

RT² Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

Cow Glucose Metabolism

Cat. no. 330231 PABT-006ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format A	Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well block); Bio-Rad® models iCycler®, iQ™ 5, MyiQ™, MyiQ2; Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®; Takara TP-800
RT ² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT ² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT ² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT ² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT ² Profiler PCR Array, Format H	Fluidigm® BioMark™



Sample & Assay Technologies

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 formats A, C, D, E, F, and G are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products. RT² Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

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 (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT² Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACLY	ACO1	ACO2	AGL	ALDOA	ALDOB	ALDOC	BPGM	CS	DLAT	DLD	DLST
B	ENO1	ENO2	ENO3	FBP1	FBP2	FH	G6PC	G6PC3	G6PD	GALM	GBE1	GCK
C	GPI	GSK3A	GSK3B	GLYS1	GLYS2	H6PD	HK2	HK3	IDH1	IDH2	IDH3A	IDH3B
D	IDH3G	LDHA	MDH1	MDH2	OGDH	PC	PCK1	PCK2	PDHA1	PDHB	PDK1	PDK2
E	PDK3	PDK4	PDP2	PDPK	PFKL	PGAM2	PGK1	PGK2	PGLS	PGM1	PGM2	PGM3
F	PHKA1	PHKB	PHKG1	PHKG2	PKLR	PRPS1	PRPS1L1	PRPS2	PYGL	PYGM	RBSK	RPE
G	RPIA	SDHA	SDHB	SDHC	SDHD	SUCLA2	SUCLG1	SUCLG2	TALDO1	TKT	TPH1	UGP2
H	ACTB	GAPDH	HPRT1	TBP	YWHAZ	BGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	Bt.41387	NM_001037457	ACLY	ATP citrate lyase	PPB04746A
A02	Bt.53789	NM_001075591	ACO1	Aconitase 1, soluble	PPB05444A
A03	Bt.5210	NM_173977	ACO2	Aconitase 2, mitochondrial	PPB00171A
A04	Bt.24918	NM_001192471	AGL	Amylo-alpha-1, 6-glucosidase, 4-alpha-glucanotransferase	PPB06918A
A05	Bt.22533	NM_001101915	ALDOA	Aldolase A, fructose-bisphosphate	PPB04099A
A06	Bt.46035	NM_001034485	ALDOB	Aldolase B, fructose-bisphosphate	PPB06362A
A07	Bt.49614	NM_001097984	ALDOC	Aldolase C, fructose-bisphosphate	PPB02156A
A08	Bt.89285	NM_001035402	BPGM	2,3-bisphosphoglycerate mutase	PPB09715A
A09	Bt.106917	NM_001044721	CS	Citrate synthase	PPB00004A
A10	Bt.8679	NM_001205730	DLAT	Dihydrolipoamide S-acetyltransferase	PPB05346A
A11	Bt.105088	NM_001206170	DLD	Dihydrolipoamide dehydrogenase	PPB09754A
A12	Bt.41191	NM_001075282	DLST	Dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)	PPB03067A
B01	Bt.22783	NM_174049	ENO1	Enolase 1, (alpha)	PPB00272A
B02	Bt.20090	NM_001101125	ENO2	Enolase 2 (gamma, neuronal)	PPB08310A
B03	Bt.49475	NM_001034702	ENO3	Enolase 3 (beta, muscle)	PPB11878A
B04	Bt.24314	NM_001034447	FBP1	Fructose-1,6-bisphosphatase 1	PPB05634A
B05	Bt.28208	NM_001046164	FBP2	Fructose-1,6-bisphosphatase 2	PPB05869A
B06	Bt.45986	NM_001075803	FH	Fumarate hydratase	PPB07412A
B07	Bt.17113	NM_001076124	G6PC	Glucose-6-phosphatase, catalytic subunit	PPB10980A
B08	Bt.23154	NM_183364	G6PC3	Glucose 6 phosphatase, catalytic, 3	PPB01612A
B09	Bt.65227	NM_001244135	G6PD	Glucose-6-phosphate dehydrogenase	PPB00297A
B10	Bt.48881	NM_001034795	GALM	Galactose mutarotase (aldose 1-epimerase)	PPB13696A
B11	Bt.47489	NM_001122729	GBE1	Glucan (1,4-alpha-), branching enzyme 1	PPB13349A
B12	Bt.44137	NM_001102302	GCK	Glucokinase (hexokinase 4)	PPB13662A
C01	Bt.49587	NM_001040471	GPI	Glucose-6-phosphate isomerase	PPB00071A
C02	Bt.33944	NM_001102192	GSK3A	Glycogen synthase kinase 3 alpha	PPB10474A
C03	Bt.48740	NM_001101310	GSK3B	Glycogen synthase kinase 3 beta	PPB15734B
C04	Bt.37378	NM_001024515	GLYS1	Glycogen synthase 1 (muscle)	PPB04702A
C05	Bt.1945	NM_001192905	GLYS2	Glycogen synthase 2 (liver)	PPB10623A
C06	Bt.111164	XM_005194813	H6PD	Hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)	PPB12367A
C07	N/A	XM_001255831	HK2	Hexokinase 2	PPB15585A
C08	Bt.100400	NM_001101929	HK3	Hexokinase 3 (white cell)	PPB04526A
C09	Bt.13324	NM_181012	IDH1	Isocitrate dehydrogenase 1 (NADP+), soluble	PPB00334A
C10	Bt.5520	NM_175790	IDH2	Isocitrate dehydrogenase 2 (NADP+), mitochondrial	PPB01417A
C11	Bt.3898	NM_174644	IDH3A	Isocitrate dehydrogenase 3 (NAD+) alpha	PPB01088A
C12	Bt.56156	NM_001145872	IDH3B	Isocitrate dehydrogenase 3 (NAD+) beta	PPB12458A
D01	Bt.23357	NM_001076313	IDH3G	Isocitrate dehydrogenase 3 (NAD+) gamma	PPB12776A
D02	Bt.3809	NM_174099	LDHA	Lactate dehydrogenase A	PPB00351A
D03	Bt.5345	NM_001034628	MDH1	Malate dehydrogenase 1, NAD (soluble)	PPB10179A
D04	Bt.7915	NM_001013587	MDH2	Malate dehydrogenase 2, NAD (mitochondrial)	PPB00372A
D05	Bt.46406	NM_001076030	OGDH	Oxoglutarate (alpha-ketoglutarate) dehydrogenase (lipoamide)	PPB10005A
D06	Bt.10147	NM_177946	PC	Pyruvate carboxylase	PPB01558A
D07	Bt.12768	NM_174737	PCK1	Phosphoenolpyruvate carboxykinase 1 (soluble)	PPB01210A
D08	Bt.49445	NM_001205594	PCK2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)	PPB01211A

Position	UniGene	GenBank	Symbol	Description	Assay
D09	Bt.19415	NM_001101046	PDHA1	Pyruvate dehydrogenase (lipoamide) alpha 1	PPB01733A
D10	Bt.49794	NM_001035435	PDHB	Pyruvate dehydrogenase (lipoamide) beta	PPB12558A
D11	Bt.34049	NM_001205957	PDK1	Pyruvate dehydrogenase kinase, isozyme 1	PPB08734A
D12	Bt.8286	NM_001075853	PDK2	Pyruvate dehydrogenase kinase, isozyme 2	PPB08004A
E01	Bt.64359	NM_001101934	PDK3	Pyruvate dehydrogenase kinase, isozyme 3	PPB04616A
E02	Bt.23505	NM_001101883	PDK4	Pyruvate dehydrogenase kinase, isozyme 4	PPB03274A
E03	N/A	XM_002694806	PDP2	KIAA1348 protein-like	PPB18891A
E04	Bt.65397	NM_174781	PDP2	Pyruvate dehydrogenase phosphatase regulatory subunit	PPB01295A
E05	Bt.5061	NM_001080244	PFKL	Phosphofructokinase, liver	PPB03779A
E06	Bt.23217	NM_001038111	PGAM2	Phosphoglycerate mutase 2 (muscle)	PPB06291A
E07	Bt.37560	NM_001034299	PGK1	Phosphoglycerate kinase 1	PPB03316A
E08	Bt.54191	NM_001123035	PGK2	Phosphoglycerate kinase 2	PPB10912A
E09	Bt.60804	NM_001038580	PGLS	6-phosphogluconolactonase	PPB13501A
E10	Bt.59999	NM_001076903	PGM1	Phosphoglucomutase 1	PPB09941A
E11	Bt.85935	XM_002688226	PGM2	Phosphoglucomutase 2	PPB03113A
E12	Bt.57470	NM_001045922	PGM3	Phosphoglucomutase 3	PPB02596A
F01	N/A	XM_604349	PHKA1	Phosphorylase kinase, alpha 1 (muscle)	PPB08309A
F02	N/A	XM_002694773	PHKB	Phosphorylase kinase, beta	PPB04996A
F03	Bt.59329	NM_001046486	PHKG1	Phosphorylase kinase, gamma 1 (muscle)	PPB12080A
F04	Bt.11190	NM_001046128	PHKG2	Phosphorylase kinase, gamma 2 (testis)	PPB05321A
F05	Bt.61163	NM_001076176	PKLR	Pyruvate kinase, liver and RBC	PPB11474A
F06	Bt.63570	NM_001046189	PRPS1	Phosphoribosyl pyrophosphate synthetase 1	PPB14815A
F07	Bt.87335	NM_001102483	PRPS1L1	Phosphoribosyl pyrophosphate synthetase 1-like 1	PPB02021A
F08	Bt.34369	NM_001114152	PRPS2	Phosphoribosyl pyrophosphate synthetase 2	PPB10670A
F09	Bt.39311	NM_001075203	PYGL	Phosphorylase, glycogen, liver	PPB02516A
F10	Bt.16003	NM_175786	PYGM	Phosphorylase, glycogen, muscle	PPB01412A
F11	Bt.13335	NM_001191271	RBKS	Ribokinase	PPB05561A
F12	Bt.11798	NM_001098079	RPE	Ribulose-5-phosphate-3-epimerase	PPB09709A
G01	Bt.20216	NM_001035433	RPIA	Ribose 5-phosphate isomerase A	PPB12469A
G02	Bt.24449	NM_174178	SDHA	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)	PPB00460A
G03	Bt.13128	NM_001040483	SDHB	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)	PPB01291A
G04	Bt.48821	NM_175814	SDHC	Succinate dehydrogenase complex, subunit C, integral membrane protein, 15kDa	PPB01442A
G05	Bt.65279	NM_174179	SDHD	Succinate dehydrogenase complex, subunit D, integral membrane protein	PPB00461A
G06	Bt.91195	NM_001075493	SUCLA2	Succinate-CoA ligase, ADP-forming, beta subunit	PPB04729A
G07	Bt.38906	NM_001035082	SUCLG1	Succinate-CoA ligase, alpha subunit	PPB04264A
G08	Bt.23260	NM_001034639	SUCLG2	Succinate-CoA ligase, GDP-forming, beta subunit	PPB10680A
G09	Bt.7283	NM_001035283	TALDO1	Transaldolase 1	PPB05619A
G10	Bt.4750	NM_001003906	TKT	Transketolase	PPB01902A
G11	Bt.3487	NM_001013589	TPI1	Triosephosphate isomerase 1	PPB00494A
G12	Bt.3567	NM_174212	UGP2	UDP-glucose pyrophosphorylase 2	PPB00511A
H01	Bt.14186	NM_173979	ACTB	Actin, beta	PPB00173A
H02	Bt.87389	NM_001034034	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	PPB00298A
H03	Bt.49238	NM_001034035	HPRT1	Hypoxanthine phosphoribosyltransferase 1	PPB00330A
H04	Bt.22662	NM_001075742	TBP	TATA box binding protein	PPB06797A
H05	Bt.111451	NM_174814	YWHAZ	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	PPB01343A
H06	N/A	SA_00137	BGDC	Cow Genomic DNA Contamination	PPB71596A
H07	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H08	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H09	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H10	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H11	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H12	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A

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 qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad models CFX96, CFX384, DNA Engine Opticon 2; Bio-Rad/MJ Research Chromo4; Roche LightCycler 480 (96-well and 384-well); all other cyclers	330500
RT ² SYBR Green ROX [™] qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 5700, 7000, 7300, 7500 [Standard and FAST], 7700, 7900HT 96-well block [Standard and FAST] and 384-well block, StepOnePlus; Eppendorf Mastercycler ep realplex models 2, 2S, 4, 4S; Stratagene models Mx3000P, Mx3005P, Mx4000; Takara TP-800	330520
RT ² SYBR Green Fluor qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler, iQ5, MyiQ, MyiQ2	330510

* 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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