

RT² Profiler PCR Array (384-Well Format)

Mouse Molecular Toxicology PathwayFinder

Cat. no. 330231 PAMM-3401ZE

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format E	Applied Biosystems® models 7900HT (384-well block), ViiA™ 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format G	Roche® LightCycler® 480 (384-well block)

Description

The Mouse Molecular Toxicology PathwayFinder RT² Profiler™ PCR Array profiles the expression of 370 key genes in at least 13 different biological pathways activated in response to toxic drugs. Profiling the expression of these genes in human cell lines (such as hepatocytes) or organs (especially livers) of mice or rats treated with your candidate drugs can help indicate the toxicological responses that they induce. Understanding these mechanisms can then guide chemical modifications to avoid the observed toxic responses rather than completely dismissing a drug class otherwise effective at preventing or treating the target disease phenotype. All of the toxic response pathways represented by this array can be independent or interrelated. For example, inhibition of β -oxidation leads to steatosis, and uncoupling mitochondrial energy metabolism leads to apoptosis and necrosis. Drugs affecting reactive oxygen species metabolism or cellular redox status cause oxidative stress and induce antioxidant responses. These and other reactive drugs also directly damage DNA or inhibit its repair activating DNA damage signaling and DNA repair pathways or apoptosis and necrosis under more extreme conditions of prolonged exposure or excess DNA, cell or tissue damage. Interference with protein synthesis causes endoplasmic reticulum stress and activates the unfolded protein response up-regulating heat shock protein and chaperone gene expression. Increased expression of the cytochrome P450 and other phase I drug metabolism enzymes occur when drugs inhibit or overwhelm their chemical modification activates. More severe and complex phenomena result when drugs inhibit fatty acid and lipid metabolism (β -oxidation) including the lipid storage disorders of steatosis, cholestasis, and phospholipidosis. Toxic responses to drugs in immune system cells bring about immunotoxicity and immunosuppression. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes to determine which molecular toxicological

response pathways your drug candidates activate with this array. Once you have defined the pathways involved, perform comprehensive surveys of more genes in those pathways using other application-specific or custom PCR Arrays designed for individual pathways.

For further details, consult the *RT² Profiler PCR Array Handbook*.



Shipping and storage

RT² Profiler PCR Arrays in formats E and G are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°C.

Note: Ensure that you have the correct RT² Profiler PCR Array format for your real-time cycler (see table above).

Note: Open the package and store the products appropriately immediately on receipt.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.318925	NM_145557	9430015G10 Rik	RIKEN cDNA 9430015G10 gene
A02	Mm.18651	NM_013930	Aass	Aminoadipate-semialdehyde synthase
A03	Mm.207354	NM_011076	Abcb1a	ATP-binding cassette, sub-family B (MDR/TAP), member 1A
A04	Mm.146649	NM_011075	Abcb1b	ATP-binding cassette, sub-family B (MDR/TAP), member 1B
A05	Mm.297825	NM_008830	Abcb4	ATP-binding cassette, sub-family B (MDR/TAP), member 4
A06	Mm.196634	NM_008576	Abcc1	ATP-binding cassette, sub-family C (CFTR/MRP), member 1
A07	Mm.39054	NM_013806	Abcc2	ATP-binding cassette, sub-family C (CFTR/MRP), member 2
A08	Mm.23942	NM_029600	Abcc3	ATP-binding cassette, sub-family C (CFTR/MRP), member 3
A09	Mm.1318	NM_009594	Abl1	C-abl oncogene 1, non-receptor tyrosine kinase
A10	Mm.205266	NM_130864	Acaa1a	Acetyl-Coenzyme A acyltransferase 1A
A11	Mm.245724	NM_177470	Acaa2	Acetyl-Coenzyme A acyltransferase 2 (mitochondrial 3-oxoacyl-Coenzyme A thiolase)
A12	Mm.31374	NM_133360	Acaca	Acetyl-Coenzyme A carboxylase alpha
A13	Mm.41274	NM_175324	Acad11	Acyl-Coenzyme A dehydrogenase family, member 11
A14	Mm.260997	NM_172678	Acad9	Acyl-Coenzyme A dehydrogenase family, member 9
A15	Mm.2445	NM_007381	Acadl	Acyl-Coenzyme A dehydrogenase, long-chain
A16	Mm.10530	NM_007382	Acadm	Acyl-Coenzyme A dehydrogenase, medium chain
A17	Mm.18759	NM_007383	Acads	Acyl-Coenzyme A dehydrogenase, short chain
A18	Mm.334274	NM_025826	Acadsb	Acyl-Coenzyme A dehydrogenase, short/branched chain
A19	Mm.18630	NM_017366	Acadvl	Acyl-Coenzyme A dehydrogenase, very long chain
A20	Mm.293233	NM_144784	Acot1	Acetyl-Coenzyme A acetyltransferase 1
A21	Mm.439711	NM_009338	Acot2	Acetyl-Coenzyme A acetyltransferase 2
A22	Mm.282039	NM_134037	Acly	ATP citrate lyase
A23	Mm.331547	NM_007386	Aco1	Aconitase 1
A24	Mm.154581	NM_080633	Aco2	Aconitase 2, mitochondrial
B01	Mm.275963	NM_028790	Acot12	Acyl-CoA thioesterase 12
B02	Mm.371675	NM_134188	Acot2	Acyl-CoA thioesterase 2
B03	Mm.202331	NM_134246	Acot3	Acyl-CoA thioesterase 3
B04	Mm.49245	NM_172580	Acot6	Acyl-CoA thioesterase 6
B05	Mm.296191	NM_133348	Acot7	Acyl-CoA thioesterase 7
B06	Mm.277878	NM_133240	Acot8	Acyl-CoA thioesterase 8
B07	Mm.268710	NM_019736	Acot9	Acyl-CoA thioesterase 9
B08	Mm.356689	NM_015729	Acox1	Acyl-Coenzyme A oxidase 1, palmitoyl
B09	Mm.28700	NM_053115	Acox2	Acyl-Coenzyme A oxidase 2, branched chain
B10	Mm.291503	NM_030721	Acox3	Acyl-Coenzyme A oxidase 3, pristanoyl
B11	Mm.2409	NM_007409	Adh1	Alcohol dehydrogenase 1 (class I)
B12	Mm.188734	NM_134079	Adk	Adenosine kinase
B13	Mm.341377	NM_013464	Ahr	Aryl-hydrocarbon receptor
B14	Mm.197554	NM_013465	Ahsg	Alpha-2-HS-glycoprotein
B15	Mm.6645	NM_009652	Akt1	Thymoma viral proto-oncogene 1
B16	Mm.16773	NM_009654	Alb	Albumin
B17	Mm.250866	NM_013467	Aldh1a1	Aldehyde dehydrogenase family 1, subfamily A1
B18	Mm.284446	NM_009656	Aldh2	Aldehyde dehydrogenase 2, mitochondrial
B19	Mm.34641	NM_011787	Amfr	Autocrine motility factor receptor
B20	Mm.220289	NM_009684	Apaf1	Apoptotic peptidase activating factor 1
B21	Mm.203	NM_009687	Apex1	Apurinic/apyrimidinic endonuclease 1
B22	Mm.29738	NM_080434	Apoa5	Apolipoprotein A-V
B23	Mm.305152	NM_009696	ApoE	Apolipoprotein E
B24	Mm.26513	NM_133997	Apof	Apolipoprotein F

Position	UniGene	GenBank	Symbol	Description
C01	Mm.250786	NM_009700	Aqp4	Aquaporin 4
C02	Mm.22547	NM_019734	Asah1	N-acylsphingosine amidohydrolase 1
C03	Mm.2942	NM_012055	Asns	Asparagine synthetase
C04	Mm.641	NM_009716	Atf4	Activating transcription factor 4
C05	Mm.377046	NM_001081304	Atf6	Activating transcription factor 6
C06	Mm.5088	NM_007499	Atm	Ataxia telangiectasia mutated homolog (human)
C07	Mm.396107	NM_023179	Atp6v1g2	ATPase, H ⁺ transporting, lysosomal V1 subunit G2
C08	Mm.270043	NM_001001488	Atp8b1	ATPase, class I, type 8B, member 1
C09	Mm.4387	NM_007522	Bad	BCL2-associated agonist of cell death
C10	Mm.2443	NM_007523	Bak1	BCL2-antagonist/killer 1
C11	Mm.19904	NM_007527	Bax	Bcl2-associated X protein
C12	Mm.257460	NM_009741	Bcl2	B-cell leukemia/lymphoma 2
C13	Mm.238213	NM_009743	Bcl2l1	Bcl2-like 1
C14	Mm.141083	NM_009754	Bcl2l11	BCL2-like 11 (apoptosis facilitator)
C15	Mm.235081	NM_007544	Bid	BH3 interacting domain death agonist
C16	Mm.2026	NM_007464	Birc3	Baculoviral IAP repeat-containing 3
C17	Mm.210125	NM_138313	Bmf	Bcl2 modifying factor
C18	Mm.244975	NM_009764	Brca1	Breast cancer 1
C19	Mm.236256	NM_009765	Brca2	Breast cancer 2
C20	Mm.19131	NM_009778	C3	Complement component 3
C21	Mm.29095	NM_013485	C9	Complement component 9
C22	Mm.1051	NM_009807	Casp1	Caspase 1
C23	Mm.3921	NM_007610	Casp2	Caspase 2
C24	Mm.34405	NM_009810	Casp3	Caspase 3
D01	Mm.35687	NM_007611	Casp7	Caspase 7
D02	Mm.336851	NM_009812	Casp8	Caspase 8
D03	Mm.88829	NM_015733	Casp9	Caspase 9
D04	Mm.4215	NM_009804	Cat	Catalase
D05	Mm.4360	NM_009844	Cd19	CD19 antigen
D06	Mm.18628	NM_007643	Cd36	CD36 antigen
D07	Mm.2209	NM_013488	Cd4	CD4 antigen
D08	Mm.271833	NM_011611	Cd40	CD40 antigen
D09	Mm.4861	NM_011616	Cd40lg	CD40 ligand
D10	Mm.423621	NM_009851	Cd44	CD44 antigen
D11	Mm.89474	NM_009855	Cd80	CD80 antigen
D12	Mm.1452	NM_019388	Cd86	CD86 antigen
D13	Mm.1858	NM_001081110	Cd8a	CD8 antigen, alpha chain
D14	Mm.195663	NM_007669	Cdkn1a	Cyclin-dependent kinase inhibitor 1A (P21)
D15	Mm.28191	NM_145603	Ces2c	Carboxylesterase 2C
D16	Mm.336848	NM_009805	Cflar	CASP8 and FADD-like apoptosis regulator
D17	Mm.16753	NM_007691	Chek1	Checkpoint kinase 1 homolog (S. pombe)
D18	Mm.279308	NM_016681	Chek2	CHK2 checkpoint homolog (S. pombe)
D19	Mm.41687	NM_025417	Comm4	COMM domain containing 4
D20	Mm.100940	NM_007744	Comt	Catechol-O-methyltransferase
D21	Mm.400	NM_025628	Cox6b1	Cytochrome c oxidase, subunit VIb polypeptide 1
D22	Mm.152627	NM_009945	Cox7a2	Cytochrome c oxidase, subunit VIIa 2
D23	Mm.14022	NM_007750	Cox8a	Cytochrome c oxidase, subunit VIIIA
D24	Mm.18522	NM_013495	Cpt1a	Carnitine palmitoyltransferase 1a, liver
E01	Mm.227738	NM_009948	Cpt1b	Carnitine palmitoyltransferase 1b, muscle
E02	Mm.307620	NM_009949	Cpt2	Carnitine palmitoyltransferase 2
E03	Mm.20396	NM_007760	Crat	Carnitine acetyltransferase
E04	Mm.28197	NM_023733	Crot	Carnitine O-octanoyltransferase
E05	Mm.1228	NM_013501	Cryaa	Crystallin, alpha A
E06	Mm.178	NM_009964	Cryab	Crystallin, alpha B
E07	Mm.58836	NM_026444	Cs	Citrate synthase
E08	Mm.4922	NM_009969	Csf2	Colony stimulating factor 2 (granulocyte-macrophage)
E09	Mm.236553	NM_007798	Ctsb	Cathepsin B
E10	Mm.230249	NM_007799	Ctse	Cathepsin E
E11	Mm.29196	NM_025567	Cyc1	Cytochrome c-1
E12	Mm.24282	NM_173369	Cyld	Cylindromatosis (turban tumor syndrome)
E13	Mm.14089	NM_009992	Cyp1a1	Cytochrome P450, family 1, subfamily a, polypeptide 1
E14	Mm.15537	NM_009993	Cyp1a2	Cytochrome P450, family 1, subfamily a, polypeptide 2
E15	Mm.474216	NM_019823	Cyp2d22	Cytochrome P450, family 2, subfamily d, polypeptide 22
E16	Mm.21758	NM_021282	Cyp2e1	Cytochrome P450, family 2, subfamily e, polypeptide 1
E17	Mm.332844	NM_007818	Cyp3a11	Cytochrome P450, family 3, subfamily a, polypeptide 11
E18	Mm.250901	NM_007822	Cyp4a14	Cytochrome P450, family 4, subfamily a, polypeptide 14
E19	Mm.57029	NM_007824	Cyp7a1	Cytochrome P450, family 7, subfamily a, polypeptide 1
E20	Mm.316000	NM_007825	Cyp7b1	Cytochrome P450, family 7, subfamily b, polypeptide 1
E21	Mm.110220	NM_007837	Ddit3	DNA-damage inducible transcript 3
E22	Mm.431316	NM_007843	Defb1	Defensin beta 1
E23	Mm.289387	NM_024207	Derl1	Der1-like domain family, member 1

Position	UniGene	GenBank	Symbol	Description
E24	Mm.133370	NM_053272	Dhcr24	24-dehydrocholesterol reductase
F01	Mm.285076	NM_145614	Dlat	Dihydrolipoamide S-acetyltransferase (E2 component of pyruvate dehydrogenase complex)
F02	Mm.3131	NM_007861	Dld	Dihydrolipoamide dehydrogenase
F03	Mm.296221	NM_030225	Dlst	Dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)
F04	Mm.27897	NM_008298	DnaJ1	DnaJ (Hsp40) homolog, subfamily A, member 1
F05	Mm.475573	NM_019794	DnaJ2	DnaJ (Hsp40) homolog, subfamily A, member 2
F06	Mm.325524	NM_023646	DnaJ3	DnaJ (Hsp40) homolog, subfamily A, member 3
F07	Mm.282092	NM_018808	DnaJb1	DnaJ (Hsp40) homolog, subfamily B, member 1
F08	Mm.290110	NM_011847	DnaJb6	DnaJ (Hsp40) homolog, subfamily B, member 6
F09	Mm.12616	NM_008929	DnaJc3	DnaJ (Hsp40) homolog, subfamily C, member 3
F10	Mm.140761	NM_016775	DnaJc5	DnaJ (Hsp40) homolog, subfamily C, member 5
F11	Mm.76494	NM_198412	DnaJc6	DnaJ (Hsp40) homolog, subfamily C, member 6
F12	Mm.44736	NM_010065	Dnm1	Dynamin 1
F13	Mm.250414	NM_011993	Dpysl4	Dihydropyrimidinase-like 4
F14	Mm.108582	NM_001099297	Duox1	Dual oxidase 1
F15	Mm.358846	NM_177610	Duox2	Dual oxidase 2
F16	Mm.24452	NM_053119	Echs1	Enoyl Coenzyme A hydratase, short chain, 1, mitochondrial
F17	Mm.21596	NM_138677	Edem1	ER degradation enhancer, mannosidase alpha-like 1
F18	Mm.337691	NM_001039644	Edem3	ER degradation enhancer, mannosidase alpha-like 3
F19	Mm.28100	NM_023737	Ehhadh	Enoyl-Coenzyme A, hydratase/3-hydroxyacyl Coenzyme A dehydrogenase
F20	Mm.247167	NM_010121	Eif2ak3	Eukaryotic translation initiation factor 2 alpha kinase 3
F21	Mm.260943	NM_198303	Eif5b	Eukaryotic translation initiation factor 5B
F22	Mm.70666	NM_023119	Eno1	Enolase 1, alpha non-neuron
F23	Mm.258397	NM_177821	Ep300	E1A binding protein p300
F24	Mm.9075	NM_010145	Ephx1	Epoxide hydrolase 1, microsomal
G01	Mm.1315	NM_007946	Epx	Eosinophil peroxidase
G02	Mm.280913	NM_007948	Ercc1	Excision repair cross-complementing rodent repair deficiency, complementation group 1
G03	Mm.36524	NM_007949	Ercc2	Excision repair cross-complementing rodent repair deficiency, complementation group 2
G04	Mm.282335	NM_133658	Ercc3	Excision repair cross-complementing rodent repair deficiency, complementation group 3
G05	Mm.2213	NM_011729	Ercc5	Excision repair cross-complementing rodent repair deficiency, complementation group 5
G06	Mm.318310	NM_001081221	Ercc6	Excision repair cross-complementing rodent repair deficiency, complementation group 6
G07	Mm.20452	NM_012016	Ern2	Endoplasmic reticulum (ER) to nucleus signalling 2
G08	Mm.387108	NM_015774	Ero1l	ERO1-like (S. cerevisiae)
G09	Mm.358706	NM_026184	Ero1lb	ERO1-like beta (S. cerevisiae)
G10	Mm.38055	NM_016903	Esd	Esterase D/formylglutathione hydrolase
G11	Mm.9213	NM_007956	Esr1	Estrogen receptor 1 (alpha)
G12	Mm.89048	NM_010168	F2	Coagulation factor II
G13	Mm.22126	NM_017399	Fabp1	Fatty acid binding protein 1, liver
G14	Mm.5126	NM_010175	Fadd	Fas (TNFRSF6)-associated via death domain
G15	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member 6)
G16	Mm.3355	NM_010177	FasL	Fas ligand (TNF superfamily, member 6)
G17	Mm.236443	NM_007988	Fasn	Fatty acid synthase
G18	Mm.27445	NM_015797	Fbxo6	F-box protein 6
G19	Mm.41502	NM_010209	Fh1	Fumarate hydratase 1
G20	Mm.10929	NM_018881	Fmo2	Flavin containing monooxygenase 2
G21	Mm.2900	NM_008030	Fmo3	Flavin containing monooxygenase 3
G22	Mm.155164	NM_144878	Fmo4	Flavin containing monooxygenase 4
G23	Mm.385180	NM_010232	Fmo5	Flavin containing monooxygenase 5
G24	Mm.32926	NM_023907	Foxi1	Forkhead box I1
H01	Mm.220330	NM_019502	Fxc1	Fractured callus expressed transcript 1
H02	Mm.72235	NM_007836	Gadd45a	Growth arrest and DNA-damage-inducible 45 alpha
H03	Mm.484118	NM_172855	Galnt5	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 5
H04	Mm.2475	NM_008097	Gcdh	Glutaryl-Coenzyme A dehydrogenase
H05	Mm.252391	NM_010271	Gpd1	Glycerol-3-phosphate dehydrogenase 1 (soluble)
H06	Mm.30130	NM_182805	Gpt	Glutamic pyruvic transaminase, soluble
H07	Mm.1090	NM_008160	Gpx1	Glutathione peroxidase 1
H08	Mm.441856	NM_030677	Gpx2	Glutathione peroxidase 2
H09	Mm.200916	NM_008161	Gpx3	Glutathione peroxidase 3
H10	Mm.359573	NM_008162	Gpx4	Glutathione peroxidase 4
H11	Mm.1332	NM_010343	Gpx5	Glutathione peroxidase 5
H12	Mm.46195	NM_145451	Gpx6	Glutathione peroxidase 6
H13	Mm.20164	NM_024198	Gpx7	Glutathione peroxidase 7
H14	Mm.439649	NM_008163	Grb2	Growth factor receptor bound protein 2

Position	UniGene	GenBank	Symbol	Description
H15	Mm.394593	NM_010356	Gsta3	Glutathione S-transferase, alpha 3
H16	Mm.31203	NM_026764	Gstm4	Glutathione S-transferase, mu 4
H17	Mm.22564	NM_010382	H2-Eb1	Histocompatibility 2, class II antigen E beta
H18	Mm.482127	NM_024439	H47	Histocompatibility 47
H19	Mm.30100	NM_025325	Haao	3-hydroxyanthranilate 3,4-dioxygenase
H20	Mm.200497	NM_178878	Hadha	Hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit
H21	Mm.291463	NM_145558	Hadhb	Hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), beta subunit
H22	Mm.29151	NM_022331	Herpud1	Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1
H23	Mm.19182	NM_008281	Hpn	Hepsin
H24	Mm.3485	NM_017371	Hpx	Hemopexin
I01	Mm.358794	NM_053176	Hrg	Histidine-rich glycoprotein
I02	Mm.347444	NM_008296	Hsf1	Heat shock factor 1
I03	Mm.261395	NM_008297	Hsf2	Heat shock factor 2
I04	Mm.1843	NM_010480	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1
I05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
I06	Mm.6388	NM_010479	Hspa1a	Heat shock protein 1A
I07	Mm.14287	NM_013558	Hspa1l	Heat shock protein 1-like
I08	Mm.296181	NM_008301	Hspa2	Heat shock protein 2
I09	Mm.239865	NM_008300	Hspa4	Heat shock protein 4
I10	Mm.330160	NM_022310	Hspa5	Heat shock protein 5
I11	Mm.336743	NM_031165	Hspa8	Heat shock protein 8
I12	Mm.209419	NM_010481	Hspa9	Heat shock protein 9
I13	Mm.13849	NM_013560	Hspb1	Heat shock protein 1
I14	Mm.1980	NM_024441	Hspb2	Heat shock protein 2
I15	Mm.34885	NM_001012401	Hspb6	Heat shock protein, alpha-crystallin-related, B6
I16	Mm.46181	NM_013868	Hspb7	Heat shock protein family, member 7 (cardiovascular)
I17	Mm.21549	NM_030704	Hspb8	Heat shock protein 8
I18	Mm.45272	NM_175111	Hspbap1	Hspb associated protein 1
I19	Mm.1777	NM_010477	Hspd1	Heat shock protein 1 (chaperonin)
I20	Mm.215667	NM_008303	Hspe1	Heat shock protein 1 (chaperonin 10)
I21	Mm.270681	NM_013559	Hsph1	Heat shock 105kDa/110kDa protein 1
I22	Mm.21880	NM_019752	Htra2	Htra serine peptidase 2
I23	Mm.334452	NM_001081187	Htra4	Htra serine peptidase 4
I24	Mm.435508	NM_010493	Icam1	Intercellular adhesion molecule 1
J01	Mm.9925	NM_010497	Idh1	Isocitrate dehydrogenase 1 (NADP+), soluble
J02	Mm.246432	NM_173011	Idh2	Isocitrate dehydrogenase 2 (NADP+), mitochondrial
J03	Mm.279195	NM_029573	Idh3a	Isocitrate dehydrogenase 3 (NAD+) alpha
J04	Mm.29590	NM_130884	Idh3b	Isocitrate dehydrogenase 3 (NAD+) beta
J05	Mm.14825	NM_008323	Idh3g	Isocitrate dehydrogenase 3 (NAD+), gamma
J06	Mm.240327	NM_008337	Ifng	Interferon gamma
J07	Mm.874	NM_010548	Il10	Interleukin 10
J08	Mm.1284	NM_008355	Il13	Interleukin 13
J09	Mm.15534	NM_010554	Il1a	Interleukin 1 alpha
J10	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
J11	Mm.14190	NM_008366	Il2	Interleukin 2
J12	Mm.915	NM_008367	Il2ra	Interleukin 2 receptor, alpha chain
J13	Mm.276360	NM_021283	Il4	Interleukin 4
J14	Mm.4461	NM_010558	Il5	Interleukin 5
J15	Mm.1019	NM_031168	Il6	Interleukin 6
J16	Mm.3510	NM_008382	Inhbe	Inhibin beta E
J17	Mm.305674	NM_016851	Irf6	Interferon regulatory factor 6
J18	Mm.22378	NM_021334	Itgax	Integrin alpha X
J19	Mm.22398	NM_013822	Jag1	Jagged 1
J20	Mm.306870	NM_020605	Jph3	Junctophilin 3
J21	Mm.252514	NM_027398	Kcnip1	Kv channel-interacting protein 1
J22	Mm.22451	NM_008439	Khk	Ketohexokinase
J23	Mm.4847	NM_010635	Klf1	Kruppel-like factor 1 (erythroid)
J24	Mm.80584	NM_176953	Lig4	Ligase IV, DNA, ATP-dependent
K01	Mm.243014	NM_019390	Lmna	Lamin A
K02	Mm.1514	NM_008509	Lpl	Lipoprotein lipase
K03	Mm.55075	NM_146006	Lss	Lanosterol synthase
K04	Mm.878	NM_010742	Ly6d	Lymphocyte antigen 6 complex, locus D
K05	Mm.45436	NM_017372	Lyz2	Lysozyme 2
K06	Mm.241355	NM_010758	Mag	Myelin-associated glycoprotein
K07	Mm.280536	NM_027288	Manba	Mannosidase, beta A, lysosomal
K08	Mm.21108	NM_173740	Maoa	Monoamine oxidase A
K09	Mm.241656	NM_172778	Maob	Monoamine oxidase B
K10	Mm.21495	NM_016700	Mapk8	Mitogen-activated protein kinase 8

Position	UniGene	GenBank	Symbol	Description
K11	Mm.206934	NM_019709	Mbtps1	Membrane-bound transcription factor peptidase, site 1
K12	Mm.37577	NM_172307	Mbtps2	Membrane-bound transcription factor peptidase, site 2
K13	Mm.1639	NM_008562	Mcl1	Myeloid cell leukemia sequence 1
K14	Mm.212703	NM_008618	Mdh1	Malate dehydrogenase 1, NAD (soluble)
K15	Mm.30494	NM_029696	Mdh1b	Malate dehydrogenase 1B, NAD (soluble)
K16	Mm.297096	NM_008617	Mdh2	Malate dehydrogenase 2, NAD (mitochondrial)
K17	Mm.22670	NM_010786	Mdm2	Transformed mouse 3T3 cell double minute 2
K18	Mm.289329	NM_019648	Metap2	Methionine aminopeptidase 2
K19	Mm.440219	NM_008598	Mgmt	O-6-methylguanine-DNA methyltransferase
K20	Mm.4078	NM_001081117	Mki67	Antigen identified by monoclonal antibody Ki 67
K21	Mm.196006	NM_026810	Mlh1	MutL homolog 1 (E. coli)
K22	Mm.628	NM_011550	Mlx	MAX-like protein X
K23	Mm.4668	NM_010824	Mpo	Myeloperoxidase
K24	Mm.29484	NM_025878	Mrps18b	Mitochondrial ribosomal protein S18B
L01	Mm.4619	NM_008628	Msh2	MutS homolog 2 (E. coli)
L02	Mm.2941	NM_008642	Mtp	Microsomal triglyceride transfer protein
L03	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
L04	Mm.309520	NM_199469	Nplc4	Nuclear protein localization 4 homolog (S. cerevisiae)
L05	Mm.252	NM_008706	Nqo1	NAD(P)H dehydrogenase, quinone 1
L06	Mm.346759	NM_011850	Nr0b2	Nuclear receptor subfamily 0, group B, member 2
L07	Mm.3095	NM_009108	Nr1h4	Nuclear receptor subfamily 1, group H, member 4
L08	Mm.16794	NM_030676	Nr5a2	Nuclear receptor subfamily 5, group A, member 2
L09	Mm.258923	NM_008749	Nucb1	Nucleobindin 1
L10	Mm.118846	NM_008637	Nudt1	Nudix (nucleoside diphosphate linked moiety X)-type motif 1
L11	Mm.317636	NM_026341	Nudt13	Nudix (nucleoside diphosphate linked moiety X)-type motif 13
L12	Mm.386852	NM_172527	Nudt15	Nudix (nucleoside diphosphate linked moiety X)-type motif 15
L13	Mm.28162	NM_018815	Nup210	Nucleoporin 210
L14	Mm.318302	NM_001081130	Ogdhl	Oxoglutarate dehydrogenase-like
L15	Mm.43612	NM_010957	Ogg1	8-oxoguanine DNA-glycosylase 1
L16	Mm.377733	NM_146881	Olfir1404	Olfactory receptor 1404
L17	Mm.295246	NM_177614	Os9	Amplified in osteosarcoma
L18	Mm.476915	NM_145932	Osta	Organic solute transporter alpha
L19	Mm.335247	NM_178933	Ostb	Organic solute transporter beta
L20	Mm.277779	NM_007415	Parp1	Poly (ADP-ribose) polymerase family, member 1
L21	Mm.281482	NM_009632	Parp2	Poly (ADP-ribose) polymerase family, member 2
L22	Mm.23876	NM_144844	Pcca	Propionyl-Coenzyme A carboxylase, alpha polypeptide
L23	Mm.7141	NM_011045	Pcna	Proliferating cell nuclear antigen
L24	Mm.6239	NM_018863	Pdyn	Prodynorphin
M01	Mm.158264	NM_027044	Pfdn5	Prefoldin 5
M02	Mm.390817	NM_054088	Pnpla3	Patatin-like phospholipase domain containing 3
M03	Mm.237657	NM_011134	Pon1	Paraoxonase 1
M04	Mm.3863	NM_008898	Por	P450 (cytochrome) oxidoreductase
M05	Mm.477577	NM_008900	Pou3f3	POU domain, class 3, transcription factor 3
M06	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
M07	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
M08	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A
M09	Mm.293628	NM_133819	Ppp1r15b	Protein phosphatase 1, regulatory (inhibitor) subunit 15b
M10	Mm.30929	NM_011034	Prdx1	Peroxiredoxin 1
M11	Mm.347009	NM_011563	Prdx2	Peroxiredoxin 2
M12	Mm.186185	NM_007453	Prdx6	Peroxiredoxin 6
M13	Mm.71	NM_011159	Prkdc	Protein kinase, DNA activated, catalytic polypeptide
M14	Mm.292547	NM_011198	Ptgs2	Prostaglandin-endoperoxide synthase 2
M15	Mm.391573	NM_011210	Ptprc	Protein tyrosine phosphatase, receptor type, C
M16	Mm.227506	NM_027514	Pvr	Poliovirus receptor
M17	Mm.26994	NM_016899	Rab25	RAB25, member RAS oncogene family
M18	Mm.471596	NM_011234	Rad51	RAD51 homolog (S. cerevisiae)
M19	Mm.245746	NM_009041	Rdx	Radixin
M20	Mm.1181	NM_022984	Retn	Resistin
M21	Mm.291525	NM_199422	S100a7a	S100 calcium binding protein A7A
M22	Mm.21567	NM_013650	S100a8	S100 calcium binding protein A8 (calgranulin A)
M23	Mm.30119	NM_025436	Sc4mol	Sterol-C4-methyl oxidase-like
M24	Mm.267377	NM_009127	Scd1	Stearoyl-Coenzyme A desaturase 1
N01	Mm.158231	NM_023281	SdhA	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)
N02	Mm.246965	NM_023374	Sdhb	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)
N03	Mm.198138	NM_025321	Sdhc	Succinate dehydrogenase complex, subunit C, integral membrane protein
N04	Mm.10406	NM_025848	SdhD	Succinate dehydrogenase complex, subunit D, integral membrane protein
N05	Mm.26017	NM_027016	Sec62	SEC62 homolog (S. cerevisiae)
N06	Mm.250605	NM_001039089	Sel1l	Sel-1 suppressor of lin-12-like (C. elegans)
N07	Mm.29702	NM_030685	Serp1	Stress-associated endoplasmic reticulum protein 1
N08	Mm.291569	NM_011458	Serpina3k	Serine (or cysteine) peptidase inhibitor, clade A, member 3K
N09	Mm.482074	NM_009252	Serpina3n	Serine (or cysteine) peptidase inhibitor, clade A, member 3N

Position	UniGene	GenBank	Symbol	Description
N10	Mm.341781	NM_011387	Slc10a1	Solute carrier family 10 (sodium/bile acid cotransporter family), member 1
N11	Mm.395108	NM_011401	Slc2a3	Solute carrier family 2 (facilitated glucose transporter), member 3
N12	Mm.255586	NM_030687	Slco1a4	Solute carrier organic anion transporter family, member 1a4
N13	Mm.4628	NM_011421	Smpd1	Sphingomyelin phosphodiesterase 1, acid lysosomal
N14	Mm.276325	NM_011434	Sod1	Superoxide dismutase 1, soluble
N15	Mm.34342	NM_170756	Spta2	Spermatogenesis associated 2
N16	Mm.278701	NM_011480	Srebf1	Sterol regulatory element binding transcription factor 1
N17	Mm.21965	NM_175096	Stbd1	Starch binding domain 1
N18	Mm.38951	NM_011506	Suc1a2	Succinate-Coenzyme A ligase, ADP-forming, beta subunit
N19	Mm.29845	NM_019879	Suc1g1	Succinate-CoA ligase, GDP-forming, alpha subunit
N20	Mm.371585	NM_011507	Suc1g2	Succinate-Coenzyme A ligase, GDP-forming, beta subunit
N21	Mm.70781	NM_177191	Sycp2	Synaptonemal complex protein 2
N22	Mm.289702	NM_009306	Syt1	Synaptotagmin I
N23	Mm.149870	NM_028769	Syvn1	Synovial apoptosis inhibitor 1, synoviolin
N24	Mm.283283	NM_011526	Tagln	Transgelin
O01	Mm.439645	NM_013686	Tcp1	T-complex protein 1
O02	Mm.4641	NM_011575	Tff3	Trefoil factor 3, intestinal
O03	Mm.248380	NM_011577	Tgfb1	Transforming growth factor, beta 1
O04	Mm.99793	NM_025382	Tmem57	Transmembrane protein 57
O05	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
O06	Mm.2312	NM_025566	Tnfaip8l1	Tumor necrosis factor, alpha-induced protein 8-like 1
O07	Mm.193430	NM_020275	Tnfrsf10b	Tumor necrosis factor receptor superfamily, member 10b
O08	Mm.1258	NM_011609	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
O09	Mm.1062	NM_009425	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
O10	Mm.4991	NM_009417	Tpo	Thyroid peroxidase
O11	Mm.299155	NM_011280	Trim10	Tripartite motif-containing 10
O12	Mm.222	NM_011640	Trp53	Transformation related protein 53
O13	Mm.410189	NM_023719	Txnip	Thioredoxin interacting protein
O14	Mm.37667	NM_175646	Txn14b	Thioredoxin-like 4B
O15	Mm.390906	NM_013711	Txnrd2	Thioredoxin reductase 2
O16	Mm.458125	NM_019803	Ube2g2	Ubiquitin-conjugating enzyme E2G 2
O17	Mm.371673	NM_001039157	Ube2j2	Ubiquitin-conjugating enzyme E2, J2 homolog (yeast)
O18	Mm.430772	NM_018798	Ubqln2	Ubiquilin 2
O19	Mm.293321	NM_026390	Ubxn4	UBX domain protein 4
O20	Mm.4177	NM_009463	Ucp1	Uncoupling protein 1 (mitochondrial, proton carrier)
O21	Mm.171378	NM_011671	Ucp2	Uncoupling protein 2 (mitochondrial, proton carrier)
O22	Mm.6254	NM_009464	Ucp3	Uncoupling protein 3 (mitochondrial, proton carrier)
O23	Mm.300095	NM_201645	Ugt1a1	UDP glucuronosyltransferase 1 family, polypeptide A1
O24	Mm.154806	NM_053184	Ugt2a1	UDP glucuronosyltransferase 2 family, polypeptide A1
P01	Mm.26741	NM_152811	Ugt2b1	UDP glucuronosyltransferase 2 family, polypeptide B1
P02	Mm.10865	NM_009474	Uox	Urate oxidase
P03	Mm.245976	NM_009503	Vcp	Valosin containing protein
P04	Mm.35817	NM_145940	Wipi1	WD repeat domain, phosphoinositide interacting 1
P05	Mm.469937	NM_013842	Xbp1	X-box binding protein 1
P06	Mm.259879	NM_009688	Xiap	X-linked inhibitor of apoptosis
P07	Mm.247036	NM_011728	Xpa	Xeroderma pigmentosum, complementation group A
P08	Mm.2806	NM_009531	Xpc	Xeroderma pigmentosum, complementation group C
P09	Mm.4347	NM_009532	Xrcc1	X-ray repair complementing defective repair in Chinese hamster cells 1
P10	Mm.246952	NM_009533	Xrcc5	X-ray repair complementing defective repair in Chinese hamster cells 5
P11	Mm.328431	NM_007393	Actb	Actin, beta
P12	Mm.163	NM_009735	B2m	Beta-2 microglobulin
P13	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
P14	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
P15	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
P16	N/A	SA_00106	MGDC	Mouse Genomic DNA Contamination
P17	N/A	SA_00106	MGDC	Mouse Genomic DNA Contamination
P18	N/A	SA_00106	MGDC	Mouse Genomic DNA Contamination
P19	N/A	SA_00104	RTC	Reverse Transcription Control
P20	N/A	SA_00104	RTC	Reverse Transcription Control
P21	N/A	SA_00104	RTC	Reverse Transcription Control
P22	N/A	SA_00103	PPC	Positive PCR Control
P23	N/A	SA_00103	PPC	Positive PCR Control
P24	N/A	SA_00103	PPC	Positive PCR Control

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RT ² SYBR Green qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad model CFX384; Roche LightCycler 480 (384-well); all other cyclers	330501
RT ² SYBR Green ROX [™] qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 7900HT, ViiA 7 (384-well blocks)	330521
RT ² SYBR Green Fluor qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler [®] , iQ [™] 5, MyiQ [™] , MyiQ2	330511

* Larger kit sizes available; please inquire.

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