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Product Specification Sheet

RT² Profiler™ PCR Array:

Mouse Atherosclerosis

Catalog Number	For Real-Time Instruments:
PAMM-038A	ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4; and Stratagene Mx3005p, Mx3000p
PAMM-038C	ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus
PAMM-038D	Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000
PAMM-038E	ABI 7900HT 384-Well Block
PAMM-038F	Roche LightCycler 480 96-well Block
PAMM-038G	Roche LightCycler 480 384-well Block

Description

The Mouse Atherosclerosis RT² Profiler PCR Array profiles the expression of 84 genes related to atherosclerosis. Genes involved in the processes of blood coagulation and circulation are included as well as genes involved in cell-adhesion and lipid transport and metabolism. Genes involved in the stress response, cell growth and proliferation, and apoptosis are represented as well. 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

Response to Stress:
Inflammatory Response: Ccl2, Ccl5, Ccr1, Ccr2, Cxcl1, Ifng, Il1a, Il1b, Il2, Itgb2, Pparg, Selp, Spp1, Tgfb1, Tnf.

Response to Pests, Pathogens, or Parasites: Fn1, Il2, Il4, Spp1.

Other Genes Related to the Stress Response: Apoe, Bax, Bcl2l1, Sod1.

Apoptosis:
Anti-apoptosis: Bcl2, Bcl2l1, Birc3, Spp1, Vegfa.

Induction of Apoptosis: Apoe, Bax, Fas (Tnfrsf6).

Other Genes Related to Apoptosis: Bcl2a1a, Bid, Cflar, Ifng, Nfkb1, Sod1, Tnfaip3.

Blood Coagulation and Circulation: Apoe, Npy, Ptgs1, Vwf.

Adhesion Molecules:
Cell-cell Adhesion: Cdh5, Icam1, Vcam1.

Cell-matrix Ahesion: Ctgf, Itga2, Itga5, Itgax, Itgb2, Spp1.

Other Genes Involved in Adhesion: Cd44, Eng, Fn1, Lama1, Sele, Sell, Selp, Selplg, Thbs4.

Extracellular Molecules:
ECM Protease Inhibitors: Serpinb2, Serpine1.

ECM Proteases: Ace, Mmp1a, Mmp3, Serpinb2, Serpine1.

Extracellular Matrix (ECM) Structural Constituents: Col3a1, Eln, Lama1.

Other Extracellular Molecules: Apoa1, Apoe, Ccl2, Ccl5, Cdh5, Csf2, Ctgf, Cxcl1, Eng, Fga, Fgb, Fgf2, Fn1, Hbegf (Dtr), Ifng, Il1a, Il1b, Il1r1, Il1r2, Il2, Il3, Il4, Il5, Itga2, Itga5, Itgb2, Kdr, Ldlr, Lif, Lpl, Npy, Pdgfa, Pdgfb, Pdgfrb, Ptgs1, Sele, Selp, Selplg, Spp1, Tgfb1, Tgfb2, Thbs4, Tnc, Vcam1, Vegfa, Vwf.

Lipid Transport and Metabolism:
Cholesterol Metabolism: Abca1, Apoa1, Apoe, Il4, Ldlr.

Fatty Acid Metabolism: Apob, Lypla1, Ppara, Ptgs1.

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Lipid Transport: Abca1, Adfp, Apoa1, Apob, Apoe, Fabp3, Ldlr, Lpl, Msr1.

Lipoprotein Metabolism: Abca1, Apoa1, Apoe, Ldlr, Lpl, Msr1.

Steroid Metabolism: Nr1h3, Ppara, Ppard, Pparg, Rxra.

Cell Growth and Proliferation:
Growth Factors and Receptors: Csf2, Ctgf, Cxcl1, Fgf2, Hbegf (Dtr), Il1a, Il1b, Il2, Il3, Il4, Il5, Kdr, Lif, Pdgfa, Pdgfb, Pdgfrb, Spp1, Tgfb1, Tgfb2, Vegfa.

Regulation of the Cell Cycle: Fgf2, Il1a, Il1b, Pdgfa, Pdgfb, Tgfb1, Tgfb2, Vegfa.

Other Genes Involved in Cell Growth and Proliferation: Eln, Eng, Fn1, Ifng, Itga5, Ppard.

Transcription Regulators:
Nuclear Receptors: Nr1h3, Ppara, Ppard, Pparg, Rxra.

Other Transcription Regulators: Ccl5, Ifng, Klf2, Nfkb1.

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. Laukkanen J, Yla-Herttuala S. Genes involved in atherosclerosis. Exp Nephrol. 2002; 10 (2): 150-63.
2. Henriksen PA, Kotelevtsev Y. Application of gene expression profiling to cardiovascular disease. Cardiovasc Res. 2002 Apr; 54 (1): 16-24.
3. Monajemi H, Arkenbout EK, Pannekoek H. Gene expression in atherogenesis.Thromb Haemost. 2001 Jul; 86 (1): 404-12.
4. Depre C, Tomlinson JE, Kudej RK, Gaussin V, Thompson E, Kim SJ, Vatner DE, Topper JN, Vatner SF. Gene program for cardiac cell survival induced by transient ischemia in conscious pigs. Proc Natl Acad Sci U S A. 2001 Jul 31; 98 (16): 9336-41.
5. Friddle CJ, Koga T, Rubin EM, Bristow J. Expression profiling reveals distinct sets of genes altered during induction and regression of cardiac hypertrophy. Proc Natl Acad Sci U S A. 2000 Jun 6; 97 (12): 6745-50.
6. Shiffman D, Porter JG. Gene expression profiling of cardiovascular disease models. Curr Opin Biotechnol. 2000 Dec; 11 (6): 598-601.
7. Shiffman D, Mikita T, Tai JT, Wade DP, Porter JG, Seilhamer JJ, Somogyi R, Liang S, Lawn RM. Large scale gene expression analysis of cholesterol-loaded macrophages. J Biol Chem. 2000 Dec 1; 275 (48): 37324-32.
8. Topper JN, Cai J, Falb D, Gimbrone MA Jr. Identification of vascular endothelial genes differentially responsive to fluid mechanical stimuli: cyclooxygenase-2, manganese superoxide dismutase, and endothelial cell nitric oxide synthase are selectively up-regulated by steady laminar shear stress. Proc Natl Acad Sci U S A. 1996 Sep 17; 93 (19): 10417-22.

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Array Layout: Mouse Atherosclerosis RT^2 *Profiler*™ PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Abca1	Ace	Adfp	Apoa1	Apob	Apoe	Bax	Bcl2	Bcl2a1a	Bcl2l1	Bid	Birc3
B	Ccl2	Ccl5	Ccr1	Ccr2	Cd44	Cdh5	Cflar	Col3a1	Csf2	Ctgf	Cxcl1	Eln
C	Eng	Fabp3	Fas	Fga	Fgb	Fgf2	Fn1	Hbegf	Icam1	Ifng	Il1a	Il1b
D	Il1r1	Il1r2	Il2	Il3	Il4	Il5	Itga2	Itga5	Itgax	Itgb2	Kdr	Klf2
E	Lama1	Ldlr	Lif	Lpl	Lypla1	Mmp1a	Mmp3	Msr1	Nfkb1	Npy	Nr1h3	Pdgfa
F	Pdgfb	Pdgfrb	Ppara	Ppard	Pparg	Ptgs1	Rxra	Sele	Sell	Selp	Selplg	Serpinb2
G	Serpine1	Sod1	Spp1	Tgfb1	Tgfb2	Thbs4	Tnc	Tnf	Tnfaip3	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.277376	NM_013454	Abca1	ATP-binding cassette, sub-family A (ABC1), member 1
A02	Mm.754	NM_009598	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A03	Mm.381	NM_007408	Adfp	Adipose differentiation related protein
A04	Mm.26743	NM_009692	Apoa1	Apolipoprotein A-I
A05	Mm.221239	XM_137955	Apob	Apolipoprotein B
A06	Mm.305152	NM_009696	Apoe	Apolipoprotein E
A07	Mm.19904	NM_007527	Bax	Bcl2-associated X protein
A08	Mm.257460	NM_009741	Bcl2	B-cell leukemia/lymphoma 2
A09	Mm.425593	NM_009742	Bcl2a1a	B-cell leukemia/lymphoma 2 related protein A1a
A10	Mm.238213	NM_009743	Bcl2l1	Bcl2-like 1
A11	Mm.235081	NM_007544	Bid	BH3 interacting domain death agonist
A12	Mm.2026	NM_007464	Birc3	Baculoviral IAP repeat-containing 3
B01	Mm.290320	NM_011333	Ccl2	Chemokine (C-C motif) ligand 2
B02	Mm.284248	NM_013653	Ccl5	Chemokine (C-C motif) ligand 5
B03	Mm.274927	NM_009912	Ccr1	Chemokine (C-C motif) receptor 1
B04	Mm.6272	NM_009915	Ccr2	Chemokine (C-C motif) receptor 2
B05	Mm.423621	NM_009851	Cd44	CD44 antigen
B06	Mm.21767	NM_009868	Cdh5	Cadherin 5
B07	Mm.11778	NM_009805	Cflar	CASP8 and FADD-like apoptosis regulator
B08	Mm.249555	NM_009930	Col3a1	Procollagen, type III, alpha 1
B09	Mm.4922	NM_009969	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
B10	Mm.393058	NM_010217	Ctgf	Connective tissue growth factor
B11	Mm.21013	NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1
B12	Mm.275320	NM_007925	Eln	Elastin
C01	Mm.225297	NM_007932	Eng	Endoglin
C02	Mm.388886	NM_010174	Fabp3	Fatty acid binding protein 3, muscle and heart
C03	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member)
C04	Mm.88793	NM_010196	Fga	Fibrinogen, alpha polypeptide
C05	Mm.30063	NM_181849	Fgb	Fibrinogen, B beta polypeptide
C06	Mm.57094	NM_008006	Fgf2	Fibroblast growth factor 2
C07	Mm.193099	NM_010233	Fn1	Fibronectin 1
C08	Mm.289681	NM_010415	Hbegf	Heparin-binding EGF-like growth factor
C09	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule
C10	Mm.240327	NM_008337	Ifng	Interferon gamma
C11	Mm.15534	NM_010554	Il1a	Interleukin 1 alpha
C12	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D01	Mm.896	NM_008362	Il1r1	Interleukin 1 receptor, type I
D02	Mm.1349	NM_010555	Il1r2	Interleukin 1 receptor, type II
D03	Mm.14190	NM_008366	Il2	Interleukin 2

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Position	UniGene	GenBank	Symbol	Description
D04	Mm.983	NM_010556	Il3	Interleukin 3
D05	Mm.276360	NM_021283	Il4	Interleukin 4
D06	Mm.4461	NM_010558	Il5	Interleukin 5
D07	Mm.5007	NM_008396	Itga2	Integrin alpha 2
D08	Mm.16234	NM_010577	Itga5	Integrin alpha 5 (fibronectin receptor alpha)
D09	Mm.22378	NM_021334	Itgax	Integrin alpha X
D10	Mm.1137	NM_008404	Itgb2	Integrin beta 2
D11	Mm.285	NM_010612	Kdr	Kinase insert domain protein receptor
D12	Mm.26938	NM_008452	Klf2	Kruppel-like factor 2 (lung)
E01	Mm.303386	NM_008480	Lama1	Laminin, alpha 1
E02	Mm.3213	NM_010700	Ldlr	Low density lipoprotein receptor
E03	Mm.4964	NM_008501	Lif	Leukemia inhibitory factor
E04	Mm.1514	NM_008509	Lpl	Lipoprotein lipase
E05	Mm.299955	NM_008866	Lypla1	Lysophospholipase 1
E06	Mm.156952	NM_032006	Mmp1a	Matrix metallopeptidase 1a (interstitial collagenase)
E07	Mm.4993	NM_010809	Mmp3	Matrix metallopeptidase 3
E08	Mm.239291	NM_031195	Msr1	Macrophage scavenger receptor 1
E09	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105
E10	Mm.154796	NM_023456	Npy	Neuropeptide Y
E11	Mm.22690	NM_013839	Nr1h3	Nuclear receptor subfamily 1, group H, member 3
E12	Mm.2675	NM_008808	Pdgfa	Platelet derived growth factor, alpha
F01	Mm.144089	NM_011057	Pdgfb	Platelet derived growth factor, B polypeptide
F02	Mm.4146	NM_008809	Pdgfrb	Platelet derived growth factor receptor, beta polypeptide
F03	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
F04	Mm.328914	NM_011145	Ppard	Peroxisome proliferator activator receptor delta
F05	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F06	Mm.275434	NM_008969	Ptgs1	Prostaglandin-endoperoxide synthase 1
F07	Mm.24624	NM_011305	Rxra	Retinoid X receptor alpha
F08	Mm.5245	NM_011345	Sele	Selectin, endothelial cell
F09	Mm.1461	NM_011346	Sell	Selectin, lymphocyte
F10	Mm.3337	NM_011347	Selp	Selectin, platelet
F11	Mm.332590	NM_009151	Selplg	Selectin, platelet (p-selectin) ligand
F12	Mm.271870	NM_011111	Serpinb2	Serine (or cysteine) peptidase inhibitor, clade B, member 2
G01	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
G02	Mm.276325	NM_011434	Sod1	Superoxide dismutase 1, soluble
G03	Mm.288474	NM_009263	Spp1	Secreted phosphoprotein 1
G04	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
G05	Mm.18213	NM_009367	Tgfb2	Transforming growth factor, beta 2
G06	Mm.20865	NM_011582	Thbs4	Thrombospondin 4
G07	Mm.980	NM_011607	Tnc	Tenascin C
G08	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G09	Mm.116683	NM_009397	Tnfaip3	Tumor necrosis factor, alpha-induced protein 3
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