SABiosciences™

Product Specification Sheet

RT² Profiler™ PCR Array:

Human Angiogenesis

Catalog Number	For Real-Time Instruments:
PAHS-024A	ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4 and Stratagene Mx3005p, Mx3000p
PAHS-024C	ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus
PAHS-024D	Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000
PAHS-024E	ABI 7900HT 384-Well Block
PAHS-024F	Roche LightCycler 480 96-well Block
PAHS-024G	Roche LightCycler 480 384-well Block

Description

The Human Angiogenesis RT² Profiler PCR Array profiles the expression of 84 key genes involved in modulating the biological processes of angiogenesis. The array includes growth factors and their receptors, chemokines and cytokines, matrix and adhesion molecules, proteases and their inhibitors, as well as transcription factors, all involved in the development of new blood vessels. Angiogenesis is a hallmark in the pathology of many diseases, including cancer, ischemia, atherosclerosis, and inflammatory diseases. Angiogenesis plays additional roles in normal development and physiological processes in adults, including wound healing and tissue regeneration. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to apoptosis with this array.

Functional Gene Groupings

Angiogenic factors:
Growth factors and receptors: ANGPT1, ANGPT2, ANPEP, ECGF1, EREG, FGF1, FGF2, FIGF, FLT1, JAG1, KDR, LAMA5, NRP1, NRP2, PGF, PLXDC1, STAB1, VEGFA, VEGFC.

Adhesion Molecules: ANGPTL3, BAI1, COL4A3, IL8, LAMA5, NRP1, NRP2, STAB1.

Proteases, Inhibitors and Other Matrix Proteins: ANGPTL4, PECAM1, PF4, PROK2, SERPINF1, TNFAIP2.

Transcription Factors and Other Related Genes: HAND2, SPHK1.

Other Factors Involved in Angiogenesis:
Cytokines and Chemokines: CCL11, CCL2, CXCL1, CXCL10, CXCL3, CXCL5, CXCL6, CXCL9, IFNA1, IFNB1, IFNG, IL1B, IL6, MDK, TNF.

Other Growth Factors and Receptors: EDG1, EFNA1, EFNA3, EFNB2, EGF, EPHB4, FGFR3, HGF, IGF1, ITGB3, PDGFA, TEK, TGFA, TGFB1, TGFB2, TGFBR1.

Adhesion Molecules: CCL11, CCL2, CDH5, COL18A1, EDG1, ENG, ITGAV, ITGB3, THBS1, THBS2.

Proteases, Inhibitors and Other Matrix Proteins: LECT1, LEP, MMP2, MMP9, PLAU, PLG, TIMP1, TIMP2, TIMP3.

Transcription Factors and Others: AKT1, HIF1A, HPSE, ID1, ID3, NOTCH4, PTGS1.

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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 ºC for long-term storage.

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

References

1. Carmeliet P. (2000) Mechanisms of Angiogenesis and Arteriogenesis. *Nature Medicine* **6**: 389-395.
2. Kerbel K. S. (2000) Tumor Angiogenesis: Past, Present and the Near Future. *Carcinogenesis* **21**: 505-515.
3. Carmeliet P, Jain R K. (2000) Angiogenesis in Cancer and Other Diseases. *Nature* **407**: 249-257.
4. Cines DB, Pollak ES, Buck CA, Loscalzo J, Zimmerman GA, McEver RP, Pober JS, Wick TM, Konkle BA, Schwartz BS, Barnathan ES, McCrae KR, Hug BA, Schmidt AM, Stern DM. (1998) Endothelial Cells in Physiology and in the Pathophysiology of Vascular Disorders. *Blood* **91**: 3527-61.
5. Oettgen P. (2001) Transcriptional Regulation of Vascular Development. *Circ Res*. **89**: 380-8.
6. Peale FV Jr, Gerritsen ME. (2001) Gene Profiling Techniques and their Application in Angiogenesis and Vascular Development. *J Pathol*. **195**: 7-19.
7. Vikkula M, Boon LM, Mulliken JB (2001) Molecular Genetics of Vascular Malformations. *Matrix Biol* **20**: 327-35.

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Array Layout: Human Angiogenesis PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	AKT1	ANGPT1	ANGPT2	ANGPTL3	ANGPTL4	ANPEP	BAI1	CCL11	CCL2	CDH5	COL18A1	COL4A3
B	CXCL1	CXCL10	CXCL3	CXCL5	CXCL6	CXCL9	ECGF1	EDG1	EFNA1	EFNA3	EFNB2	EGF
C	ENG	EPHB4	EREG	FGF1	FGF2	FGFR3	FIGF	FLT1	HAND2	HGF	HIF1A	HPSE
D	ID1	ID3	IFNA1	IFNB1	IFNG	IGF1	IL1B	IL6	IL8	ITGAV	ITGB3	JAG1
E	KDR	LAMA5	LECT1	LEP	MDK	MMP2	MMP9	NOTCH4	NRP1	NRP2	PDGFA	PECAM1
F	PF4	PGF	PLAU	PLG	PLXDC1	PROK2	PTGS1	SERPINF1	SPHK1	STAB1	TEK	TGFA
G	TGFB1	TGFB2	TGFBR1	THBS1	THBS2	TIMP1	TIMP2	TIMP3	TNF	TNFAIP2	VEGFA	VEGFC
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A02	Hs.369675	NM_001146	ANGPT1	Angiopoietin 1
A03	Hs.553484	NM_001147	ANGPT2	Angiopoietin 2
A04	Hs.209153	NM_014495	ANGPTL3	Angiopoietin-like 3
A05	Hs.9613	NM_001039667	ANGPTL4	Angiopoietin-like 4
A06	Hs.1239	NM_001150	ANPEP	Alanyl (membrane) aminopeptidase (aminopeptidase N, aminopeptidase M, microsomal aminopeptidase, CD13, p150)
A07	Hs.194654	NM_001702	BAI1	Brain-specific angiogenesis inhibitor 1
A08	Hs.54460	NM_002986	CCL11	Chemokine (C-C motif) ligand 11
A09	Hs.303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2
A10	Hs.76206	NM_001795	CDH5	Cadherin 5, type 2, VE-cadherin (vascular epithelium)
A11	Hs.517356	NM_030582	COL18A1	Collagen, type XVIII, alpha 1
A12	Hs.570065	NM_000091	COL4A3	Collagen, type IV, alpha 3 (Goodpasture antigen)
B01	Hs.789	NM_001511	CXCL1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)
B02	Hs.632586	NM_001565	CXCL10	Chemokine (C-X-C motif) ligand 10
B03	Hs.89690	NM_002090	CXCL3	Chemokine (C-X-C motif) ligand 3
B04	Hs.89714	NM_002994	CXCL5	Chemokine (C-X-C motif) ligand 5
B05	Hs.164021	NM_002993	CXCL6	Chemokine (C-X-C motif) ligand 6 (granulocyte chemotactic protein 2)
B06	Hs.77367	NM_002416	CXCL9	Chemokine (C-X-C motif) ligand 9
B07	Hs.592212	NM_001953	ECGF1	Endothelial cell growth factor 1 (platelet-derived)
B08	Hs.154210	NM_001400	EDG1	Endothelial differentiation, sphingolipid G-protein-coupled receptor, 1
B09	Hs.516664	NM_182685	EFNA1	Ephrin-A1
B10	Hs.516656	NM_004952	EFNA3	Ephrin-A3
B11	Hs.149239	NM_004093	EFNB2	Ephrin-B2
B12	Hs.419815	NM_001963	EGF	Epidermal growth factor (beta-urogastrone)
C01	Hs.76753	NM_000118	ENG	Endoglin (Osler-Rendu-Weber syndrome 1)
C02	Hs.437008	NM_004444	EPHB4	EPH receptor B4
C03	Hs.115263	NM_001432	EREG	Epiregulin
C04	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)
C05	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)
C06	Hs.1420	NM_000142	FGFR3	Fibroblast growth factor receptor 3 (achondroplasia, thanatophoric dwarfism)
C07	Hs.11392	NM_004469	FIGF	C-fos induced growth factor (vascular endothelial growth factor D)
C08	Hs.507621	NM_002019	FLT1	Fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)
C09	Hs.388245	NM_021973	HAND2	Heart and neural crest derivatives expressed 2
C10	Hs.396530	NM_000601	HGF	Hepatocyte growth factor (hepapoietin A; scatter factor)
C11	Hs.509554	NM_001530	HIF1A	Hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)
C12	Hs.44227	NM_006665	HPSE	Heparanase
D01	Hs.504609	NM_002165	ID1	Inhibitor of DNA binding 1, dominant negative helix-loop-helix protein
D02	Hs.76884	NM_002167	ID3	Inhibitor of DNA binding 3, dominant negative helix-loop-helix protein
D03	Hs.37026	NM_024013	IFNA1	Interferon, alpha 1
D04	Hs.93177	NM_002176	IFNB1	Interferon, beta 1, fibroblast
D05	Hs.856	NM_000619	IFNG	Interferon, gamma

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Position	UniGene	GenBank	Symbol	Description
D06	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
D07	Hs.126256	NM_000576	IL1B	Interleukin 1, beta
D08	Hs.512234	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
D09	Hs.624	NM_000584	IL8	Interleukin 8
D10	Hs.436873	NM_002210	ITGAV	Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)
D11	Hs.218040	NM_000212	ITGB3	Integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)
D12	Hs.224012	NM_000214	JAG1	Jagged 1 (Alagille syndrome)
E01	Hs.479756	NM_002253	KDR	Kinase insert domain receptor (a type III receptor tyrosine kinase)
E02	Hs.473256	NM_005560	LAMA5	Laminin, alpha 5
E03	Hs.421391	NM_007015	LECT1	Leukocyte cell derived chemotaxin 1
E04	Hs.194236	NM_000230	LEP	Leptin (obesity homolog, mouse)
E05	Hs.82045	NM_002391	MDK	Midkine (neurite growth-promoting factor 2)
E06	Hs.513617	NM_004530	MMP2	Matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)
E07	Hs.297413	NM_004994	MMP9	Matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
E08	Hs.436100	NM_004557	NOTCH4	Notch homolog 4 (Drosophila)
E09	Hs.131704	NM_003873	NRP1	Neuropilin 1
E10	Hs.471200	NM_003872	NRP2	Neuropilin 2
E11	Hs.645488	NM_002607	PDGFA	Platelet-derived growth factor alpha polypeptide
E12	Hs.514412	NM_000442	PECAM1	Platelet/endothelial cell adhesion molecule (CD31 antigen)
F01	Hs.81564	NM_002619	PF4	Platelet factor 4 (chemokine (C-X-C motif) ligand 4)
F02	Hs.252820	NM_002632	PGF	Placental growth factor, vascular endothelial growth factor-related protein
F03	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase
F04	Hs.143436	NM_000301	PLG	Plasminogen
F05	Hs.125036	NM_020405	PLXDC1	Plexin domain containing 1
F06	Hs.528665	NM_021935	PROK2	Prokineticin 2
F07	Hs.201978	NM_000962	PTGS1	Prostaglandin-endoperoxide synthase 1 (prostaglandin G/H synthase and cyclooxygenase)
F08	Hs.532768	NM_002615	SERPINF1	Serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1
F09	Hs.68061	NM_021972	SPHK1	Sphingosine kinase 1
F10	Hs.301989	NM_015136	STAB1	Stabilin 1
F11	Hs.89640	NM_000459	TEK	TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal)
F12	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha
G01	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G02	Hs.133379	NM_003238	TGFB2	Transforming growth factor, beta 2
G03	Hs.494622	NM_004612	TGFBR1	Transforming growth factor, beta receptor I (activin A receptor type II-like kinase, 53kDa)
G04	Hs.164226	NM_003246	THBS1	Thrombospondin 1
G05	Hs.371147	NM_003247	THBS2	Thrombospondin 2
G06	Hs.522632	NM_003254	TIMP1	TIMP metallopeptidase inhibitor 1
G07	Hs.633514	NM_003255	TIMP2	TIMP metallopeptidase inhibitor 2
G08	Hs.652397	NM_000362	TIMP3	TIMP metallopeptidase inhibitor 3 (Sorsby fundus dystrophy, pseudoinflammatory)
G09	Hs.241570	NM_000594	TNF	Tumor necrosis factor (TNF superfamily, member 2)
G10	Hs.525607	NM_006291	TNFAIP2	Tumor necrosis factor, alpha-induced protein 2
G11	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
G12	Hs.435215	NM_005429	VEGFC	Vascular endothelial growth factor C
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