

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene<sup>®</sup> Format)

## Human Mitochondria

Cat. no. 330231 PAHS-087ZR

For pathway expression analysis

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

### Description

The Human Mitochondria RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes involved in the biogenesis and function of the cell's powerhouse organelle. The genes monitored by this array include regulators and mediators of mitochondrial molecular transport of not only the metabolites needed for the electron transport chain and oxidative phosphorylation, but also the ions required for maintaining the mitochondrial membrane polarization and potential important for ATP synthesis. Metabolism and energy production are not the only functions of mitochondria. Intrinsic apoptosis pathway genes activated by intracellular damage signaling are also represented on this array. Despite the mitochondrion's origins and its chromosome, the cellular genomic DNA encodes most of the proteins essential for mitochondrial replication and function. Therefore, this array's genes also target and translocate previously translated and folded proteins across and/or into the outer and/or inner mitochondrial membranes and even into the mitochondrial matrix. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in the diverse cellular functions of mitochondrial biology with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

### Shipping and storage

RT<sup>2</sup> 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 RT<sup>2</sup> Profiler PCR Array format for your real-time

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cycler (see table above).

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



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Sample & Assay Technologies

## 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: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.655377	NM_032797	AIFM2	Apoptosis-inducing factor, mitochondrion-associated, 2
A02	Hs.412433	NM_003977	AIP	Aryl hydrocarbon receptor interacting protein
A03	Hs.485139	NM_001188	BAK1	BCL2-antagonist/killer 1
A04	Hs.467020	NM_014417	BBC3	BCL2 binding component 3
A05	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A06	Hs.516966	NM_138578	BCL2L1	BCL2-like 1
A07	Hs.591054	NM_001196	BID	BH3 interacting domain death agonist
A08	Hs.144873	NM_004052	BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3
A09	Hs.512599	NM_000077	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)
A10	Hs.462278	NM_001303	COX10	COX10 homolog, cytochrome c oxidase assembly protein, heme A: farnesyltransferase (yeast)
A11	Hs.356697	NM_173827	COX18	COX18 cytochrome c oxidase assembly homolog ( <i>S. cerevisiae</i> )
A12	Hs.439777	NM_004377	CPT1B	Carnitine palmitoyltransferase 1B (muscle)
B01	Hs.705379	NM_000098	CPT2	Carnitine palmitoyltransferase 2
B02	Hs.556296	NM_005690	DNM1L	Dynamin 1-like
B03	Hs.423968	NM_016068	FIS1	Fission 1 (mitochondrial outer membrane) homolog ( <i>S. cerevisiae</i> )
B04	Hs.54943	NM_012192	FXC1	Fracture callus 1 homolog (rat)
B05	Hs.443723	NM_025196	GRPEL1	GrpE-like 1, mitochondrial ( <i>E. coli</i> )
B06	Hs.525600	NM_001017963	HSP90AA1	Heat shock protein 90kDa alpha (cytosolic), class A member 1
B07	Hs.595053	NM_002156	HSPD1	Heat shock 60kDa protein 1 (chaperonin)
B08	Hs.502223	NM_144981	IMMP1L	IMP1 inner mitochondrial membrane peptidase-like ( <i>S. cerevisiae</i> )
B09	Hs.655722	NM_032549	IMMP2L	IMP2 inner mitochondrial membrane peptidase-like ( <i>S. cerevisiae</i> )
B10	Hs.368084	NM_133259	LRPPRC	Leucine-rich PPR-motif containing
B11	Hs.478383	NM_033540	MFN1	Mitofusin 1
B12	Hs.376681	NM_014874	MFN2	Mitofusin 2
C01	Hs.507498	NM_005932	MIPEP	Mitochondrial intermediate peptidase
C02	Hs.75659	NM_002437	MPV17	MpV17 mitochondrial inner membrane protein
C03	Hs.656547	NM_018116	MSTO1	Misato homolog 1 ( <i>Drosophila</i> )
C04	Hs.470728	NM_006554	MTX2	Metaxin 2
C05	Hs.521461	NM_006158	NEFL	Neurofilament, light polypeptide
C06	Hs.594504	NM_130837	OPA1	Optic atrophy 1 (autosomal dominant)
C07	Hs.96	NM_021127	PMAIP1	Phorbol-12-myristate-13-acetate-induced protein 1
C08	Hs.655325	NM_018307	RHOT1	Ras homolog gene family, member T1
C09	Hs.513242	NM_138769	RHOT2	Ras homolog gene family, member T2
C10	Hs.523718	NM_006142	SFN	Stratifin
C11	Hs.136309	NM_016009	SH3GLB1	SH3-domain GRB2-like endophilin B1
C12	Hs.111024	NM_005984	SLC25A1	Solute carrier family 25 (mitochondrial carrier; citrate transporter), member 1
D01	Hs.548187	NM_012140	SLC25A10	Solute carrier family 25 (mitochondrial carrier; dicarboxylate transporter), member 10
D02	Hs.470608	NM_003705	SLC25A12	Solute carrier family 25 (mitochondrial carrier, Aralar), member 12
D03	Hs.489190	NM_014251	SLC25A13	Solute carrier family 25, member 13 (citrin)
D04	Hs.194686	NM_003951	SLC25A14	Solute carrier family 25 (mitochondrial carrier, brain), member 14
D05	Hs.646645	NM_014252	SLC25A15	Solute carrier family 25 (mitochondrial carrier; ornithine transporter) member 15
D06	Hs.180408	NM_152707	SLC25A16	Solute carrier family 25 (mitochondrial carrier; Graves disease autoantigen), member 16
D07	Hs.474938	NM_006358	SLC25A17	Solute carrier family 25 (mitochondrial carrier; peroxisomal membrane protein, 34kDa), member 17
D08	Hs.514470	NM_021734	SLC25A19	Solute carrier family 25 (mitochondrial thiamine pyrophosphate carrier), member 19
D09	Hs.97647	NM_031947	SLC25A2	Solute carrier family 25 (mitochondrial carrier; ornithine transporter) member 2
D10	Hs.13845	NM_000387	SLC25A20	Solute carrier family 25 (carnitine/acylcarnitine translocase), member 20
D11	Hs.651384	NM_030631	SLC25A21	Solute carrier family 25 (mitochondrial oxodicarboxylate carrier), member 21
D12	Hs.99486	NM_024698	SLC25A22	Solute carrier family 25 (mitochondrial carrier: glutamate), member 22
E01	Hs.356231	NM_024103	SLC25A23	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23
E02	Hs.656870	NM_013386	SLC25A24	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 24
E03	Hs.5476	NM_052901	SLC25A25	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 25
E04	Hs.40510	NM_004277	SLC25A27	Solute carrier family 25, member 27

Position	UniGene	GenBank	Symbol	Description
E05	Hs.290404	NM_002635	SLC25A3	Solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 3
E06	Hs.591230	NM_001010875	SLC25A30	Solute carrier family 25, member 30
E07	Hs.149030	NM_031291	SLC25A31	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 31
E08	Hs.596025	NM_016612	SLC25A37	Solute carrier family 25, member 37
E09	Hs.246506	NM_001151	SLC25A4	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4
E10	Hs.632282	NM_001152	SLC25A5	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 5
E11	Hs.443914	NM_000454	SOD1	Superoxide dismutase 1, soluble
E12	Hs.487046	NM_000636	SOD2	Superoxide dismutase 2, mitochondrial
F01	Hs.728838	NM_006804	STARD3	StAR-related lipid transfer (START) domain containing 3
F02	Hs.409911	NM_000116	TAZ	Tafazzin
F03	Hs.235750	NM_012456	TIMM10	Translocase of inner mitochondrial membrane 10 homolog (yeast)
F04	Hs.20716	NM_006335	TIMM17A	Translocase of inner mitochondrial membrane 17 homolog A (yeast)
F05	Hs.30570	NM_005834	TIMM17B	Translocase of inner mitochondrial membrane 17 homolog B (yeast)
F06	Hs.592108	NM_013337	TIMM22	Translocase of inner mitochondrial membrane 22 homolog (yeast)
F07	Hs.524308	NM_006327	TIMM23	Translocase of inner mitochondrial membrane 23 homolog (yeast)
F08	Hs.465784	NM_006351	TIMM44	Translocase of inner mitochondrial membrane 44 homolog (yeast)
F09	Hs.590956	NM_001001563	TIMM50	Translocase of inner mitochondrial membrane 50 homolog (S. cerevisiae)
F10	Hs.447877	NM_004085	TIMM8A	Translocase of inner mitochondrial membrane 8 homolog A (yeast)
F11	Hs.279915	NM_012459	TIMM8B	Translocase of inner mitochondrial membrane 8 homolog B (yeast)
F12	Hs.440525	NM_012460	TIMM9	Translocase of inner mitochondrial membrane 9 homolog (yeast)
G01	Hs.533192	NM_014765	TOMM20	Translocase of outer mitochondrial membrane 20 homolog (yeast)
G02	Hs.595072	NM_020243	TOMM22	Translocase of outer mitochondrial membrane 22 homolog (yeast)
G03	Hs.517066	NM_006809	TOMM34	Translocase of outer mitochondrial membrane 34
G04	Hs.655909	NM_006114	TOMM40	Translocase of outer mitochondrial membrane 40 homolog (yeast)
G05	Hs.321653	NM_032174	TOMM40L	Translocase of outer mitochondrial membrane 40 homolog (yeast)-like
G06	Hs.227253	NM_014820	TOMM70A	Translocase of outer mitochondrial membrane 70 homolog A (S. cerevisiae)
G07	Hs.654481	NM_000546	TP53	Tumor protein p53
G08	Hs.202	NM_000714	TSPO	Translocator protein (18kDa)
G09	Hs.249211	NM_021833	UCP1	Uncoupling protein 1 (mitochondrial, proton carrier)
G10	Hs.80658	NM_003355	UCP2	Uncoupling protein 2 (mitochondrial, proton carrier)
G11	Hs.101337	NM_003356	UCP3	Uncoupling protein 3 (mitochondrial, proton carrier)
G12	Hs.172791	NM_004182	UXT	Ubiquitously-expressed transcript
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> 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.

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RT<sup>2</sup> 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](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

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