

# RT<sup>2</sup> Profiler™ PCR Array:

## Mouse Angiogenesis

**Catalog Number**

PAMM-024A

PAMM-024C

PAMM-024D

PAMM-024E

PAMM-024F

PAMM-024G

**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 Block

Roche LightCycler 480 384-well Block

**Description**

The Mouse Angiogenesis RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes involved in modulating the biological processes of angiogenesis. This array includes the growth factors and receptors that play a role in angiogenesis. Also included are the adhesion molecules and matrix proteins involved as well as proteases and their inhibitors. Cytokines and chemokines related to angiogenesis are contained in the array along with transcription factors and other related genes. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to angiogenesis with this array.

**Functional Gene Groupings****Angiogenic factors:**

Growth factors and receptors: Angpt1 (Agpt), Bai1, Col18a1, Ctgf, Ereg, Fgf1, Fgf2, Fgf6, Fgfr3, Figf (Vegf-d), Flt1, Fzd5, Gna13, Itgav, Jag1, Kdr, Nrp1, Pgf, Stab1, Tek, Tnfsf12 (APO3L), Vegfa, Vegfb, Vegfc.

Adhesion molecules: Col18a1, Ctgf, Eng, Itgav, Nrp1, Stab1, Tek, Thbs1.

Proteases, inhibitors and other matrix proteins: Anpep, Col4a3, Mmp19, Serpinf1, Tmprss6.

Transcription factors and others: Angpt2 (Agpt2), Epas1, Hand2, Mapk14, Smad5, Tbx1, Tbx4, Tnfaip2.

**Other factors involved in angiogenesis:**

Cytokines and chemokines: Ccl11, Ccl2, Csf3, Cxcl1 (GRO), Cxcl2 (GRO2), Cxcl5 (CHEMOKINE), Ifng, Il1b, Il6, Tnf.

Other growth factors and receptors: Edg1, Egf, Ephb4, Hgf, Igf1, Itgb3, Lep, Mdk, Npr1, Nrp2, Pdgfa, Plxdc1, Tgfa, Tgfb1, Tgfb2, Tgfb3, Tgfbr1.

Adhesion molecules: Cdh5, Itgb3, Lama5, Nrp2, Pecam1, Thbs2.

Proteases, inhibitors and other matrix proteins: Ecgf1, F2 (CF-2), Mmp2, Mmp9, Plau, Plg, Timp1, Timp2.

Transcription factors and others: Efna1 (Ephrin A1), Efnb2, Hif1a, Lect1, Ptgs1, Sphk1.

**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. 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.

## Product Specification Sheet

### Array Layout: Mouse Angiogenesis PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Angpt1	Angpt2	Anpep	Bai1	Ccl11	Ccl2	Cdh5	Col18a1	Col4a3	Csf3	Ctgf	Cxcl1
B	Cxcl2	Cxcl5	Ecgf1	Edg1	Efna1	Efnb2	Egf	Eng	Epas1	Ephb4	Ereg	F2
C	Fgf1	Fgf2	Fgf6	Fgfr3	Figf	Flt1	Fzd5	Gna13	Hand2	Hgf	Hif1a	Ifng
D	Igf1	Il1b	Il6	Itgav	Itgb3	Jag1	Kdr	Lama5	Lect1	Lep	Mapk14	Mdk
E	Mmp19	Mmp2	Mmp9	Npr1	Nrp1	Nrp2	Pdgfa	Pecam1	Pgf	Plau	Plg	Plxdc1
F	Ptgs1	Serpinf1	Smad5	Sphk1	Stab1	Tbx1	Tbx4	Tek	Tgfa	Tgfb1	Tgfb2	Tgfb3
G	Tgfb1	Thbs1	Thbs2	Timp1	Timp2	Tmprss6	Tnf	Tnfaip2	Tnfsf12	Vegfa	Vegfb	Vegfc
H	Gusb	Hprt1	Hsp90ab1	Gapdh	Actb	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

### Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Mm.309336	NM_009640	Angpt1	Angiopoietin 1
A02	Mm.435498	NM_007426	Angpt2	Angiopoietin 2
A03	Mm.4487	NM_008486	Anpep	Alanyl (membrane) aminopeptidase
A04	Mm.43133	NM_174991	Bai1	Brain-specific angiogenesis inhibitor 1
A05	Mm.4686	NM_011330	Ccl11	Small chemokine (C-C motif) ligand 11
A06	Mm.290320	NM_011333	Ccl2	Chemokine (C-C motif) ligand 2
A07	Mm.21767	NM_009868	Cdh5	Cadherin 5
A08	Mm.4352	NM_009929	Col18a1	Procollagen, type XVIII, alpha 1
A09	Mm.389135	NM_007734	Col4a3	Procollagen, type IV, alpha 3
A10	Mm.1238	NM_009971	Csf3	Colony stimulating factor 3 (granulocyte)
A11	Mm.393058	NM_010217	Ctgf	Connective tissue growth factor
A12	Mm.21013	NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1
B01	Mm.4979	NM_009140	Cxcl2	Chemokine (C-X-C motif) ligand 2
B02	Mm.4660	NM_009141	Cxcl5	Chemokine (C-X-C motif) ligand 5
B03	Mm.287977	NM_138302	Ecgf1	Endothelial cell growth factor 1 (platelet-derived)
B04	Mm.982	NM_007901	Edg1	Endothelial differentiation sphingolipid G-protein-coupled receptor 1
B05	Mm.15675	NM_010107	Efna1	Ephrin A1
B06	Mm.209813	NM_010111	Efnb2	Ephrin B2
B07	Mm.366162	NM_010113	Egf	Epidermal growth factor
B08	Mm.225297	NM_007932	Eng	Endoglin
B09	Mm.1415	NM_010137	Epas1	Endothelial PAS domain protein 1
B10	Mm.34533	NM_010144	Ephb4	Eph receptor B4
B11	Mm.4791	NM_007950	Ereg	Epiregulin
B12	Mm.89048	NM_010168	F2	Coagulation factor II
C01	Mm.241282	NM_010197	Fgf1	Fibroblast growth factor 1
C02	Mm.57094	NM_008006	Fgf2	Fibroblast growth factor 2
C03	Mm.3403	XM_485825	Fgf6	Fibroblast growth factor 6
C04	Mm.6904	NM_008010	Fgfr3	Fibroblast growth factor receptor 3
C05	Mm.297978	NM_010216	Figf	C-fos induced growth factor
C06	Mm.389712	NM_010228	Flt1	FMS-like tyrosine kinase 1
C07	Mm.150813	NM_022721	Fzd5	Frizzled homolog 5 (Drosophila)
C08	Mm.193925	NM_010303	Gna13	Guanine nucleotide binding protein, alpha 13
C09	Mm.430844	NM_010402	Hand2	Heart and neural crest derivatives expressed transcript 2
C10	Mm.267078	NM_010427	Hgf	Hepatocyte growth factor
C11	Mm.3879	NM_010431	Hif1a	Hypoxia inducible factor 1, alpha subunit
C12	Mm.240327	NM_008337	Ifng	Interferon gamma
D01	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1
D02	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D03	Mm.1019	NM_031168	Il6	Interleukin 6

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Position	UniGene	GenBank	Symbol	Description
D04	Mm.227	NM_008402	Itgav	Integrin alpha V
D05	Mm.87150	NM_016780	Itgb3	Integrin beta 3
D06	Mm.22398	NM_013822	Jag1	Jagged 1
D07	Mm.285	NM_010612	Kdr	Kinase insert domain protein receptor
D08	Mm.4339	XM_203796	Lama5	Laminin, alpha 5
D09	Mm.46561	NM_010701	Lect1	Leukocyte cell derived chemotaxin 1
D10	Mm.277072	NM_008493	Lep	Leptin
D11	Mm.311337	NM_011951	Mapk14	Mitogen activated protein kinase 14
D12	Mm.906	NM_010784	Mdk	Midkine
E01	Mm.131266	NM_021412	Mmp19	Matrix metalloproteinase 19
E02	Mm.29564	NM_008610	Mmp2	Matrix metalloproteinase 2
E03	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9
E04	Mm.4627	NM_008727	Npr1	Natriuretic peptide receptor 1
E05	Mm.271745	NM_008737	Nrp1	Neuropilin 1
E06	Mm.266341	NM_010939	Nrp2	Neuropilin 2
E07	Mm.2675	NM_008808	Pdgfa	Platelet derived growth factor, alpha
E08	Mm.343951	NM_008816	Pecam1	Platelet/endothelial cell adhesion molecule 1
E09	Mm.4809	NM_008827	Pgf	Placental growth factor
E10	Mm.4183	NM_008873	Plau	Plasminogen activator, urokinase
E11	Mm.971	NM_008877	Plg	Plasminogen
E12	Mm.39617	NM_028199	Plxdc1	Plexin domain containing 1
F01	Mm.275434	NM_008969	Ptgs1	Prostaglandin-endoperoxide synthase 1
F02	Mm.2044	NM_011340	Serpinf1	Serine (or cysteine) peptidase inhibitor, clade F, member 1
F03	Mm.272920	NM_008541	Smad5	MAD homolog 5 (Drosophila)
F04	Mm.20944	NM_025367	Sphk1	Sphingosine kinase 1
F05	Mm.220821	NM_138672	Stab1	Stabilin 1
F06	Mm.295194	NM_011532	Tbx1	T-box 1
F07	Mm.275336	NM_011536	Tbx4	T-box 4
F08	Mm.14313	NM_013690	Tek	Endothelial-specific receptor tyrosine kinase
F09	Mm.137222	NM_031199	Tgfa	Transforming growth factor alpha
F10	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
F11	Mm.18213	NM_009367	Tgfb2	Transforming growth factor, beta 2
F12	Mm.3992	NM_009368	Tgfb3	Transforming growth factor, beta 3
G01	Mm.197552	NM_009370	Tgfb1	Transforming growth factor, beta receptor I
G02	Mm.4159	NM_011580	Thbs1	Thrombospondin 1
G03	Mm.26688	NM_011581	Thbs2	Thrombospondin 2
G04	Mm.8245	NM_011593	Timp1	Tissue inhibitor of metalloproteinase 1
G05	Mm.206505	NM_011594	Timp2	Tissue inhibitor of metalloproteinase 2
G06	Mm.34056	NM_027902	Tmprss6	Transmembrane serine protease 6
G07	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G08	Mm.255332	NM_009396	Tnfaip2	Tumor necrosis factor, alpha-induced protein 2
G09	Mm.344820	NM_011614	Tnfsf12	Tumor necrosis factor (ligand) superfamily, member 12
G10	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
G11	Mm.15607	NM_011697	Vegfb	Vascular endothelial growth factor B
G12	Mm.1402	NM_009506	Vegfc	Vascular endothelial growth factor C
H01	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H02	Mm.299381	NM_013556	Hprt1	Hypoxanthine guanine phosphoribosyl transferase 1
H03	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90kDa alpha (cytosolic), class B member 1
H04	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H05	Mm.328431	NM_007393	Actb	Actin, beta, cytoplasmic
H06	N/A	N/A	MGDC	Mouse 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