

RT² Profiler PCR Array (Rotor-Gene® Format)

Cow Glucose Metabolism

Cat. no. 330231 PABT-006ZR

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 Cow Glucose Metabolism RT² Profiler™ PCR Array profiles the expression of 84 key genes involved in the regulation and enzymatic pathways of glucose and glycogen metabolism. Glycolysis, the TCA cycle and the pentose phosphate pathways break down glucose from carbohydrates into the metabolites necessary for energy production, and gluconeogenesis stores excess energy as glucose. Cells, particularly in skeletal muscle and the liver, store excess glucose as the polysaccharide glycogen, and quickly metabolize it again when necessary. Changes in glucose metabolism gene expression are common in cancerous tissues. Specifically, tumors often show decreased oxidative phosphorylation, even in the presence of sufficient oxygen, due to enhanced transcription of glycolytic genes and/or reduced transcription of TCA cycle genes. In addition, the pathological consequences of diabetes and obesity involve gene expression changes in glucose metabolic pathways. In one notable example, PCK1 overexpression in mice leads to obesity. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in glucose 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 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
1	Bt.41387	NM_001037457	ACLY	ATP citrate lyase
2	Bt.53789	NM_001075591	ACO1	Aconitase 1, soluble
3	Bt.5210	NM_173977	ACO2	Aconitase 2, mitochondrial
4	Bt.24918	NM_001192471	AGL	Amylo-alpha-1, 6-glucosidase, 4-alpha-glucanotransferase
5	Bt.22533	NM_001101915	ALDOA	Aldolase A, fructose-bisphosphate
6	Bt.46035	NM_001034485	ALDOB	Aldolase B, fructose-bisphosphate
7	Bt.49614	NM_001097984	ALDOC	Aldolase C, fructose-bisphosphate
8	Bt.89285	NM_001035402	BPGM	2,3-bisphosphoglycerate mutase
9	Bt.106917	NM_001044721	CS	Citrate synthase
10	Bt.8679	NM_001205730	DLAT	Dihydrolipoamide S-acetyltransferase
11	Bt.105088	NM_001206170	DLD	Dihydrolipoamide dehydrogenase
12	Bt.41191	NM_001075282	DLST	Dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)
13	Bt.22783	NM_174049	ENO1	Enolase 1, (alpha)
14	Bt.20090	NM_001101125	ENO2	Enolase 2 (gamma, neuronal)
15	Bt.49475	NM_001034702	ENO3	Enolase 3 (beta, muscle)
16	Bt.24314	NM_001034447	FBP1	Fructose-1,6-bisphosphatase 1
17	Bt.28208	NM_001046164	FBP2	Fructose-1,6-bisphosphatase 2
18	Bt.45986	NM_001075803	FH	Fumarate hydratase
19	Bt.17113	NM_001076124	G6PC	Glucose-6-phosphatase, catalytic subunit
20	Bt.23154	NM_183364	G6PC3	Glucose 6 phosphatase, catalytic, 3
21	Bt.65227	NM_001244135	G6PD	Glucose-6-phosphate dehydrogenase
22	Bt.48881	NM_001034795	GALM	Galactose mutarotase (aldose 1-epimerase)
23	Bt.47489	NM_001122729	GBE1	Glucan (1,4-alpha-), branching enzyme 1
24	Bt.44137	NM_001102302	GCK	Glucokinase (hexokinase 4)
25	Bt.49587	NM_001040471	GPI	Glucose-6-phosphate isomerase
26	Bt.33944	NM_001102192	GSK3A	Glycogen synthase kinase 3 alpha
27	Bt.48740	NM_001101310	GSK3B	Glycogen synthase kinase 3 beta
28	Bt.37378	NM_001024515	GYSI	Glycogen synthase 1 (muscle)
29	Bt.1945	NM_001192905	GYSI	Glycogen synthase 2 (liver)
30	Bt.111164	XM_005194813	H6PD	Hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)
31	N/A	XM_001255831	HK2	Hexokinase 2
32	Bt.100400	NM_001101929	HK3	Hexokinase 3 (white cell)
33	Bt.13324	NM_181012	IDH1	Isocitrate dehydrogenase 1 (NADP+), soluble
34	Bt.5520	NM_175790	IDH2	Isocitrate dehydrogenase 2 (NADP+), mitochondrial
35	Bt.3898	NM_174644	IDH3A	Isocitrate dehydrogenase 3 (NAD+) alpha
36	Bt.56156	NM_001145872	IDH3B	Isocitrate dehydrogenase 3 (NAD+) beta
37	Bt.23357	NM_001076313	IDH3G	Isocitrate dehydrogenase 3 (NAD+) gamma
38	Bt.3809	NM_174099	LDHA	Lactate dehydrogenase A

Position	UniGene	GenBank	Symbol	Description
39	Bt.5345	NM_001034628	MDH1	Malate dehydrogenase 1, NAD (soluble)
40	Bt.7915	NM_001013587	MDH2	Malate dehydrogenase 2, NAD (mitochondrial)
41	Bt.46406	NM_001076030	OGDH	Oxoglutarate (alpha-ketoglutarate) dehydrogenase (lipoamide)
42	Bt.10147	NM_177946	PC	Pyruvate carboxylase
43	Bt.12768	NM_174737	PCK1	Phosphoenolpyruvate carboxykinase 1 (soluble)
44	Bt.49445	NM_001205594	PCK2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)
45	Bt.19415	NM_001101046	PDHA1	Pyruvate dehydrogenase (lipoamide) alpha 1
46	Bt.49794	NM_001035435	PDHB	Pyruvate dehydrogenase (lipoamide) beta
47	Bt.34049	NM_001205957	PDK1	Pyruvate dehydrogenase kinase, isozyme 1
48	Bt.8286	NM_001075853	PDK2	Pyruvate dehydrogenase kinase, isozyme 2
49	Bt.64359	NM_001101934	PDK3	Pyruvate dehydrogenase kinase, isozyme 3
50	Bt.23505	NM_001101883	PDK4	Pyruvate dehydrogenase kinase, isozyme 4
51	N/A	XM_002694806	PDP2	KIAA1348 protein-like
52	Bt.65397	NM_174781	PDPR	Pyruvate dehydrogenase phosphatase regulatory subunit
53	Bt.5061	NM_001080244	PFKL	Phosphofructokinase, liver
54	Bt.23217	NM_001038111	PGAM2	Phosphoglycerate mutase 2 (muscle)
55	Bt.37560	NM_001034299	PGK1	Phosphoglycerate kinase 1
56	Bt.54191	NM_001123035	PGK2	Phosphoglycerate kinase 2
57	Bt.60804	NM_001038580	PGLS	6-phosphogluconolactonase
58	Bt.59999	NM_001076903	PGM1	Phosphoglucomutase 1
59	Bt.85935	XM_002688226	PGM2	Phosphoglucomutase 2
60	Bt.57470	NM_001045922	PGM3	Phosphoglucomutase 3
61	N/A	XM_604349	PHKA1	Phosphorylase kinase, alpha 1 (muscle)
62	N/A	XM_002694773	PHKB	Phosphorylase kinase, beta
63	Bt.59329	NM_001046486	PHKG1	Phosphorylase kinase, gamma 1 (muscle)
64	Bt.11190	NM_001046128	PHKG2	Phosphorylase kinase, gamma 2 (testis)
65	Bt.61163	NM_001076176	PKLR	Pyruvate kinase, liver and RBC
66	Bt.63570	NM_001046189	PRPS1	Phosphoribosyl pyrophosphate synthetase 1
67	Bt.87335	NM_001102483	PRPS1L1	Phosphoribosyl pyrophosphate synthetase 1-like 1
68	Bt.34369	NM_001114152	PRPS2	Phosphoribosyl pyrophosphate synthetase 2
69	Bt.39311	NM_001075203	PYGL	Phosphorylase, glycogen, liver
70	Bt.16003	NM_175786	PYGM	Phosphorylase, glycogen, muscle
71	Bt.13335	NM_001191271	RBKS	Ribokinase
72	Bt.11798	NM_001098079	RPE	Ribulose-5-phosphate-3-epimerase
73	Bt.20216	NM_001035433	RPIA	Ribose 5-phosphate isomerase A
74	Bt.24449	NM_174178	SDHA	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)
75	Bt.13128	NM_001040483	SDHB	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)
76	Bt.48821	NM_175814	SDHC	Succinate dehydrogenase complex, subunit C, integral membrane protein, 15kDa
77	Bt.65279	NM_174179	SDHD	Succinate dehydrogenase complex, subunit D, integral membrane protein
78	Bt.91195	NM_001075493	SUCLA2	Succinate-CoA ligase, ADP-forming, beta subunit

Position	UniGene	GenBank	Symbol	Description
79	Bt.38906	NM_001035082	SUCLG1	Succinate-CoA ligase, alpha subunit
80	Bt.23260	NM_001034639	SUCLG2	Succinate-CoA ligase, GDP-forming, beta subunit
81	Bt.7283	NM_001035283	TALDO1	Transaldolase 1
82	Bt.4750	NM_001003906	TKT	Transketolase
83	Bt.3487	NM_001013589	TPI1	Triosephosphate isomerase 1
84	Bt.3567	NM_174212	UGP2	UDP-glucose pyrophosphorylase 2
85	Bt.14186	NM_173979	ACTB	Actin, beta
86	Bt.87389	NM_001034034	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
87	Bt.49238	NM_001034035	HPRT1	Hypoxanthine phosphoribosyltransferase 1
88	Bt.22662	NM_001075742	TBP	TATA box binding protein
89	Bt.111451	NM_174814	YWHAZ	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide
90	N/A	SA_00137	BGDC	Cow Genomic DNA Contamination
91	N/A	SA_00104	RTC	Reverse Transcription Control
92	N/A	SA_00104	RTC	Reverse Transcription Control
93	N/A	SA_00104	RTC	Reverse Transcription Control
94	N/A	SA_00103	PPC	Positive PCR Control
95	N/A	SA_00103	PPC	Positive PCR Control
96	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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