA2, ITGA3, ITGA4, ITGA5, ITGA6, ITGA7, ITGA8, ITGAL, ITGAM, ITGAV, ITGB1, ITGB2, ITGB3, ITGB4, ITGB5, MMP14, MMP15, MMP16, NCAM1, PECAM1, SELE, SELL, SELP, SGCE, SPG7, VCAM1.

Cell-Cell Adhesion: CD44, CDH1, COL11A1, COL14A1, COL6A2, CTNND1, ICAM1, ITGA8, VCAM1.

Cell-Matrix Adhesion: ADAMTS13, CD44, ITGA1, ITGA2, ITGA3, ITGA4, ITGA5, ITGA6, ITGA7, ITGA8, ITGAL, ITGAM, ITGAV, ITGB1, ITGB2, ITGB3, ITGB4, ITGB5, SGCE, SPP1, THBS3.

Other Adhesion Molecules: CNTN1, COL12A1, COL15A1, COL16A1, COL5A1, COL6A1, COL7A1, COL8A1, VCAN, CTGF, CTNNA1, CTNNB1, CTNND2, FN1, KAL1, LAMA1, LAMA2, LAMA3, LAMB1, LAMB3, LAMC1, THBS1, THBS2, CLEC3B, TNC, VTN.

**Extracellular Matrix Proteins:**

Basement Membrane Constituents: COL4A2, COL7A1, LAMA1, LAMA2, LAMA3, LAMB1, LAMB3, LAMC1, SPARC.

Collagens & ECM Structural Constituents: COL11A1, COL12A1, COL14A1, COL15A1, COL16A1, COL1A1, COL4A2, COL5A1, COL6A1, COL6A2, COL7A1, COL8A1, FN1, KAL1.

ECM Proteases: ADAMTS1, ADAMTS13, ADAMTS8, MMP1, MMP10, MMP11, MMP12, MMP13, MMP14, MMP15, MMP16, MMP2, MMP3, MMP7, MMP8, MMP9, SPG7, TIMP1.

ECM Protease Inhibitors: COL7A1, KAL1, THBS1, TIMP1, TIMP2, TIMP3.

Other ECM Molecules: VCAN, CTGF, ECM1, HAS1, SPP1, TGFB1, THBS2, THBS3, CLEC3B, TNC, VTN.

## Product Specification Sheet

### **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**

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2. Gumbiner BM (1996). Cell Adhesion: The Molecular Basis Of Tissue Architecture And Morphogenesis. *Cell* **84**: 345–357.
3. Ben-Ze'ev A, Geiger, B (1998) Differential Molecular Interactions Of  $\beta$ -Catenin And Plakoglobin In Adhesion, Signaling And Cancer. *Curr. Opin. Cell Biol.* **10**: 629–639.
4. Ohene-Abuakwa Y, Pignatelli M (2000) Adhesion Molecules In Cancer Biology. *Adv Exp Med Biol* **465**: 115-126.
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7. Clezardin P (1998) Recent Insights Into The Role Of Integrins In Cancer Metastasis. *Cell Mol Life Sci* **54**: 541-548.
8. Werb, Z. (1997) ECM and Cell Surface Proteolysis: Regulating Cellular Ecology. *Cell* **91**: 439–442.
9. Johansson N, et al. (2000) Matrix Metalloproteinases in Tumor Invasion. *Cell Mol Life Sci* **57**: 5-15.
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11. Sobel RA. (2001) The Extracellular Matrix in Multiple Sclerosis: An Update. *Braz J Med Biol Res* **34**: 603-9.
12. Schonherr E, Hausser HJ (2000) Extracellular Matrix and Cytokines: a Functional Unit. *Dev Immunol* **7**: 89-101.
13. Raines EW. (2000) The Extracellular Matrix Can Regulate Vascular Cell Migration, Proliferation, and Survival: Relationships to Vascular Disease. *Int J Exp Pathol.* **81**: 173-82.
14. Boluyt MO, Bing OH (2000) Matrix Gene Expression and Decompensated Heart Failure: the Aged SHR Model. *Cardiovasc Res.* **46**: 239-49.

## Product Specification Sheet

### Array Layout: Human Extracellular Matrix and Adhesion Molecules PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	ADAMTS1	ADAMTS13	ADAMTS8	CD44	CDH1	CNTN1	COL11A1	COL12A1	COL14A1	COL15A1	COL16A1	COL1A1
B	COL4A2	COL5A1	COL6A1	COL6A2	COL7A1	COL8A1	VCAN	CTGF	CTNNA1	CTNNB1	CTNND1	CTNND2
C	ECM1	FN1	HAS1	ICAM1	ITGA1	ITGA2	ITGA3	ITGA4	ITGA5	ITGA6	ITGA7	ITGA8
D	ITGAL	ITGAM	ITGAV	ITGB1	ITGB2	ITGB3	ITGB4	ITGB5	KAL1	LAMA1	LAMA2	LAMA3
E	LAMB1	LAMB3	LAMC1	MMP1	MMP10	MMP11	MMP12	MMP13	MMP14	MMP15	MMP16	MMP2
F	MMP3	MMP7	MMP8	MMP9	NCAM1	PECAM1	SELE	SELL	SELP	SGCE	SPARC	SPG7
G	SPP1	TGFBI	THBS1	THBS2	THBS3	TIMP1	TIMP2	TIMP3	CLEC3B	TNC	VCAM1	VTN
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

### Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.643357	NM_006988	ADAMTS1	ADAM metalloproteinase with thrombospondin type 1 motif, 1
A02	Hs.131433	NM_139028	ADAMTS13	ADAM metalloproteinase with thrombospondin type 1 motif, 13
A03	Hs.271605	NM_007037	ADAMTS8	ADAM metalloproteinase with thrombospondin type 1 motif, 8
A04	Hs.502328	NM_000610	CD44	CD44 molecule (Indian blood group)
A05	Hs.461086	NM_004360	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)
A06	Hs.143434	NM_001843	CNTN1	Contactin 1
A07	Hs.523446	NM_080629	COL11A1	Collagen, type XI, alpha 1
A08	Hs.101302	NM_004370	COL12A1	Collagen, type XII, alpha 1
A09	Hs.409662	NM_021110	COL14A1	Collagen, type XIV, alpha 1 (undulin)
A10	Hs.409034	NM_001855	COL15A1	Collagen, type XV, alpha 1
A11	Hs.368921	NM_001856	COL16A1	Collagen, type XVI, alpha 1
A12	Hs.172928	NM_000088	COL1A1	Collagen, type I, alpha 1
B01	Hs.508716	NM_001846	COL4A2	Collagen, type IV, alpha 2
B02	Hs.210283	NM_000093	COL5A1	Collagen, type V, alpha 1
B03	Hs.474053	NM_001848	COL6A1	Collagen, type VI, alpha 1
B04	Hs.420269	NM_001849	COL6A2	Collagen, type VI, alpha 2
B05	Hs.476218	NM_000094	COL7A1	Collagen, type VII, alpha 1 (epidermolysis bullosa, dystrophic, dominant and recessive)
B06	Hs.134830	NM_001850	COL8A1	Collagen, type VIII, alpha 1
B07	Hs.643801	NM_004385	VCAN	Versican
B08	Hs.410037	NM_001901	CTGF	Connective tissue growth factor
B09	Hs.445981	NM_001903	CTNNA1	Catenin (cadherin-associated protein), alpha 1, 102kDa
B10	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
B11	Hs.166011	NM_001331	CTNND1	Catenin (cadherin-associated protein), delta 1
B12	Hs.314543	NM_001332	CTNND2	Catenin (cadherin-associated protein), delta 2 (neural plakophilin-related arm-repeat protein)
C01	Hs.81071	NM_004425	ECM1	Extracellular matrix protein 1
C02	Hs.203717	NM_002026	FN1	Fibronectin 1
C03	Hs.57697	NM_001523	HAS1	Hyaluronan synthase 1
C04	Hs.643447	NM_000201	ICAM1	Intercellular adhesion molecule 1 (CD54), human rhinovirus receptor
C05	Hs.652204	NM_181501	ITGA1	Integrin, alpha 1
C06	Hs.482077	NM_002203	ITGA2	Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
C07	Hs.265829	NM_002204	ITGA3	Integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor)
C08	Hs.440955	NM_000885	ITGA4	Integrin, alpha 4 (antigen CD49D, alpha 4 subunit of VLA-4 receptor)
C09	Hs.505654	NM_002205	ITGA5	Integrin, alpha 5 (fibronectin receptor, alpha polypeptide)
C10	Hs.133397	NM_000210	ITGA6	Integrin, alpha 6
C11	Hs.524484	NM_002206	ITGA7	Integrin, alpha 7
C12	Hs.171311	NM_003638	ITGA8	Integrin, alpha 8
D01	Hs.174103	NM_002209	ITGAL	Integrin, alpha L (antigen CD11A (p180), lymphocyte function-associated antigen 1; alpha polypeptide)
D02	Hs.172631	NM_000632	ITGAM	Integrin, alpha M (complement component 3 receptor 3 subunit)
D03	Hs.436873	NM_002210	ITGAV	Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)
D04	Hs.643813	NM_002211	ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2,

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Position	UniGene	GenBank	Symbol	Description
D05	Hs.375957	NM_000211	ITGB2	Integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)
D06	Hs.218040	NM_000212	ITGB3	Integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)
D07	Hs.632226	NM_000213	ITGB4	Integrin, beta 4
D08	Hs.536663	NM_002213	ITGB5	Integrin, beta 5
D09	Hs.521869	NM_000216	KAL1	Kallmann syndrome 1 sequence
D10	Hs.270364	NM_005559	LAMA1	Laminin, alpha 1
D11	Hs.200841	NM_000426	LAMA2	Laminin, alpha 2 (merosin, congenital muscular dystrophy)
D12	Hs.436367	NM_000227	LAMA3	Laminin, alpha 3
E01	Hs.489646	NM_002291	LAMB1	Laminin, beta 1
E02	Hs.497636	NM_000228	LAMB3	Laminin, beta 3
E03	Hs.609663	NM_002293	LAMC1	Laminin, gamma 1 (formerly LAMB2)
E04	Hs.83169	NM_002421	MMP1	Matrix metalloproteinase 1 (interstitial collagenase)
E05	Hs.2258	NM_002425	MMP10	Matrix metalloproteinase 10 (stromelysin 2)
E06	Hs.143751	NM_005940	MMP11	Matrix metalloproteinase 11 (stromelysin 3)
E07	Hs.1695	NM_002426	MMP12	Matrix metalloproteinase 12 (macrophage elastase)
E08	Hs.2936	NM_002427	MMP13	Matrix metalloproteinase 13 (collagenase 3)
E09	Hs.2399	NM_004995	MMP14	Matrix metalloproteinase 14 (membrane-inserted)
E10	Hs.80343	NM_002428	MMP15	Matrix metalloproteinase 15 (membrane-inserted)
E11	Hs.546267	NM_005941	MMP16	Matrix metalloproteinase 16 (membrane-inserted)
E12	Hs.513617	NM_004530	MMP2	Matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)
F01	Hs.375129	NM_002422	MMP3	Matrix metalloproteinase 3 (stromelysin 1, progelatinase)
F02	Hs.2256	NM_002423	MMP7	Matrix metalloproteinase 7 (matrilysin, uterine)
F03	Hs.534479	NM_002424	MMP8	Matrix metalloproteinase 8 (neutrophil collagenase)
F04	Hs.297413	NM_004994	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
F05	Hs.503878	NM_000615	NCAM1	Neural cell adhesion molecule 1
F06	Hs.514412	NM_000442	PECAM1	Platelet/endothelial cell adhesion molecule (CD31 antigen)
F07	Hs.89546	NM_000450	SELE	Selectin E (endothelial adhesion molecule 1)
F08	Hs.82848	NM_000655	SELL	Selectin L (lymphocyte adhesion molecule 1)
F09	Hs.73800	NM_003005	SELP	Selectin P (granule membrane protein 140kDa, antigen CD62)
F10	Hs.371199	NM_003919	SGCE	Sarcoglycan, epsilon
F11	Hs.111779	NM_003118	SPARC	Secreted protein, acidic, cysteine-rich (osteonectin)
F12	Hs.185597	NM_003119	SPG7	Spastic paraplegia 7, paraplegin (pure and complicated autosomal recessive)
G01	Hs.313	NM_000582	SPP1	Secreted phosphoprotein 1 (osteopontin, bone sialoprotein I, early T-lymphocyte activation)
G02	Hs.369397	NM_000358	TGFB1	Transforming growth factor, beta-induced, 68kDa
G03	Hs.164226	NM_003246	THBS1	Thrombospondin 1
G04	Hs.371147	NM_003247	THBS2	Thrombospondin 2
G05	Hs.169875	NM_007112	THBS3	Thrombospondin 3
G06	Hs.522632	NM_003254	TIMP1	TIMP metalloproteinase inhibitor 1
G07	Hs.633514	NM_003255	TIMP2	TIMP metalloproteinase inhibitor 2
G08	Hs.652397	NM_000362	TIMP3	TIMP metalloproteinase inhibitor 3 (Sorsby fundus dystrophy, pseudoinflammatory)
G09	Hs.476092	NM_003278	CLEC3B	C-type lectin domain family 3, member B
G10	Hs.143250	NM_002160	TNC	Tenascin C (hexabrachion)
G11	Hs.109225	NM_001078	VCAM1	Vascular cell adhesion molecule 1
G12	Hs.2257	NM_000638	VTN	Vitronectin
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	N/A	HGDC	Human Genomic DNA Contamination
H07	N/A	N/A	RTC	Reverse Transcription Control
H08	N/A	N/A	RTC	Reverse Transcription Control
H09	N/A	N/A	RTC	Reverse Transcription Control
H10	N/A	N/A	PPC	Positive PCR Control
H11	N/A	N/A	PPC	Positive PCR Control
H12	N/A	N/A	PPC	Positive PCR Control