

# RT<sup>2</sup> Profiler™ PCR Array:

## Human Angiogenic Growth Factors & Angiogenesis Inhibitors

**Catalog Number**

PAHS-072A

PAHS-072C

PAHS-072D

PAHS-072E

PAHS-072F

PAHS-072G

**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 Angiogenic Growth Factors & Angiogenesis Inhibitors RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 growth factors and inhibitors related to angiogenesis. This array contains the growth factors, cytokines, and chemokines that promote the biogenesis of new blood vessels and the genes that encode inhibitors of this process. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to the promotion and inhibition of angiogenesis with this array.

**Functional Gene Groupings****Angiogenic Growth Factors and Related Genes:**

Growth Factors: ECGF1, FGF1, FGF13, FGF2, FGFBP1, FIGF, GRN, GRP, HGF, KITLG, LEP, MDK, PDGFB, PDGFD, PGF, PROK1, TGFA, VEGFA.

Cytokines and Chemokines: BMP2, CCL15, CCL2, CSF3, CXCL11, CXCL12, CXCL13, CXCL14, CXCL3, CXCL5, CXCL6, CXCL9, IL10, IL6, IL8, PPBP, PTN, TNF.

Other Positive Regulators of Angiogenesis: AGGF1, AMOT, ANG, ANGPT1, BTG1, EDIL3, EREG, FST, RHOB, RUNX1.

**Angiogenesis Inhibitors and Related Genes:**

Cytokines, Chemokines and Growth Factors: CXCL10, CXCL2, IFNG, IL12A, IL12B, IL17F, PF4, TGFB1.

Other Negative Regulators of Angiogenesis: ANGPT2, ANGPTL1, BAI1, CD55, CD59, CHGA, COL18A1, COL4A3, FN1, IFNA1, IFNB1, KLK3, MLLT7, NPPB, NPR1, PLG, PRL, RNH1, SERPINC1, SERPINE1, SERPINF1, SPINK5, STAB1, THBS1, TIE1, TIMP1, TIMP2, TIMP3, TNNI2, TNNI3.

**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.

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## **References**

1. Kuwano, M., et al., *Angiogenesis factors*. Intern Med, 2001. **40**(7): p. 565-72.
2. Nyberg, P., L. Xie, and R. Kalluri, *Endogenous Inhibitors of Angiogenesis*. 2005. p. 3967-3979.
3. Carmeliet, P., *Angiogenesis in life, disease and medicine*. Nature, 2005. **438**(7070): p. 932-936.
4. Kilarski, W.W. and A. Bikfalvi, *Recent Developments in Tumor Angiogenesis*. Current Pharmaceutical Biotechnology, 2007. **8**: p. 3-9.
5. Lamalice, L., F. Le Boeuf, and J. Huot, *Endothelial Cell Migration During Angiogenesis*. 2007. p. 782-794.

## Product Specification Sheet

### Array Layout:

### Human Angiogenic Growth Factors & Angiogenesis Inhibitors PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	AGGF1	AMOT	ANG	ANGPT1	ANGPT2	ANGPTL1	BAI1	BMP2	BTG1	CCL15	CCL2	CD55
B	CD59	CHGA	COL18A1	COL4A3	CSF3	CXCL10	CXCL11	CXCL12	CXCL13	CXCL14	CXCL2	CXCL3
C	CXCL5	CXCL6	CXCL9	ECGF1	EDIL3	EREG	FGF1	FGF13	FGF2	FGFBP1	FIGF	FN1
D	FST	GRN	GRP	HGF	IFNA1	IFNB1	IFNG	IL10	IL12A	IL12B	IL17F	IL6
E	IL8	KITLG	KLK3	LEP	MDK	MLLT7	NPPB	NPR1	PDGFB	PDGFD	PF4	PGF
F	PLG	PPBP	PRL	PROK1	PTN	RHOB	RNH1	RUNX1	SERPINC1	SERPINE1	SERPINF1	SPINK5
G	STAB1	TGFA	TGFB1	THBS1	TIE1	TIMP1	TIMP2	TIMP3	TNF	TNNI2	TNNI3	VEGFA
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

### Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.634849	NM_018046	AGGF1	Angiogenic factor with G patch and FHA domains 1
A02	Hs.528051	NM_133265	AMOT	Angiomotin
A03	Hs.283749	NM_001145	ANG	Angiogenin, ribonuclease, RNase A family, 5
A04	Hs.369675	NM_001146	ANGPT1	Angiopoietin 1
A05	Hs.553484	NM_001147	ANGPT2	Angiopoietin 2
A06	Hs.591474	NM_004673	ANGPTL1	Angiopoietin-like 1
A07	Hs.194654	NM_001702	BAI1	Brain-specific angiogenesis inhibitor 1
A08	Hs.73853	NM_001200	BMP2	Bone morphogenetic protein 2
A09	Hs.255935	NM_001731	BTG1	B-cell translocation gene 1, anti-proliferative
A10	Hs.272493	NM_004167	CCL15	Chemokine (C-C motif) ligand 15
A11	Hs.303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2
A12	Hs.527653	NM_000574	CD55	CD55 molecule, decay accelerating factor for complement (Cromer blood group)
B01	Hs.278573	NM_000611	CD59	CD59 molecule, complement regulatory protein
B02	Hs.150793	NM_001275	CHGA	Chromogranin A (parathyroid secretory protein 1)
B03	Hs.517356	NM_030582	COL18A1	Collagen, type XVIII, alpha 1
B04	Hs.570065	NM_000091	COL4A3	Collagen, type IV, alpha 3 (Goodpasture antigen)
B05	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)
B06	Hs.632586	NM_001565	CXCL10	Chemokine (C-X-C motif) ligand 10
B07	Hs.632592	NM_005409	CXCL11	Chemokine (C-X-C motif) ligand 11
B08	Hs.522891	NM_000609	CXCL12	Chemokine (C-X-C motif) ligand 12 (stromal cell-derived factor 1)
B09	Hs.100431	NM_006419	CXCL13	Chemokine (C-X-C motif) ligand 13 (B-cell chemoattractant)
B10	Hs.483444	NM_004887	CXCL14	Chemokine (C-X-C motif) ligand 14
B11	Hs.590921	NM_002089	CXCL2	Chemokine (C-X-C motif) ligand 2
B12	Hs.89690	NM_002090	CXCL3	Chemokine (C-X-C motif) ligand 3
C01	Hs.89714	NM_002994	CXCL5	Chemokine (C-X-C motif) ligand 5
C02	Hs.164021	NM_002993	CXCL6	Chemokine (C-X-C motif) ligand 6 (granulocyte chemotactic protein 2)
C03	Hs.77367	NM_002416	CXCL9	Chemokine (C-X-C motif) ligand 9
C04	Hs.592212	NM_001953	ECGF1	Endothelial cell growth factor 1 (platelet-derived)
C05	Hs.482730	NM_005711	EDIL3	EGF-like repeats and discoidin I-like domains 3
C06	Hs.115263	NM_001432	EREG	Epregrulin
C07	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)
C08	Hs.6540	NM_004114	FGF13	Fibroblast growth factor 13
C09	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)
C10	Hs.1690	NM_005130	FGFBP1	Fibroblast growth factor binding protein 1
C11	Hs.11392	NM_004469	FIGF	C-fos induced growth factor (vascular endothelial growth factor D)
C12	Hs.203717	NM_002026	FN1	Fibronectin 1
D01	Hs.9914	NM_006350	FST	Follistatin
D02	Hs.514220	NM_002087	GRN	Granulin
D03	Hs.153444	NM_002091	GRP	Gastrin-releasing peptide
D04	Hs.396530	NM_000601	HGF	Hepatocyte growth factor (hepapoietin A; scatter factor)
D05	Hs.37026	NM_024013	IFNA1	Interferon, alpha 1
D06	Hs.93177	NM_002176	IFNB1	Interferon, beta 1, fibroblast
D07	Hs.856	NM_000619	IFNG	Interferon, gamma
D08	Hs.193717	NM_000572	IL10	Interleukin 10
D09	Hs.673	NM_000882	IL12A	Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)
D10	Hs.674	NM_002187	IL12B	Interleukin 12B (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40)
D11	Hs.272295	NM_052872	IL17F	Interleukin 17F
D12	Hs.512234	NM_000600	IL6	Interleukin 6 (interferon, beta 2)

## Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
E01	Hs.624	NM_000584	IL8	Interleukin 8
E02	Hs.1048	NM_003994	KITLG	KIT ligand
E03	Hs.171995	NM_001648	KLK3	Kallikrein-related peptidase 3
E04	Hs.194236	NM_000230	LEP	Leptin (obesity homolog, mouse)
E05	Hs.82045	NM_002391	MDK	Midkine (neurite growth-promoting factor 2)
E06	Hs.584654	NM_005938	MLLT7	Myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 7
E07	Hs.219140	NM_002521	NPPB	Natriuretic peptide precursor B
E08	Hs.490330	NM_000906	NPR1	Natriuretic peptide receptor A/quanylate cyclase A (atrionatriuretic peptide receptor A)
E09	Hs.1976	NM_002608	PDGFB	Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)
E10	Hs.352298	NM_025208	PDGFD	Platelet derived growth factor D
E11	Hs.81564	NM_002619	PF4	Platelet factor 4 (chemokine (C-X-C motif) ligand 4)
E12	Hs.252820	NM_002632	PGF	Placental growth factor, vascular endothelial growth factor-related protein
F01	Hs.143436	NM_000301	PLG	Plasminogen
F02	Hs.2164	NM_002704	PPBP	Pro-platelet basic protein (chemokine (C-X-C motif) ligand 7)
F03	Hs.1905	NM_000948	PRL	Prolactin
F04	Hs.514793	NM_032414	PROK1	Prokineticin 1
F05	Hs.371249	NM_002825	PTN	Pleiotrophin (heparin binding growth factor 8, neurite growth-promoting factor 1)
F06	Hs.502876	NM_004040	RHOB	Ras homolog gene family, member B
F07	Hs.530687	NM_002939	RNH1	Ribonuclease/angiogenin inhibitor 1
F08	Hs.149261	NM_001754	RUNX1	Runt-related transcription factor 1 (acute myeloid leukemia 1; aml1 oncogene)
F09	Hs.75599	NM_000488	SERPINC1	Serpin peptidase inhibitor, clade C (antithrombin), member 1
F10	Hs.414795	NM_000602	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F11	Hs.532768	NM_002615	SERPINF1	Serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1
F12	Hs.331555	NM_006846	SPINK5	Serine peptidase inhibitor, Kazal type 5
G01	Hs.301989	NM_015136	STAB1	Stabilin 1
G02	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha
G03	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G04	Hs.164226	NM_003246	THBS1	Thrombospondin 1
G05	Hs.78824	NM_005424	TIE1	Tyrosine kinase with immunoglobulin-like and EGF-like domains 1
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.241570	NM_000594	TNF	Tumor necrosis factor (TNF superfamily, member 2)
G10	Hs.523403	NM_003282	TNNI2	Troponin I type 2 (skeletal, fast)
G11	Hs.644596	NM_000363	TNNI3	Troponin I type 3 (cardiac)
G12	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
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