

RT² Profiler PCR Array (Rotor-Gene® Format)

Mouse Hypoxia Signaling Pathway

Cat. no. 330231 PAMM-032ZR

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 Mouse Hypoxia Signaling Pathway RT² Profiler PCR Array profiles the expression of 84 genes that respond to low oxygen levels. Oxygen is required for aerobic energy metabolism processes such as oxidative phosphorylation. Low oxygen conditions activate the hypoxia signaling pathway in eukaryotic cells, primarily via the hypoxia inducible factor (HIF) transcription factor. HIF heterodimers consist of a constitutively-expressed beta subunit and one of 3 alpha subunit isoforms whose expression is tightly regulated. The presence of oxygen activates prolyl hydroxylases to hydroxylate HIF, leading to its polyubiquitination and degradation. Under low oxygen conditions, prolyl hydroxylase inactivity allows HIF to accumulate, initiating target gene expression. Hypoxia-inducible target genes mediate multiple biological functions, such as angiogenesis, hematopoiesis, and the maintenance of vascular tone to provide or replenish tissues with blood and oxygen. Hypoxia signaling dysregulation commonly occurs in diseases such as tumor angiogenesis and chronic inflammation. Hundreds of HIF target genes have been identified using experimental techniques such as expression studies and chromatin immunoprecipitation (ChIP) as well as bioinformatic analysis of predicted transcription factor binding sites. This array includes HIF signaling transcription factors, HIF interacting proteins, and highly relevant target genes identified by multiple studies. Results obtained with this array can be used to analyze activation or inhibition of hypoxia signaling. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes related to the hypoxia signaling pathway 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 cyclers (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.1408	NM_009627	Adm	Adrenomedullin
A02	Mm.40740	NM_007413	Adora2b	Adenosine A2b receptor
A03	Mm.275831	NM_007438	Aldoa	Aldolase A, fructose-bisphosphate
A04	Mm.196189	NM_020581	Angptl4	Angiopietin-like 4
A05	Mm.334517	NM_001039562	Ankrd37	Ankyrin repeat domain 37
A06	Mm.238343	NM_007585	Anxa2	Annexin A2
A07	Mm.203	NM_009687	Apex1	Apurinic/apyrimidinic endonuclease 1
A08	Mm.250265	NM_009709	Arnt	Aryl hydrocarbon receptor nuclear translocator
A09	Mm.212462	NM_019864	Atr	Ataxia telangiectasia and rad3 related
A10	Mm.2436	NM_011498	Bhlhe40	Basic helix-loop-helix family, member e40
A11	Mm.12932	NM_007550	Blm	Bloom syndrome, RecQ helicase-like
A12	Mm.378890	NM_009760	Bnip3	BCL2/adenovirus E1B interacting protein 3
B01	Mm.29820	NM_009761	Bnip3l	BCL2/adenovirus E1B interacting protein 3-like
B02	Mm.23811	NM_007569	Btg1	B-cell translocation gene 1, anti-proliferative
B03	Mm.283682	NM_139305	Car9	Carbonic anhydrase 9
B04	Mm.3527	NM_007635	Ccng2	Cyclin G2
B05	Mm.402384	NM_013715	Cops5	COP9 (constitutive photomorphogenic) homolog, subunit 5 (Arabidopsis thaliana)
B06	Mm.359633	NM_008906	Ctsa	Cathepsin A
B07	Mm.21697	NM_029083	Ddit4	DNA-damage-inducible transcript 4
B08	Mm.140761	NM_016775	Dnajc5	DnaJ (Hsp40) homolog, subfamily C, member 5
B09	Mm.14543	NM_010104	Edn1	Endothelin 1
B10	Mm.140619	NM_053207	Egln1	EGL nine homolog 1 (C. elegans)
B11	Mm.29978	NM_053208	Egln2	EGL nine homolog 2 (C. elegans)
B12	Mm.181959	NM_007913	Egr1	Early growth response 1
C01	Mm.6700	NM_007918	Eif4ebp1	Eukaryotic translation initiation factor 4E binding protein 1
C02	Mm.70666	NM_023119	Eno1	Enolase 1, alpha non-neuron
C03	Mm.349116	NM_007942	Epo	Erythropoietin
C04	Mm.387108	NM_015774	Ero1l	ERO1-like (S. cerevisiae)
C05	Mm.262589	NM_007972	F10	Coagulation factor X
C06	Mm.273188	NM_010171	F3	Coagulation factor III
C07	Mm.246513	NM_010234	Fos	FBJ osteosarcoma oncogene
C08	Mm.396102	NM_028803	Gbe1	Glucan (1,4-alpha-), branching enzyme 1
C09	Mm.589	NM_008155	Gpi1	Glucose phosphate isomerase 1
C10	Mm.275654	NM_030678	Gys1	Glycogen synthase 1, muscle
C11	Mm.3879	NM_010431	Hif1a	Hypoxia inducible factor 1, alpha subunit
C12	Mm.145278	NM_176958	Hif1an	Hypoxia-inducible factor 1, alpha subunit inhibitor
D01	Mm.135110	NM_016868	Hif3a	Hypoxia inducible factor 3, alpha subunit
D02	Mm.255848	NM_013820	Hk2	Hexokinase 2
D03	Mm.276389	NM_010442	Hmox1	Heme oxygenase (decycling) 1
D04	Mm.202383	NM_008261	Hnf4a	Hepatic nuclear factor 4, alpha
D05	Mm.25613	NM_133662	Ier3	Immediate early response 3
D06	Mm.29254	NM_008343	Igfbp3	Insulin-like growth factor binding protein 3
D07	Mm.383423	NM_033398	Jmjd6	Jumonji domain containing 6
D08	Mm.29324	NM_010699	Ldha	Lactate dehydrogenase A
D09	Mm.248615	NM_010705	Lgals3	Lectin, galactose binding, soluble 3
D10	Mm.172	NM_010728	Lox	Lysyl oxidase
D11	Mm.15918	NM_011945	Map3k1	Mitogen-activated protein kinase kinase kinase 1
D12	Mm.86844	NM_008591	Met	Met proto-oncogene
E01	Mm.2326	NM_010798	Mif	Macrophage migration inhibitory factor
E02	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9
E03	Mm.2154	NM_010847	Mxi1	Max interacting protein 1
E04	Mm.202727	NM_021524	Nampt	Nicotinamide phosphoribosyltransferase
E05	Mm.301039	NM_010881	Ncoa1	Nuclear receptor coactivator 1
E06	Mm.30837	NM_008681	Ndrp1	N-myc downstream regulated gene 1
E07	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
E08	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell

Position	UniGene	GenBank	Symbol	Description
E09	Mm.34102	NM_013614	Odc1	Ornithine decarboxylase, structural 1
E10	Mm.2212	NM_011030	P4ha1	Procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), alpha 1 polypeptide
E11	Mm.16660	NM_011032	P4hb	Prolyl 4-hydroxylase, beta polypeptide
E12	Mm.34411	NM_172665	Pdk1	Pyruvate dehydrogenase kinase, isoenzyme 1
F01	Mm.7373	NM_011065	Per1	Period homolog 1 (Drosophila)
F02	Mm.19669	NM_133232	Pfkfb3	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3
F03	Mm.132391	NM_173019	Pfkfb4	6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4
F04	Mm.269649	NM_008826	Pfk1	Phosphofructokinase, liver, B-type
F05	Mm.273874	NM_019703	Pfkp	Phosphofructokinase, platelet
F06	Mm.391589	NM_023418	Pgam1	Phosphoglycerate mutase 1
F07	Mm.4809	NM_008827	Pgf	Placental growth factor
F08	Mm.336205	NM_008828	Pgk1	Phosphoglycerate kinase 1
F09	Mm.405293	NM_008842	Pim1	Proviral integration site 1
F10	Mm.326167	NM_011099	Pkm2	Pyruvate kinase, muscle
F11	Mm.4183	NM_008873	Plau	Plasminogen activator, urokinase
F12	Mm.209292	NM_009035	Rbpj	Recombination signal binding protein for immunoglobulin kappa J region
G01	Mm.34410	NM_011304	Ruvb12	RuvB-like protein 2
G02	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
G03	Mm.28632	NM_030696	Slc16a3	Solute carrier family 16 (monocarboxylic acid transporters), member 3
G04	Mm.21002	NM_011400	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
G05	Mm.395108	NM_011401	Slc2a3	Solute carrier family 2 (facilitated glucose transporter), member 3
G06	Mm.28683	NM_011638	Tfrc	Transferrin receptor
G07	Mm.4222	NM_009415	Tpi1	Triosephosphate isomerase 1
G08	Mm.222	NM_011640	Trp53	Transformation related protein 53
G09	Mm.410189	NM_023719	Txnip	Thioredoxin interacting protein
G10	Mm.322453	NM_011680	Usf2	Upstream transcription factor 2
G11	Mm.3555	NM_011694	Vdac1	Voltage-dependent anion channel 1
G12	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A
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.
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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