RT² Profiler PCR Array (Rotor-Gene® Format)

Mouse Insulin Resistance

Cat. no. 330231 PAMM-156ZR

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 Insulin Resistance RT² Profiler PCR Array profiles the expression of 84 key genes involved in the mechanisms behind non-insulin dependent diabetes mellitus (NIDDM) in adipose tissue. During food consumption, insulin release activates insulin signaling and cellular uptake of glucose, resulting in synthesis and storage of carbohydrates and lipids. Resistance to insulin can develop late in life, especially after a prolonged high-calorie diet and in association with other risk factors. Insulin-resistant individuals are vulnerable to multiple pathophysiologies as a result of residual blood glucose, including development of NIDDM, or type 2 diabetes. NIDDM is frequently accompanied by obesity and additional related pathologies (i.e.. cardiovascular disease), collectively called the metabolic syndrome. Insulin resistance is a key link between obesity and NIDDM, and may be caused by dysregulation of the complex signaling between adipose tissue, pancreatic islets, liver, and skeletal muscle. Adipose tissue modulates food intake, as well as carbohydrate and lipid metabolism, through release of hormones called adipokines. In addition, activation of the innate immune system has been linked to adipose tissue inflammation and the development of insulin resistance via the NLRP3 inflammasome. This tissue is chronically inflamed during obesity, marked by an increase of inflammatory cytokines and infiltrating leukocytes. This array includes adipose genes involved in insulin and adipokine signaling, genes commonly dysregulated in NIDDM, genes involved in innate immunity and inflammatory processes, and enzymes and transporters important for carbohydrate and lipid metabolism. The results of this array can yield insights into the dysregulated mechanisms of insulin resistance using adipose tissue as a model system. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in adipose tissue insulin resistance 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.31374	NM_133360	Acaca	Acetyl-Coenzyme A carboxylase alpha
A02	Mm.81793	NM_133904	Acacb	Acetyl-Coenzyme A carboxylase beta
A03	Mm.210323	NM_007981	Acsl1	Acyl-CoA synthetase long-chain family member 1
A04	Mm.391337	NM_019477	Acsl4	Acyl-CoA synthetase long-chain family member 4
A05	Mm.3969	NM_009605	Adipoq	Adiponectin, C1Q and collagen domain containing
A06	Mm.259976	NM_028320	Adipor1	Adiponectin receptor 1
A07	Mm.291826	NM_197985	Adipor2	Adiponectin receptor 2
A08	Mm.235194	NM_011785	Akt3	Thymoma viral proto-oncogene 3
A09	Mm.41072	NM_009662	Alox5	Arachidonate 5-lipoxygenase
A10	Mm.305152	NM_009696	Apoe	Apolipoprotein E
A11	Mm.1051	NM_009807	Casp1	Caspase 1
A12	Mm.867	NM_011331	Ccl12	Chemokine (C-C motif) ligand 12
B01	Mm.1337	NM_009916	Ccr4	Chemokine (C-C motif) receptor 4
B02	Mm.14302	NM_009917	Ccr5	Chemokine (C-C motif) receptor 5
B03	Mm.8007	NM_009835	Ccr6	Chemokine (C-C motif) receptor 6
B04	Mm.18628	NM_007643	Cd36	CD36 antigen
B05	Mm.210361	NM_007648	Cd3e	CD3 antigen, epsilon polypeptide
B06	Mm.349667	NM_007678	Cebpa	CCAAT/enhancer binding protein (C/EBP), alpha
B07	Mm.3996	NM_007700	Chuk	Conserved helix-loop-helix ubiquitous kinase
B08	Mm.290251	NM_013493	Cnbp	Cellular nucleic acid binding protein
B09	Mm.35771	NM_016715	Crlf2	Cytokine receptor-like factor 2
B10	Mm.58836	NM_026444	Cs	Citrate synthase
B11	Mm.12876	NM_009910	Cxcr3	Chemokine (C-X-C motif) receptor 3
B12	Mm.1401	NM_009911	Cxcr4	Chemokine (C-X-C motif) receptor 4
C01	Mm.2254	NM_010130	Emr1	EGF-like module containing, mucin-like, hormone receptor-like sequence 1
C02	Mm.582	NM_024406	Fabp4	Fatty acid binding protein 4, adipocyte
C03	Mm.236443	NM_007988	Fasn	Fatty acid synthase
C04	Mm.275654	NM_030678	Gys1	Glycogen synthase 1, muscle
C05	Mm.255848	NM_013820	Hk2	Hexokinase 2
C06	Mm.240327	NM_008337	Ifng	Interferon gamma
C07	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1
C08	Mm.275742	NM_010513	Igf1r	Insulin-like growth factor I receptor
C09	Mm.277886	NM_010546	Ikbkb	Inhibitor of kappaB kinase beta
C10	Mm.253664	NM_008365	Il18r1	Interleukin 18 receptor 1
C11	Mm.222830	NM_008361	Il1b	Interleukin 1 beta
C12	Mm.896	NM_008362	Il1r1	Interleukin 1 receptor, type I
D01	Mm.221227	NM_144548	Il23r	Interleukin 23 receptor
D02	Mm.1019	NM_031168	Il6	Interleukin 6
D03	Mm.268003	NM_010568	Insr	Insulin receptor
D04	Mm.4952	NM_010570	Irs1	Insulin receptor substrate 1
D05	Mm.407207	NM_001081212	Irs2	Insulin receptor substrate 2
D06	Mm.275839	NM_008413	Jak2	Janus kinase 2
D07	Mm.277072	NM_008493	Lep	Leptin
D08	Mm.259282	NM_010704	Lepr	Leptin receptor
D09	Mm.333679	NM_010719	Lipe	Lipase, hormone sensitive
D10	Mm.1514	NM_008509	Lpl	Lipoprotein lipase
D11	Mm.271071	NM_008517	Lta4h	Leukotriene A4 hydrolase
D12	Mm.248907	NM_008927	Map2k1	Mitogen-activated protein kinase kinase 1
E01	Mm.8385	NM_011952	Mapk3	Mitogen-activated protein kinase 3
E02	Mm.68933	NM_016961	Mapk9	Mitogen-activated protein kinase 9
E03	Mm.21158	NM_020009	Mtor	Mechanistic target of rapamycin (serine/threonine kinase)
E04	Mm.202727	NM_021524	Nampt	Nicotinamide phosphoribosyltransferase
E05	Mm.170515	NM_010907	Nfkbia	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E06	Mm.54174	NM_145827	Nlrp3	NLR family, pyrin domain containing 3
E07	Mm.293626	NM_138648	Olr1	Oxidized low density lipoprotein (lectin-like) receptor 1
E08	Mm.266867	NM_011044	Pck1	Phosphoenolpyruvate carboxykinase 1, cytosolic

Position	UniGene	GenBank	Symbol	Description
E09	Mm.430730	NM_011055	Pde3b	Phosphodiesterase 3B, cGMP-inhibited
E10	Mm.29768	NM_133667	Pdk2	Pyruvate dehydrogenase kinase, isoenzyme 2
E11	Mm.389714	NM_008814	Pdx1	Pancreatic and duodenal homeobox 1
E12	Mm.260521	NM_008839	Pik3ca	Phosphatidylinositol 3-kinase, catalytic, alpha polypeptide
F01	Mm.259333	NM_001024955	Pik3r1	Phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha)
F02	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
F03	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F04	Mm.259072	NM_008904	Ppargc1a	Peroxisome proliferative activated receptor, gamma, coactivator 1 alpha
F05	Mm.277916	NM_011201	Ptpn1	Protein tyrosine phosphatase, non-receptor type 1
F06	Mm.24163	NM_023258	Pycard	PYD and CARD domain containing
F07	Mm.2605	NM_011255	Rbp4	Retinol binding protein 4, plasma
F08	Mm.249966	NM_009045	Rela	V-rel reticuloendotheliosis viral oncogene homolog A (avian)
F09	Mm.1181	NM_022984	Retn	Resistin
F10	Mm.394280	NM_028259	Rps6kb1	Ribosomal protein S6 kinase, polypeptide 1
F11	Mm.267377	NM_009127	Scd1	Stearoyl-Coenzyme A desaturase 1
F12	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
G01	Mm.38165	NM_011977	Slc27a1	Solute carrier family 27 (fatty acid transporter), member 1
G02	Mm.10661	NM_009204	Slc2a4	Solute carrier family 2 (facilitated glucose transporter), member 4
G03	Mm.3468	NM_007707	Socs3	Suppressor of cytokine signaling 3
G04	Mm.278701	NM_011480	Srebf1	Sterol regulatory element binding transcription factor 1
G05	Mm.38016	NM_033218	Srebf2	Sterol regulatory element binding factor 2
G06	Mm.249934	NM_011486	Stat3	Signal transducer and activator of transcription 3
G07	Mm.38049	NM_021297	Tlr4	Toll-like receptor 4
G08	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G09	Mm.1258	NM_011609	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G10	Mm.235328	NM_011610	Tnfrsf1b	Tumor necrosis factor receptor superfamily, member 1b
G11	Mm.4177	NM_009463	Ucp1	Uncoupling protein 1 (mitochondrial, proton carrier)
G12	Mm.4141	NM_013703	Vldlr	Very low density lipoprotein receptor
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

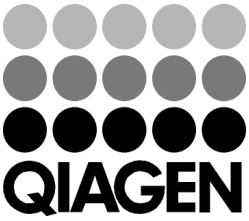
* Larger kit sizes available; please inquire.

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.

www.qiagen.com

Australia ▪ 1-800-243-800
Austria ▪ 0800/281010
Belgium ▪ 0800-79612
Brazil ▪ 0800-557779
Canada ▪ 800-572-9613
China ▪ 8621-3865-3865
Denmark ▪ 80-885945
Finland ▪ 0800-914416
France ▪ 01-60-920-930
Germany ▪ 02103-29-12000
Hong Kong ▪ 800 933 965
Ireland ▪ 1800 555 049
Italy ▪ 800-787980
Japan ▪ 03-6890-7300
Korea (South) ▪ 080-000-7145
Luxembourg ▪ 8002 2076
Mexico ▪ 01-800-7742-436
The Netherlands ▪ 0800 0229592
Norway ▪ 800-18859
Singapore ▪ 1800-742-4368
Spain ▪ 91-630-7050
Sweden ▪ 020-790282
Switzerland ▪ 055-254-22-11
UK ▪ 01293-422-911
USA ▪ 800-426-8157



Sample & Assay Technologies