RT² Profiler PCR Array (Rotor-Gene® Format)

Mouse Fatty Liver

Cat. no. 330231 PAMM-157ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Mouse Fatty Liver RT² Profiler PCR Array profiles the expression of 84 key genes involved in the mechanisms of nonalcoholic fatty liver disease (NAFLD) and hepatic insulin resistance. NAFLD is caused by excessive uptake of lipids by the liver and, if left untreated, can result in chronic inflammation and eventually steatohepatitis (NASH). This progressive hepatic disease often accompanies obesity, and has a complex set of causes that include insulin resistance as well as signaling effects from adipose tissue, pancreatic islets, and skeletal muscle. Insulin resistance is the primary symptom of non-insulin dependent diabetes mellitus (NIDDM), or type 2 diabetes. During food consumption, insulin release activates insulin signaling and cellular uptake of glucose, resulting in synthesis and storage of carbohydrates and lipids. Insulin-resistant individuals are vulnerable to multiple pathophysiologies as a result of residual blood glucose, including development of NIDDM. Individuals with NIDDM are often obese, and many have additional related pathologies (i. e., cardiovascular disease), collectively called the metabolic syndrome. Obesity upregulates adipokine secretion from adipose tissue, activating hepatic adipokine signaling while inhibiting hepatic insulin signaling. These 2 signaling pathways control the expression of many enzymes and transporters necessary for carbohydrate and lipid metabolism. In addition, hepatic oxidative phosphorylation is often disrupted during NAFLD and insulin resistance. This array includes hepatic genes involved in adipokine and insulin signaling, metabolic enzymes and transporters, genes commonly dysregulated in NIDDM, and genes involved in inflammation and apoptosis. The results of this array can yield insights into the mechanisms of insulin resistance and metabolic dysregulation in the liver. Using real-time PCR, researchers can easily and reliably analyze the expression of a focused panel of genes involved in NAFLD mechanisms with this array.

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

Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format 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.

Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.277376	NM_013454	Abca1	ATP-binding cassette, sub-family A (ABC1), member 1
A02	Mm.15691	NM_009593	Abcg1	ATP-binding cassette, sub-family G (WHITE), member 1
A03	Mm.31374	NM_133360	Acaca	Acetyl-Coenzyme A carboxylase alpha
A04	Mm.2445	NM_007381	Acadl	Acyl-Coenzyme A dehydrogenase, long-chain
A05	Mm.282039	NM_134037	Acly	ATP citrate lyase
A06	Mm.356689	NM_015729	Acox1	Acyl-Coenzyme A oxidase 1, palmitoyl
A07	Mm.292056	NM_027976	Acsl5	Acyl-CoA synthetase long-chain family member 5
A08	Mm.334199	NM_016870	Acsm3	Acyl-CoA synthetase medium-chain family member 3
A09	Mm.259976	NM_028320	Adipor1	Adiponectin receptor 1
A10	Mm.291826	NM_197985	Adipor2	Adiponectin receptor 2
A11	Mm.6645	NM_009652	Akt1	Thymoma viral proto-oncogene 1
A12	Mm.26743	NM_009692	Apoa1	Apolipoprotein A-I
B01	Mm.221239	NM_009693	Apob	Apolipoprotein B
B02	Mm.390161	NM_023114	Apoc3	Apolipoprotein C-III
B03	Mm.305152	NM_009696	Apoe	Apolipoprotein E
B04	Mm.12677	NM_020615	Atp5c1	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma polypeptide 1
B05	Mm.34405	NM_009810	Casp3	Caspase 3
B06	Mm.18628	NM_007643	Cd36	CD36 antigen
B07	Mm.439656	NM_009883	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
B08	Mm.290251	NM_013493	Cnbp	Cellular nucleic acid binding protein
B09	Mm.18522	NM_013495	Cpt1a	Carnitine palmitoyltransferase 1a, liver
B10	Mm.307620	NM_009949	Cpt2	Carnitine palmitoyltransferase 2
B11	Mm.21758	NM_021282	Cyp2e1	Cytochrome P450, family 2, subfamily e, polypeptide 1
B12	Mm.57029	NM_007824	Cyp7a1	Cytochrome P450, family 7, subfamily a, polypeptide 1
C01	Mm.180189	NM_026384	Dgat2	Diacylglycerol O-acyltransferase 2
C02	Mm.22126	NM_017399	Fabp1	Fatty acid binding protein 1, liver
C03	Mm.388886	NM_010174	Fabp3	Fatty acid binding protein 3, muscle and heart
C04	Mm.741	NM_010634	Fabp5	Fatty acid binding protein 5, epidermal
C05	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member 6)
C06	Mm.236443	NM_007988	Fasn	Fatty acid synthase
C07	Mm.938	NM_010446	Foxa2	Forkhead box A2
C08	Mm.18064	NM_008061	G6pc	Glucose-6-phosphatase, catalytic
C09	Mm.27210	NM_008062	G6pdx	Glucose-6-phosphate dehydrogenase X-linked
C10	Mm.220358	NM_010292	Gck	Glucokinase
C11	Mm.394930	NM_019827	Gsk3b	Glycogen synthase kinase 3 beta
C12	Mm.246682	NM_008194	Gyk	Glycerol kinase
D01	Mm.485394	NM_008255	Hmgcr	3-hydroxy-3-methylglutaryl-Coenzyme A reductase
D02	Mm.202383	NM_008261	Hnf4a	Hepatic nuclear factor 4, alpha
D03	Mm.240327	NM_008337	Ifng	Interferon gamma
D04	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1
D05	Mm.21300	NM_008341	Igfbp1	Insulin-like growth factor binding protein 1
D06	Mm.874	NM_010548	Il10	Interleukin 10
D07	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
D08	Mm.1019	NM_031168	Il6	Interleukin 6
D09	Mm.268003	NM_010568	Insr	Insulin receptor
D10	Mm.4952	NM_010570	Irs1	Insulin receptor substrate 1
D11	Mm.3213	NM_010700	Ldlr	Low density lipoprotein receptor
D12	Mm.259282	NM_010704	Lepr	Leptin receptor
E01	Mm.1514	NM_008509	Lpl	Lipoprotein lipase
E02	Mm.196581	NM_011949	Mapk1	Mitogen-activated protein kinase 1
E03	Mm.21495	NM_016700	Mapk8	Mitogen-activated protein kinase 8
E04	Mm.34213	NM_021455	Mlxipl	MLX interacting protein-like
E05	Mm.21158	NM_020009	Mtor	Mechanistic target of rapamycin (serine/threonine kinase)
E06	Mm.1103	NM_001033305	Ndufb6	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6
E07	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
E08	Mm.968	NM_009473	Nr1h2	Nuclear receptor subfamily 1, group H, member 2

Position	UniGene	GenBank	Symbol	Description
E09	Mm.22690	NM_013839	Nr1h3	Nuclear receptor subfamily 1, group H, member 3
E10	Mm.3095	NM_009108	Nr1h4	Nuclear receptor subfamily 1, group H, member 4
E11	Mm.29856	NM_028994	Pck2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)
E12	Mm.235547	NM_013743	Pdk4	Pyruvate dehydrogenase kinase, isoenzyme 4
F01	Mm.260521	NM_008839	Pik3ca	Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide
F02	Mm.259333	NM_001024955	Pik3r1	Phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha)
F03	Mm.383180	NM_013631	Pklr	Pyruvate kinase liver and red blood cell
F04	Mm.28897	NM_026438	Ppa1	Pyrophosphatase (inorganic) 1
F05	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
F06	Mm.328914	NM_011145	Ppard	Peroxisome proliferator activator receptor delta
F07	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F08	Mm.259072	NM_008904	Ppargc1a	Peroxisome proliferative activated receptor, gamma, coactivator 1 alpha
F09	Mm.207004	NM_001013367	Prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
F10	Mm.277916	NM_011201	Ptpn1	Protein tyrosine phosphatase, non-receptor type 1
F11	Mm.2605	NM_011255	Rbp4	Retinol binding protein 4, plasma
F12	Mm.24624	NM_011305	Rxra	Retinoid X receptor alpha
G01	Mm.267377	NM_009127	Scd1	Stearoyl-Coenzyme A desaturase 1
G02	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
G03	Mm.10984	NM_009512	Slc27a5	Solute carrier family 27 (fatty acid transporter), member 5
G04	Mm.21002	NM_011400	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
G05	Mm.18443	NM_031197	Slc2a2	Solute carrier family 2 (facilitated glucose transporter), member 2
G06	Mm.10661	NM_009204	Slc2a4	Solute carrier family 2 (facilitated glucose transporter), member 4
G07	Mm.3468	NM_007707	Socs3	Suppressor of cytokine signaling 3
G08	Mm.278701	NM_011480	Srebf1	Sterol regulatory element binding transcription factor 1
G09	Mm.38016	NM_033218	Srebf2	Sterol regulatory element binding factor 2
G10	Mm.249934	NM_011486	Stat3	Signal transducer and activator of transcription 3
G11	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G12	Mm.469937	NM_013842	Xbp1	X-box binding protein 1
H01	Mm.328431	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
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

Related products

For optimal performance, RT² Profiler PCR Arrays should be used together with the RT² First Strand Kit for cDNA synthesis and RT² SYBR® Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² SYBR Green ROX™ FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

* Larger kit sizes available; please inquire.

RT² Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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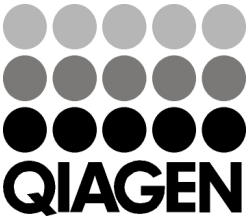

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