

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

## Human Amino Acid Metabolism II

Cat. no. 330231 PAHS-130ZR

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 Amino Acid Metabolism II RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes important in amino acid biosynthesis and degradation. Of the 20 amino acids required for protein synthesis, mammals synthesize the non-essential amino acids in vivo and must obtain the other essential amino acids from their diet or intestinal flora. The interrelated metabolism of amino acids involves key signaling molecules, vitamins and cofactors. Slight alterations in the expression of these metabolic genes impose potentially adverse consequences on mammalian metabolism. For example, the metabolism of histidine forms histamine, a metabolite central to allergic reactions and vasodilation. Expression levels of the enzyme involved in this reaction, DDC, may be related to allergic sensitivities in affected individuals. Therefore, analysis of genes involved in the biosynthesis and degradation of amino acids unlocks the potential to enhance our understanding of basic biological pathways as well as nutritional status in patients with metabolic disorders or nutritional deprivation. This array includes genes important for the metabolism of alanine, asparagine, aspartic acid, histidine, isoleucine, lysine, phenylalanine, serine, glycine, threonine, tyrosine, and valine. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in amino acid metabolism 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.

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**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

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



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## 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.529735	NM_182662	AADAT	Aminoacidate aminotransferase
A02	Hs.524009	NM_015423	AASDHPPT	Aminoacidate-semialdehyde dehydrogenase-phosphopantetheinyl transferase
A03	Hs.156738	NM_005763	AASS	Aminoacidate-semialdehyde synthase
A04	Hs.336768	NM_000663	ABAT	4-aminobutyrate aminotransferase
A05	Hs.647097	NM_001091	ABP1	Amiloride binding protein 1 (amine oxidase (copper-containing))
A06	Hs.445040	NM_000016	ACADM	Acyl-CoA dehydrogenase, C-4 to C-12 straight chain
A07	Hs.507076	NM_000017	ACADS	Acyl-CoA dehydrogenase, C-2 to C-3 short chain
A08	Hs.81934	NM_001609	ACADSB	Acyl-CoA dehydrogenase, short/branched chain
A09	Hs.571037	NM_005891	ACAT2	Acetyl-CoA acetyltransferase 2
A10	Hs.78989	NM_000671	ADH5	Alcohol dehydrogenase 5 (class III), chi polypeptide
A11	Hs.75527	NM_000026	ADSL	Adenylosuccinate lyase
A12	Hs.498313	NM_001126	ADSS	Adenylosuccinate synthase
B01	Hs.144567	NM_000030	AGXT	Alanine-glyoxylate aminotransferase
B02	Hs.476308	NM_000688	ALAS1	Aminolevulinic acid, delta-, synthase 1
B03	Hs.632733	NM_000690	ALDH2	Aldehyde dehydrogenase 2 family (mitochondrial)
B04	Hs.523841	NM_000694	ALDH3B1	Aldehyde dehydrogenase 3 family, member B1
B05	Hs.371723	NM_001080	ALDH5A1	Aldehyde dehydrogenase 5 family, member A1
B06	Hs.293970	NM_005589	ALDH6A1	Aldehyde dehydrogenase 6 family, member A1
B07	Hs.424907	NM_152435	AMDHD1	Amidohydrolase domain containing 1
B08	Hs.102	NM_000481	AMT	Aminomethyltransferase
B09	Hs.198241	NM_003734	AOC3	Amine oxidase, copper containing 3 (vascular adhesion protein 1)
B10	Hs.491060	NM_018489	ASH1L	Ash1 (absent, small, or homeotic)-like (Drosophila)
B11	Hs.489207	NM_183356	ASNS	Asparagine synthetase (glutamine-hydrolyzing)
B12	Hs.171142	NM_000049	ASPA	Aspartoacylase
C01	Hs.591996	NM_003986	BBOX1	Butyrobetaine (gamma), 2-oxoglutarate dioxygenase (gamma-butyrobetaine hydroxylase) 1
C02	Hs.438993	NM_005504	BCAT1	Branched chain amino-acid transaminase 1, cytosolic
C03	Hs.654441	NM_183050	BCKDHB	Branched chain keto acid dehydrogenase E1, beta polypeptide
C04	Hs.80756	NM_001713	BHMT	Betaine-homocysteine S-methyltransferase
C05	Hs.729536	NM_018397	CHDH	Choline dehydrogenase
C06	Hs.400613	NM_032649	CNDP1	Carnosine dipeptidase 1 (metallopeptidase M20 family)
C07	Hs.370408	NM_000754	COMT	Catechol-O-methyltransferase
C08	Hs.113227	NM_001917	DAO	D-amino-acid oxidase
C09	Hs.591890	NM_000787	DBH	Dopamine beta-hydroxylase (dopamine beta-monoxygenase)
C10	Hs.709187	NM_001918	DBT	Dihydrolipoamide branched chain transacylase E2
C11	Hs.359698	NM_000790	DDC	Dopa decarboxylase (aromatic L-amino acid decarboxylase)
C12	Hs.131711	NM_000108	DLD	Dihydrolipoamide dehydrogenase
D01	Hs.525459	NM_001933	DLST	Dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)
D02	Hs.655653	NM_013391	DMGDH	Dimethylglycine dehydrogenase
D03	Hs.76394	NM_004092	ECHS1	Enoyl CoA hydratase, short chain, 1, mitochondrial
D04	Hs.73875	NM_000137	FAH	Fumarylacetoacetate hydrolase (fumarylacetoacetase)
D05	Hs.415846	NM_006657	FTCD	Formiminotransferase cyclodeaminase
D06	Hs.231829	NM_000818	GAD2	Glutamate decarboxylase 2 (pancreatic islets and brain, 65kDa)
D07	Hs.54609	NM_014291	GCAT	Glycine C-acetyltransferase
D08	Hs.532699	NM_000159	GCDH	Glutaryl-CoA dehydrogenase
D09	Hs.584238	NM_000170	GLDC	Glycine dehydrogenase (decarboxylating)
D10	Hs.144914	NM_018960	GNMT	Glycine N-methyltransferase
D11	Hs.500756	NM_002079	GOT1	Glutamic-oxaloacetic transaminase 1, soluble (aspartate aminotransferase 1)
D12	Hs.103502	NM_005309	GPT	Glutamic-pyruvate transaminase (alanine aminotransferase)
E01	Hs.438289	NM_005327	HADH	Hydroxyacyl-CoA dehydrogenase
E02	Hs.515848	NM_000183	HADHB	Hydroxyacyl-CoA dehydrogenase/3-ketoacyl-CoA thiolase/enoyl-CoA hydratase (trifunctional protein), beta subunit
E03	Hs.1481	NM_002112	HDC	Histidine decarboxylase
E04	Hs.616526	NM_000187	HGD	Homogentisate 1,2-dioxygenase
E05	Hs.406758	NM_152740	HIBADH	3-hydroxyisobutyrate dehydrogenase
E06	Hs.656685	NM_198047	HIBCH	3-hydroxyisobutyryl-CoA hydrolase

Position	UniGene	GenBank	Symbol	Description
E07	Hs.42151	NM_006895	HNMT	Histamine N-methyltransferase
E08	Hs.2899	NM_002150	HPD	4-hydroxyphenylpyruvate dioxygenase
E09	Hs.171280	NM_004493	HSD17B10	Hydroxysteroid (17-beta) dehydrogenase 10
E10	Hs.445403	NM_002161	IARS	Isoleucyl-tRNA synthetase
E11	Hs.183109	NM_000240	MAOA	Monoamine oxidase A
E12	Hs.94949	NM_032601	MCEE	Methylmalonyl CoA epimerase
F01	Hs.407995	NM_002415	MIF	Macrophage migration inhibitory factor (glycosylation-inhibiting factor)
F02	Hs.485527	NM_000255	MUT	Methylmalonyl CoA mutase
F03	Hs.488181	NM_002541	OGDH	Oxoglutarate (alpha-ketoglutarate) dehydrogenase (lipoamide)
F04	Hs.643451	NM_000277	PAH	Phenylalanine hydroxylase
F05	Hs.80741	NM_000282	PCCA	Propionyl CoA carboxylase, alpha polypeptide
F06	Hs.131361	NM_005390	PDHA2	Pyruvate dehydrogenase (lipoamide) alpha 2
F07	Hs.487296	NM_006623	PHGDH	Phosphoglycerate dehydrogenase
F08	Hs.462585	NM_016518	PIPOX	Pipecolic acid oxidase
F09	Hs.153357	NM_001084	PLOD3	Procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3
F10	Hs.1892	NM_002686	PNMT	Phenylethanolamine N-methyltransferase
F11	Hs.120	NM_004905	PRDX6	Peroxiredoxin 6
F12	Hs.494261	NM_021154	PSAT1	Phosphoserine aminotransferase 1
G01	Hs.512656	NM_004577	PSPH	Phosphoserine phosphatase
G02	Hs.198003	NM_007101	SARDH	Sarcosine dehydrogenase
G03	Hs.439023	NM_006843	SDS	Serine dehydratase
G04	Hs.75069	NM_005412	SHMT2	Serine hydroxymethyltransferase 2 (mitochondrial)
G05	Hs.461954	NM_021947	SRR	Serine racemase
G06	Hs.435609	NM_000360	TH	Tyrosine hydroxylase
G07	Hs.133321	NM_018196	TMLHE	Trimethyllysine hydroxylase, epsilon
G08	Hs.467554	NM_000547	TPO	Thyroid peroxidase
G09	Hs.503555	NM_000372	TYR	Tyrosinase (oculocutaneous albinism IA)
G10	Hs.270279	NM_000550	TYRP1	Tyrosinase-related protein 1
G11	Hs.597526	NM_020442	VAR2	Valyl-tRNA synthetase 2, mitochondrial (putative)
G12	Hs.647063	NM_017528	WBSCR22	Williams Beuren syndrome chromosome region 22
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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