

RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Fatty Acid Metabolism

Cat. no. 330231 PARN-007ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Rat Fatty Acid Metabolism RT² Profiler PCR Array profiles the expression of 84 key genes involved in the regulation and enzymatic pathways of fatty acid metabolism. Cells, particularly in skeletal muscle and adipose tissue, primarily store energy as triacylglycerols and, when needed, break them down again into glycerol and fatty acids for activation and transport into the mitochondria. The process of α -oxidation then metabolizes these activated fatty acids yielding acetyl-CoA, the initial metabolite necessary for the TCA cycle and ketogenesis. During resting states, cells store excess energy by re-synthesizing fatty acids in a process tightly regulated by hormones. Alterations in the expression of genes involved in fatty acid metabolism, such as CRAT, often associate with metabolic syndrome and insulin resistance. These two syndromes are risk factors for multiple diseases including diabetes and obesity as well as other prevalent health problems such as cardiovascular disease. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in fatty acid metabolism 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	Rn.8913	NM_012489	Acaa1a	Acetyl-Coenzyme A acyltransferase 1A
A02	Rn.3786	NM_130433	Acaa2	Acetyl-Coenzyme A acyltransferase 2
A03	Rn.13452	NM_001134537	Acad10	Acyl-Coenzyme A dehydrogenase family, member 10
A04	Rn.8651	NM_001108181	Acad11	Acyl-Coenzyme A dehydrogenase family, member 11
A05	Rn.13649	NM_181768	Acad9	Acyl-Coenzyme A dehydrogenase family, member 9
A06	Rn.174	NM_012819	Acadl	Acyl-Coenzyme A dehydrogenase, long-chain
A07	Rn.6302	NM_016986	Acadm	Acyl-Coenzyme A dehydrogenase, C-4 to C-12 straight chain
A08	Rn.1167	NM_022512	Acads	Acyl-Coenzyme A dehydrogenase, C-2 to C-3 short chain
A09	Rn.44423	NM_013084	Acadsb	Acyl-Coenzyme A dehydrogenase, short/branched chain
A10	Rn.33319	NM_012891	Acadvl	Acyl-Coenzyme A dehydrogenase, very long chain
A11	Rn.4054	NM_017075	Acat1	Acetyl-coenzyme A acetyltransferase 1
A12	Rn.203063	NM_001006995	Acat3	Acetyl-Coenzyme A acetyltransferase 3
B01	Rn.212205	NM_130747	Acof12	Acyl-CoA thioesterase 12
B02	Rn.37524	NM_138907	Acof2	Acyl-CoA thioesterase 2
B03	Rn.145093	NM_001108041	Acof3	Acyl-CoA thioesterase 3
B04	Rn.6024	NM_013214	Acof7	Acyl-CoA thioesterase 7
B05	Rn.161868	NM_130756	Acof8	Acyl-CoA thioesterase 8
B06	Rn.8792	NM_001013960	Acof9	Acyl-CoA thioesterase 9
B07	Rn.31796	NM_017340	Acox1	Acyl-Coenzyme A oxidase 1, palmitoyl
B08	Rn.10622	NM_145770	Acox2	Acyl-Coenzyme A oxidase 2, branched chain
B09	Rn.10546	NM_053339	Acox3	Acyl-Coenzyme A oxidase 3, pristanoyl
B10	Rn.17672	NM_134389	Acsbg1	Acyl-CoA synthetase bubblegum family member 1
B11	Rn.109833	NM_001080096	Acsbg2	Acyl-CoA synthetase bubblegum family member 2
B12	Rn.6215	NM_012820	Acs1	Acyl-CoA synthetase long-chain family member 1
C01	Rn.54820	NM_057107	Acs3	Acyl-CoA synthetase long-chain family member 3
C02	Rn.87821	NM_053623	Acs4	Acyl-CoA synthetase long-chain family member 4
C03	Rn.105862	NM_053607	Acs5	Acyl-CoA synthetase long-chain family member 5
C04	Rn.33697	NM_130739	Acs6	Acyl-CoA synthetase long-chain family member 6
C05	Rn.14875	NM_144748	Acsm2	Acyl-CoA synthetase medium-chain family member 2
C06	Rn.88644	NM_033231	Acsm3	Acyl-CoA synthetase medium-chain family member 3
C07	Rn.162462	NM_181695	Acsm4	Acyl-CoA synthetase medium-chain family member 4
C08	Rn.35367	NM_001014162	Acsm5	Acyl-CoA synthetase medium-chain family member 5
C09	Rn.101781	NM_032416	Aldh2	Aldehyde dehydrogenase 2 family (mitochondrial)
C10	Rn.36635	NM_053995	Bdh1	3-hydroxybutyrate dehydrogenase, type 1
C11	Rn.3651	NM_001106473	Bdh2	3-hydroxybutyrate dehydrogenase, type 2
C12	Rn.2856	NM_031559	Cpt1a	Carnitine palmitoyltransferase 1a, liver
D01	Rn.6028	NM_013200	Cpt1b	Carnitine palmitoyltransferase 1b, muscle
D02	Rn.43113	NM_001034925	Cpt1c	Carnitine palmitoyltransferase 1c
D03	Rn.11389	NM_012930	Cpt2	Carnitine palmitoyltransferase 2
D04	Rn.6249	NM_001004085	Crat	Carnitine acetyltransferase
D05	Rn.4896	NM_031987	Crot	Carnitine O-octanoyltransferase
D06	Rn.2854	NM_057197	Decr1	2,4-dienoyl CoA reductase 1, mitochondrial
D07	Rn.144598	NM_171996	Decr2	2,4-dienoyl CoA reductase 2, peroxisomal
D08	Rn.6847	NM_078623	Echs1	Enoyl Coenzyme A hydratase, short chain, 1, mitochondrial
D09	Rn.108029	NM_001006966	Eci2	Enoyl-Coenzyme A delta isomerase 2
D10	Rn.3671	NM_133606	Ehhadh	Enoyl-Coenzyme A, hydratase/3-hydroxyacyl Coenzyme A dehydrogenase
D11	Rn.36412	NM_012556	Fabp1	Fatty acid binding protein 1, liver
D12	Rn.91358	NM_013068	Fabp2	Fatty acid binding protein 2, intestinal
E01	Rn.32566	NM_024162	Fabp3	Fatty acid binding protein 3, muscle and heart
E02	Rn.4258	NM_053365	Fabp4	Fatty acid binding protein 4, adipocyte
E03	Rn.98269	NM_145878	Fabp5	Fatty acid binding protein 5, epidermal
E04	Rn.10008	NM_017098	Fabp6	Fatty acid binding protein 6, ileal
E05	Rn.10014	NM_030832	Fabp7	Fatty acid binding protein 7, brain
E06	Rn.99039	NM_001108896	Gcdh	Glutaryl-Coenzyme A dehydrogenase
E07	Rn.153497	NM_024381	Gk	Glycerol kinase
E08	Rn.108510	NM_001004077	Gk2	Glycerol kinase 2
E09	Rn.44452	NM_022215	Gpd1	Glycerol-3-phosphate dehydrogenase 1 (soluble)

Position	UniGene	GenBank	Symbol	Description
E10	Rn.89705	NM_012736	Gpd2	Glycerol-3-phosphate dehydrogenase 2, mitochondrial
E11	Rn.3340	NM_130826	Hadha	Hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit
E12	Rn.12297	NM_024386	Hmgcl	3-hydroxymethyl-3-methylglutaryl-Coenzyme A lyase
F01	Rn.5106	NM_017268	Hmgcs1	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)
F02	Rn.29594	NM_173094	Hmgcs2	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2 (mitochondrial)
F03	Rn.10566	NM_012859	Lipe	Lipase, hormone sensitive
F04	Rn.3834	NM_012598	Lpl	Lipoprotein lipase
F05	Rn.3420	NM_001106341	Mcee	Methylmalonyl CoA epimerase
F06	Rn.54738	XM_001067239	Mut	Methylmalonyl-Coenzyme A mutase
F07	Rn.110620	NM_001012221	Oxct2a	3-oxoacid CoA transferase 2A
F08	Rn.163081	NM_133299	Pecr	Peroxisomal trans-2-enoyl-CoA reductase
F09	Rn.106916	NM_001100834	Ppa1	Pyrophosphatase (inorganic) 1
F10	Rn.87789	NM_019142	Prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
F11	Rn.64583	NM_023991	Prkaa2	Protein kinase, AMP-activated, alpha 2 catalytic subunit
F12	Rn.3619	NM_031976	Prkab1	Protein kinase, AMP-activated, beta 1 non-catalytic subunit
G01	Rn.207202	NM_022627	Prkab2	Protein kinase, AMP-activated, beta 2 non-catalytic subunit
G02	Rn.20	NM_001100922	Prkaca	Protein kinase, cAMP-dependent, catalytic, alpha
G03	Rn.202491	NM_001077645	Prkacb	Protein kinase, cAMP dependent, catalytic, beta
G04	Rn.11089	NM_013010	Prkag1	Protein kinase, AMP-activated, gamma 1 non-catalytic subunit
G05	Rn.51208	NM_184051	Prkag2	Protein kinase, AMP-activated, gamma 2 non-catalytic subunit
G06	Rn.149163	NM_001106921	Prkag3	Protein kinase, AMP-activated, gamma 3 non-catalytic subunit
G07	Rn.1047	NM_053580	Slc27a1	Solute carrier family 27 (fatty acid transporter), member 1
G08	Rn.3608	NM_031736	Slc27a2	Solute carrier family 27 (fatty acid transporter), member 2
G09	Rn.22977	NM_001106439	Slc27a3	Solute carrier family 27 (fatty acid transporter), member 3
G10	Rn.145068	XM_231115	Slc27a4	Solute carrier family 27 (fatty acid transporter), member 4
G11	Rn.207896	NM_024143	Slc27a5	Solute carrier family 27 (fatty acid transporter), member 5
G12	Rn.53815	NM_001106145	Slc27a6	Solute carrier family 27 (fatty acid transporter), member 6
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat 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.
RT ² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT ² 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.

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