

RT² Profiler™ PCR Array:

Mouse Endothelial Cell Biology

Catalog Number

PAMM-015A

PAMM-015C

PAMM-015D

PAMM-015E

PAMM-015F

PAMM-015G

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 Endothelial Cell Biology RT² Profiler PCR Array profiles the expression of 84 genes related to endothelial cell biology. Endothelial cells play a critical role in the progression of disease processes including inflammation, atherosclerosis, and tumor angiogenesis. This array includes genes involved in permissibility and vessel tone, angiogenesis, endothelial cell activation and endothelial cell injury. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to the atherosclerosis with this array.

Functional Gene Groupings**Permissibility and Vessel Tone:**Angiotensin System: Agt, Agtr1a, Blr1.NO System: Nos2, Nos3.Prostacyclin System: Ptgis.Endothelin System: Ednra.Oxidoreductase Activity: Nos2, Nos3, Sod1.Regulation of Blood Pressure: Agtr1a, Edn1, Edn2, Ednra, Npr1.Regulation of Vasoconstriction: Edn1, Edn2.**Angiogenesis:**Negative Regulation of Angiogenesis: Cxcl4, Plg, Thbs1.Positive Regulation of Angiogenesis: Rhob.Other Genes Involved in Angiogenesis: Angpt1, Col18a1, Fgf1, Flt1, Itgav, Kdr, Pgf, Serpine1, Tek, Vegfa.**Endothelial Cell Activation:**Adhesion Molecules: Cdh5, Col18a1, Cx3cl1, Fn1, Icam1, Itga5, Itgav, Itgb1, Itgb3, Ocln, Pecam1, Rhob, Sele, Sell, Selp, Selplg, Tek, Thbs1, Vcam1.Extracellular Matrix (ECM) Molecules: Ace, Adam17, Agt, Angpt1, Casp1, Ccl2, Ccl5, Cdh5, Col18a1, Cpb2, Csf2, Cx3cl1, Cxcl1, Cxcl2, Cxcl4, Edn1, Edn2, FasL (Tnfsf6), Flt1, Fn1, Ifnb1, Il11, Il1b, Il3, Il6, Il7, Itga5, Itgb1, Kdr, Mmp1a, Mmp2, Mmp9, Nppb, Npr1, Ocln, Pdgfra, Pecam1, Pgf, Plat, Plau, Plg, Ptgis, Sele, Sell, Selp, Selplg, Serpine1, Tek, Tfp1, Tgfb1, Thbd, Thbs1, Timp1, Tnfsf10, Vcam1, Vegfa, Vwf.Cytokine Activity: Ccl2, Ccl5, Csf2, Cx3cl1, Cxcl1, Cxcl2, Cxcl4, FasL (Tnfsf6), Ifnb1, Il11, Il1b, Il3, Il6, Il7, Tnf, Tnfsf10.Thrombin Activity: Anxa5, Ecgf1, Plat, Plau, Plg, Serpine1.Vascular Endothelial Growth Factor (VEGF) Receptor Activity: Angpt1, Flt1, Kdr, Pdgfra.Other Genes Involved in Cell Growth: Bax, Blr1, Casp3, Col18a1, Csf2, Cxcl1, Cxcl4, Ednra, Fgf1, Il11, Il1b, Il3, Il6, Il7, Itgav, Itgb1, Itgb3, Kit, Nos2, Pecam1, Pgf, Rhob, Tek, Tgfb1, Vegfa.

Product Specification Sheet

Endothelial Cell Injury:

Response to Stress: Bax, Bcl2l1, Casp1, Casp3, Ccl2, Ccl5, Csf2, Cx3cl1, Cxcl1, Cxcl2, Cxcl4, Fn1, Fas (Tnfrsf6), Fasl (Tnfsf6), Ifnb1, Il1b, Il3, Il6, Il7, Kit, Nos2, Pecam1, Selp, Sod1, Tgfb1, Tnf, Tnfsf10.

Anti-Apoptosis: Bcl2, Bcl2l1, Birc1a, Birc2, Vegfa.

Caspase Activation: Bax, Casp1, Casp3, Casp6, Cflar.

Induction of Apoptosis: Bax, Casp1, Casp3, Fas (Tnfrsf6), Plg.

Other Apoptosis Genes: Bcl2l1, Col18a1, Cradd, Il6, Rhob, Ripk1, Tnfaip3, Tnfsf10, Tnfsf6.

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. Geimonen E, Neff S, Raymond T, Kocer SS, Gavrilovskaya IN, Mackow ER. Pathogenic and nonpathogenic hantaviruses differentially regulate endothelial cell responses. *Proc Natl Acad Sci U S A*. 2002 Oct 15; **99** (21): 13837-42.
2. Maragoudakis ME, Tsopanoglou NE, Andriopoulou P. Mechanism of thrombin-induced angiogenesis. *Biochem Soc Trans*. 2002 Apr; **30** (2): 173-177.
3. Choy JC, Granville DJ, Hunt DW, McManus BM. Endothelial cell apoptosis: biochemical characteristics and potential implications for atherosclerosis. *J Mol Cell Cardiol*. 2001 Sep; **33** (9): 1673-90.
4. Kim J, Wu H, Hawthorne L, Rafii S, Laurence J. Endothelial cell apoptotic genes associated with the pathogenesis of thrombotic microangiopathies: an application of oligonucleotide genechip technology. *Microvasc Res*. 2001 Sep; **62** (2): 83-93.
5. Biedermann BC. Vascular endothelium: checkpoint for inflammation and immunity. *News Physiol Sci*. 2001 Apr; **16**: 84-8.
6. Malyszko J, Malyszko JS, Mysliwiec M. Markers of endothelial cell injury and thrombin activatable fibrinolysis inhibitor in nephrotic syndrome. *Blood Coagul Fibrinolysis*. 2002 Oct; **13** (7): 615-21.
7. Takehana K, Konishi A, Oonuki A, Noguchi M, Fujita K, Iino Y, Kobayashi T. APC0576, a novel inhibitor of NF-kappaB-dependent gene activation, prevents pro-inflammatory cytokine-induced chemokine production in human endothelial cells. *Biochem Biophys Res Commun*. 2002 May 10; **293** (3): 945-52.
8. Hunt BJ. The endothelium in atherogenesis. *Lupus*. 2000; **9** (3): 189-93.
9. Pearson JD. Normal endothelial cell function. *Lupus*. 2000; **9** (3): 183-8.
10. Toborek M, Kaiser S. Endothelial cell functions. Relationship to atherogenesis. *Basic Res Cardiol*. 1999 Oct; **94** (5): 295-314.

Product Specification Sheet

Array Layout: Mouse Endothelial Cell Biology RT² Profiler PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Ace	Adam17	Agt	Agtr1a	Angpt1	Anxa5	Bax	Bcl2	Bcl2l1	Birc1a	Birc2	Blr1
B	Casp1	Casp3	Casp6	Ccl2	Ccl5	Cdh5	Cflar	Col18a1	Cpb2	Cradd	Csf2	Cx3cl1
C	Cxcl1	Cxcl2	Cxcl4	Ecgf1	Edn1	Edn2	Ednra	Fas	Fasl	Fgf1	Flt1	Fn1
D	Icam1	Ifnb1	Il11	Il1b	Il3	Il6	Il7	Itga5	Itgav	Itgb1	Itgb3	Kdr
E	Kit	Mmp1a	Mmp2	Mmp9	Nos2	Nos3	Nppb	Npr1	Ocln	Pdgfra	Pecam1	Pgf
F	Plat	Plau	Plg	Ptgis	Rhob	Ripk1	Sele	Sell	Selp	Selplg	Serpine1	Sod1
G	Tek	Tfpi	Tgfb1	Thbd	Thbs1	Timp1	Tnf	Tnfaip3	Tnfsf10	Vcam1	Vegfa	Vwf
H	Gusb	Hprt1	Hsp90ab1	Gapdh	Actb	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Mm.754	NM_009598	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Mm.27681	NM_009615	Adam17	A disintegrin and metallopeptidase domain 17
A03	Mm.301626	NM_007428	Agt	Angiotensinogen (serpin peptidase inhibitor, clade A, member 8)
A04	Mm.35062	NM_177322	Agtr1a	Angiotensin II receptor, type 1a
A05	Mm.309336	NM_009640	Angpt1	Angiopietin 1
A06	Mm.1620	NM_009673	Anxa5	Annexin A5
A07	Mm.19904	NM_007527	Bax	Bcl2-associated X protein
A08	Mm.257460	NM_009741	Bcl2	B-cell leukemia/lymphoma 2
A09	Mm.238213	NM_009743	Bcl2l1	Bcl2-like 1
A10	Mm.6898	NM_008670	Birc1a	Baculoviral IAP repeat-containing 1a
A11	Mm.335659	NM_007465	Birc2	Baculoviral IAP repeat-containing 2
A12	Mm.6246	NM_007551	Blr1	Burkitt lymphoma receptor 1
B01	Mm.1051	NM_009807	Casp1	Caspase 1
B02	Mm.34405	NM_009810	Casp3	Caspase 3
B03	Mm.281379	NM_009811	Casp6	Caspase 6
B04	Mm.290320	NM_011333	Ccl2	Chemokine (C-C motif) ligand 2
B05	Mm.284248	NM_013653	Ccl5	Chemokine (C-C motif) ligand 5
B06	Mm.21767	NM_009868	Cdh5	Cadherin 5
B07	Mm.11778	NM_009805	Cflar	CASP8 and FADD-like apoptosis regulator
B08	Mm.4352	NM_009929	Col18a1	Procollagen, type XVIII, alpha 1
B09	Mm.24242	NM_019775	Cpb2	Carboxypeptidase B2 (plasma)
B10	Mm.218009	NM_009950	Cradd	CASP2 and RIPK1 domain containing adaptor with death domain
B11	Mm.4922	NM_009969	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
B12	Mm.103711	NM_009142	Cx3cl1	Chemokine (C-X3-C motif) ligand 1
C01	Mm.21013	NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1
C02	Mm.4979	NM_009140	Cxcl2	Chemokine (C-X-C motif) ligand 2
C03	Mm.332490	NM_019932	Cxcl4	Chemokine (C-X-C motif) ligand 4
C04	Mm.287977	NM_138302	Ecgf1	Endothelial cell growth factor 1 (platelet-derived)
C05	Mm.14543	NM_010104	Edn1	Endothelin 1
C06	Mm.284855	NM_007902	Edn2	Endothelin 2
C07	Mm.283168	NM_010332	Ednra	Endothelin receptor type A
C08	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member)
C09	Mm.3355	NM_010177	Fasl	Fas ligand (TNF superfamily, member 6)
C10	Mm.241282	NM_010197	Fgf1	Fibroblast growth factor 1
C11	Mm.389712	NM_010228	Flt1	FMS-like tyrosine kinase 1
C12	Mm.193099	NM_010233	Fn1	Fibronectin 1
D01	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule
D02	Mm.1245	NM_010510	Ifnb1	Interferon beta 1, fibroblast
D03	Mm.35814	NM_008350	Il11	Interleukin 11

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Position	UniGene	GenBank	Symbol	Description
D04	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D05	Mm.983	NM_010556	Il3	Interleukin 3
D06	Mm.1019	NM_031168	Il6	Interleukin 6
D07	Mm.3825	NM_008371	Il7	Interleukin 7
D08	Mm.16234	NM_010577	Itga5	Integrin alpha 5 (fibronectin receptor alpha)
D09	Mm.227	NM_008402	Itgav	Integrin alpha V
D10	Mm.263396	NM_010578	Itgb1	Integrin beta 1 (fibronectin receptor beta)
D11	Mm.87150	NM_016780	Itgb3	Integrin beta 3
D12	Mm.285	NM_010612	Kdr	Kinase insert domain protein receptor
E01	Mm.247073	NM_021099	Kit	Kit oncogene
E02	Mm.156952	NM_032006	Mmp1a	Matrix metalloproteinase 1a (interstitial collagenase)
E03	Mm.29564	NM_008610	Mmp2	Matrix metalloproteinase 2
E04	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9
E05	Mm.2893	NM_010927	Nos2	Nitric oxide synthase 2, inducible, macrophage
E06	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell
E07	Mm.2740	NM_008726	Nppb	Natriuretic peptide precursor type B
E08	Mm.4627	NM_008727	Npr1	Natriuretic peptide receptor 1
E09	Mm.4807	NM_008756	Ocln	Occludin
E10	Mm.221403	NM_011058	Pdgfra	Platelet derived growth factor receptor, alpha polypeptide
E11	Mm.343951	NM_008816	Pecam1	Platelet/endothelial cell adhesion molecule 1
E12	Mm.4809	NM_008827	Pgf	Placental growth factor
F01	Mm.154660	NM_008872	Plat	Plasminogen activator, tissue
F02	Mm.4183	NM_008873	Plau	Plasminogen activator, urokinase
F03	Mm.971	NM_008877	Plg	Plasminogen
F04	Mm.2339	NM_008968	Ptgis	Prostaglandin I2 (prostacyclin) synthase
F05	Mm.687	NM_007483	Rhob	Ras homolog gene family, member B
F06	Mm.374799	NM_009068	Ripk1	Receptor (TNFRSF)-interacting serine-threonine kinase 1
F07	Mm.5245	NM_011345	Sele	Selectin, endothelial cell
F08	Mm.1461	NM_011346	Sell	Selectin, lymphocyte
F09	Mm.3337	NM_011347	Selp	Selectin, platelet
F10	Mm.332590	NM_009151	Selplg	Selectin, platelet (p-selectin) ligand
F11	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
F12	Mm.276325	NM_011434	Sod1	Superoxide dismutase 1, soluble
G01	Mm.14313	NM_013690	Tek	Endothelial-specific receptor tyrosine kinase
G02	Mm.124316	NM_011576	Tfpi	Tissue factor pathway inhibitor
G03	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
G04	Mm.24096	NM_009378	Thbd	Thrombomodulin
G05	Mm.4159	NM_011580	Thbs1	Thrombospondin 1
G06	Mm.8245	NM_011593	Timp1	Tissue inhibitor of metalloproteinase 1
G07	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G08	Mm.116683	NM_009397	Tnfaip3	Tumor necrosis factor, alpha-induced protein 3
G09	Mm.1062	NM_009425	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G10	Mm.76649	NM_011693	Vcam1	Vascular cell adhesion molecule 1
G11	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
G12	Mm.22339	NM_011708	Vwf	Von Willebrand factor homolog
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	SA_00106	MGDC	Mouse 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