RT² Profiler PCR Array (Rotor-Gene® Format)

Mouse Mitochondrial Energy Metabolism

Cat. no. 330231 PAMM-008ZR

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 Mitochondrial Energy Metabolism RT² Profiler PCR Array profiles the expression of 84 key genes involved in mitochondrial respiration, including genes encoding components of the electron transport chain and oxidative phosphorylation complexes. Oxidation of NADH and FADH2, the metabolites from glycolysis and the TCA cycle, occurs via a series of four protein complexes embedded in the inner mitochondrial membrane: NADH-coenzyme Q reductase, succinate-coenzyme Q reductase, coenzyme Q-cytochrome c reductase, and cytochrome c oxidase. The free energy generated from these processes drives oxidative phosphorylation and ATP synthesis via a fifth protein complex (ATP Synthase). Dysregulation of these processes is a major pathological consequence of cancer progression. Many tumors contain decreased amounts of mitochondrial respiratory chain components, although the exact mechanism for this repression is unclear. However, recent studies demonstrate that the important tumor suppressor p53 induces the expression of COX2, an essential component for cytochrome c oxidase function. Mitochondrial dysfunction also contributes to metabolic syndrome and obesity, where excess β-oxidation overloads oxidative phosphorylation by generating excessive amounts of NADH. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in mitochondrial energy metabolism with this array.

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

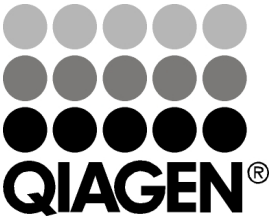
Shipping and storage

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	Mm.273271	NM_138652	Atp12a	ATPase, H+/K+ transporting, nongastric, alpha polypeptide
A02	Mm.12821	NM_018731	Atp4a	ATPase, H+/K+ exchanging, gastric, alpha polypeptide
A03	Mm.154039	NM_009724	Atp4b	ATPase, H+/K+ exchanging, beta polypeptide
A04	Mm.276137	NM_007505	Atp5a1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1
A05	Mm.238973	NM_016774	Atp5b	ATP synthase, H+ transporting mitochondrial F1 complex, beta subunit
A06	Mm.12677	NM_020615	Atp5c1	ATP synthase, H+ transporting, mitochondrial F1 complex, gamma polypeptide 1
A07	Mm.278560	NM_025313	Atp5d	ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit
A08	Mm.251152	NM_009725	Atp5f1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit B1
A09	Mm.371547	NM_007506	Atp5g1	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit c1 (subunit 9)
A10	Mm.10314	NM_026468	Atp5g2	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit C2 (subunit 9)
A11	Mm.2966	NM_175015	Atp5g3	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit C3 (subunit 9)
A12	Mm.371641	NM_027862	Atp5h	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit d
B01	Mm.353	NM_016755	Atp5j	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit F
B02	Mm.133551	NM_020582	Atp5j2	ATP synthase, H+ transporting, mitochondrial F0 complex, subunit F2
B03	Mm.41	NM_138597	Atp5o	ATP synthase, H+ transporting, mitochondrial F1 complex, O subunit
B04	Mm.1158	NM_011596	Atp6v0a2	ATPase, H+ transporting, lysosomal V0 subunit A2
B05	Mm.19298	NM_175406	Atp6v0d2	ATPase, H+ transporting, lysosomal V0 subunit D2
B06	Mm.178798	NM_133699	Atp6v1c2	ATPase, H+ transporting, lysosomal V1 subunit C2
B07	Mm.159369	NM_029121	Atp6v1e2	ATPase, H+ transporting, lysosomal V1 subunit E2
B08	Mm.114424	NM_177397	Atp6v1g3	ATPase, H+ transporting, lysosomal V1 subunit G3
B09	Mm.358700	NM_025784	Bcs1l	BCS1-like (yeast)
B10	Mm.151940	NM_199008	Cox11	COX11 homolog, cytochrome c oxidase assembly protein (yeast)
B11	Mm.386758	NM_009941	Cox4i1	Cytochrome c oxidase subunit IV isoform 1
B12	Mm.196668	NM_053091	Cox4i2	Cytochrome c oxidase subunit IV isoform 2
C01	Mm.273403	NM_007747	Cox5a	Cytochrome c oxidase, subunit Va
C02	Mm.180182	NM_009942	Cox5b	Cytochrome c oxidase, subunit Vb
C03	Mm.43415	NM_007748	Cox6a1	Cytochrome c oxidase, subunit VI a, polypeptide 1
C04	Mm.43824	NM_009943	Cox6a2	Cytochrome c oxidase, subunit VI a, polypeptide 2
C05	Mm.400	NM_025628	Cox6b1	Cytochrome c oxidase, subunit VIb polypeptide 1
C06	Mm.29625	NM_183405	Cox6b2	Cytochrome c oxidase subunit VIb polypeptide 2
C07	Mm.548	NM_053071	Cox6c	Cytochrome c oxidase, subunit VIc
C08	Mm.152627	NM_009945	Cox7a2	Cytochrome c oxidase, subunit VIIa 2
C09	Mm.30072	NM_009187	Cox7a2l	Cytochrome c oxidase subunit VIIa polypeptide 2-like
C10	Mm.197728	NM_025379	Cox7b	Cytochrome c oxidase subunit VIIb
C11	Mm.14022	NM_007750	Cox8a	Cytochrome c oxidase, subunit VIIIa
C12	Mm.660	NM_001039049	Cox8c	Cytochrome c oxidase, subunit VIIIc
D01	Mm.29196	NM_025567	Cyc1	Cytochrome c-1
D02	Mm.276721	NM_029609	Lhpp	Phospholysine phosphohistidine inorganic pyrophosphate phosphatase
D03	Mm.34869	NM_019443	Ndufa1	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 1
D04	Mm.248778	NM_024197	Ndufa10	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 10
D05	Mm.279823	NM_027244	Ndufa11	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex 11
D06	Mm.29867	NM_010885	Ndufa2	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2
D07	Mm.17851	NM_025348	Ndufa3	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 3
D08	Mm.415865	NM_010886	Ndufa4	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 4
D09	Mm.275780	NM_026614	Ndufa5	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 5
D10	Mm.27570	NM_025987	Ndufa6	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 6 (B14)
D11	Mm.29513	NM_023202	Ndufa7	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 7 (B14.5a)
D12	Mm.19834	NM_026703	Ndufa8	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 8
E01	Mm.347976	NM_028177	Ndufab1	NADH dehydrogenase (ubiquinone) 1, alpha/beta subcomplex, 1
E02	Mm.1129	NM_026684	Ndufb10	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 10
E03	Mm.29415	NM_026612	Ndufb2	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 2
E04	Mm.2033	NM_025597	Ndufb3	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 3
E05	Mm.379154	NM_026610	Ndufb4	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 4
E06	Mm.28058	NM_025316	Ndufb5	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 5

Position	UniGene	GenBank	Symbol	Description
E07	Mm.1103	NM_001033305	Ndufb6	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6
E08	Mm.29683	NM_025843	Ndufb7	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 7
E09	Mm.2060	NM_026061	Ndufb8	NADH dehydrogenase (ubiquinone) 1 beta subcomplex 8
E10	Mm.322294	NM_023172	Ndufb9	NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9
E11	Mm.331007	NM_025523	Ndufc1	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 1
E12	Mm.334031	NM_024220	Ndufc2	NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2
F01	Mm.290791	NM_145518	Ndufs1	NADH dehydrogenase (ubiquinone) Fe-S protein 1
F02	Mm.21669	NM_153064	Ndufs2	NADH dehydrogenase (ubiquinone) Fe-S protein 2
F03	Mm.30113	NM_026688	Ndufs3	NADH dehydrogenase (ubiquinone) Fe-S protein 3
F04	Mm.253142	NM_010887	Ndufs4	NADH dehydrogenase (ubiquinone) Fe-S protein 4
F05	Mm.42805	NM_001030274	Ndufs5	NADH dehydrogenase (ubiquinone) Fe-S protein 5
F06	Mm.29897	NM_010888	Ndufs6	NADH dehydrogenase (ubiquinone) Fe-S protein 6
F07	Mm.28712	NM_029272	Ndufs7	NADH dehydrogenase (ubiquinone) Fe-S protein 7
F08	Mm.44227	NM_144870	Ndufs8	NADH dehydrogenase (ubiquinone) Fe-S protein 8
F09	Mm.29842	NM_133666	Ndufv1	NADH dehydrogenase (ubiquinone) flavoprotein 1
F10	Mm.2206	NM_028388	Ndufv2	NADH dehydrogenase (ubiquinone) flavoprotein 2
F11	Mm.28349	NM_030087	Ndufv3	NADH dehydrogenase (ubiquinone) flavoprotein 3
F12	Mm.182340	NM_026936	Oxa1l	Oxidase assembly 1-like
G01	Mm.28897	NM_026438	Ppa1	Pyrophosphatase (inorganic) 1
G02	Mm.210305	NM_146141	Ppa2	Pyrophosphatase (inorganic) 2
G03	Mm.158231	NM_023281	Sdha	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)
G04	Mm.246965	NM_023374	Sdhb	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)
G05	Mm.198138	NM_025321	Sdhc	Succinate dehydrogenase complex, subunit C, integral membrane protein
G06	Mm.10406	NM_025848	Sdhd	Succinate dehydrogenase complex, subunit D, integral membrane protein
G07	Mm.379119	NM_025650	Uqcr11	Ubiquinol-cytochrome c reductase, complex III subunit XI
G08	Mm.335460	NM_025407	Uqcrc1	Ubiquinol-cytochrome c reductase core protein 1
G09	Mm.334206	NM_025899	Uqcrc2	Ubiquinol cytochrome c reductase core protein 2
G10	Mm.181933	NM_025710	Uqcrfs1	Ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1
G11	Mm.181721	NM_025641	Uqcrh	Ubiquinol-cytochrome c reductase hinge protein
G12	Mm.251621	NM_025352	Uqcrq	Ubiquinol-cytochrome c reductase, complex III subunit VII
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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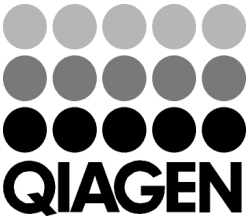

Sample & Assay Technologies