

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

Chinese Hamster Ovary (CHO) Cell Glucose Metabolism

Cat. no. 330231 PAJJ-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 Chinese Hamster Ovary (CHO) Cell 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. A set of controls present on each array enables data analysis using the $\Delta\Delta CT$ method of relative quantification, assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies 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	Aco2	Akr1a1	Aldoa	Aldob	Aldoc	Dlat	Dld	Eno1	Eno2	G6pc	G6pc3	Gbe1
B	Gys1	Gys2	H6pd	LOC100764431	Idh3a	Sdhc	Pgk1	Gpi	G6pd	Cs	LOC100751672	Idh3g
C	LOC100753288	Tktl2	Pgk2	Ireb2	Rpe	LOC100756617	Galm	Gsk3a	Bpgm	Dlat	Pck1	Idh1
D	Gsk3b	Fbp2	LOC100761539	Pgam2	Pfkf	Rbks	Pdp2	Gck	Pdk4	Mdh1	Rpio	Hk3
E	Aco1	Gapdhs	Ldhh	Eno3	Sdhb	Idh3b	Hk2	Agf	Fh	Acly	Tkt	Sdhd
F	Pdhb	Mdh1b	Ogdh	Pck2	Pc	Pdha1	Pdhx	Pdk1	Pdk2	Pdk3	Pdpr	Pgm1
G	Pgm2	Pgm3	Phka1	Phka2	Phkg1	Phkg2	Pklr	Pygm	Sdha	Sucg2	Taldo1	Ugp2
H	Actb	Actr5	B2m	Gapdh	Hprt1	JGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	N/A	XM_003514310	Aco2	Aconitase 2, mitochondrial	PPJ02164A
A02	N/A	XM_003497372	Akr1a1	Aldo-keto reductase family 1, member A1 (aldehyde reductase)	PPJ00098A
A03	N/A	XM_003510103	Aldoa	Aldolase A, fructose-bisphosphate	PPJ04582A
A04	N/A	XM_003504016	Aldob	Aldolase B, fructose-bisphosphate	PPJ01319A
A05	N/A	XM_003514876	Aldoc	Aldolase C, fructose-bisphosphate	PPJ02467A
A06	N/A	XM_003498531	Dlat	Dihydrolipoamide S-acetyltransferase (E2 component of pyruvate dehydrogenase complex)	PPJ04903A
A07	N/A	NM_001246697	Dld	Dihydrolipoamide dehydrogenase	PPJ00289A
A08	N/A	XM_003512016	Eno1	Enolase 1, alpha non-neuron	PPJ00860A
A09	N/A	XM_003496067	Eno2	Enolase 2, gamma neuronal	PPJ01971A
A10	N/A	XM_003504673	G6pc	Glucose-6-phosphatase, catalytic	PPJ02959A
A11	N/A	XM_003504490	G6pc3	Glucose 6 phosphatase, catalytic, 3	PPJ00926A
A12	N/A	XM_007628857	Gbe1	Glucan (1,4-alpha-), branching enzyme 1	PPJ04696A
B01	N/A	XM_003508637	Gys1	Glycogen synthase 1, muscle	PPJ04178A
B02	N/A	XM_003503164	Gys2	Glycogen synthase 2	PPJ04348A
B03	N/A	XM_007631987	H6pd	Hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)	PPJ04238A
B04	N/A	XM_007608167	LOC100764431	Isocitrate dehydrogenase 2 (NADP+), mitochondrial	PPJ03185A
B05	N/A	XM_003497898	Idh3a	Isocitrate dehydrogenase 3 (NAD+) alpha	PPJ01173A
B06	N/A	NM_001246826	Sdhc	Integral membrane protein CII-3	PPJ05227A
B07	N/A	NM_001246725	Pgk1	Phosphoglycerate kinase	PPJ05241A
B08	N/A	NM_001246726	Gpi	Glucose phosphate isomerase	PPJ05242A
B09	N/A	NM_001246727	G6pd	Glucose-6-phosphate dehydrogenase	PPJ05243A
B10	N/A	XM_007609539	Cs	Citrate synthase, mitochondrial-like	PPJ05377A
B11	N/A	XM_007620370	LOC100751672	L-lactate dehydrogenase C chain-like	PPJ05979A
B12	N/A	XM_007628125	Idh3g	Isocitrate dehydrogenase [NAD] subunit gamma 1, mitochondrial-like	PPJ06017A
C01	N/A	XM_007638757	LOC100753288	Glycogen phosphorylase, liver form	PPJ06794A
C02	N/A	XM_003504012	Tktl2	Transketolase-like protein 2-like	PPJ07176A
C03	N/A	XM_003505647	Pgk2	Phosphoglycerate kinase 2-like	PPJ07785A
C04	N/A	XM_003497904	Ireb2	Iron-responsive element-binding protein 2-like	PPJ08281A
C05	N/A	XM_003499286	Rpe	Ribulose-phosphate 3-epimerase-like	PPJ08285A
C06	N/A	XM_003515668	LOC100756617	Alcohol dehydrogenase 1-like	PPJ08535A
C07	N/A	XM_003506567	Galm	Aldose 1-epimerase-like	PPJ08696A
C08	N/A	XM_007616698	Gsk3a	Glycogen synthase kinase 3 alpha	PPJ08744A
C09	N/A	XM_003513040	Bpgm	Bisphosphoglycerate mutase-like	PPJ08984A
				Dihydrolipoyllysine-residue succinyltransferase component of	

Position	UniGene	GenBank	Symbol	Description	Assay
C10	N/A	XM_007628551	Dlst	2-oxoglutarate dehydrogenase complex, mitochondrial-like	PPJ09430A
C11	N/A	XM_003501432	Pck1	Phosphoenolpyruvate carboxykinase 1 (soluble)	PPJ09577A
C12	N/A	XM_003506911	Idh1	Isocitrate dehydrogenase [NADP] cytoplasmic-like	PPJ09668A
D01	N/A	XM_007622006	Gsk3b	Glycogen synthase kinase 3 beta	PPJ10627A
D02	N/A	XM_003515379	Fbp2	Fructose-1,6-bisphosphatase isozyme 2-like	PPJ10816A
D03	N/A	XM_003515380	LOC100761539	Fructose-1,6-bisphosphatase 1-like	PPJ10960A
D04	N/A	XM_003504748	Pgam2	Phosphoglycerate mutase 2-like	PPJ11142A
D05	N/A	XM_003500582	Pfkfb	6-phosphofructokinase, liver type-like	PPJ11227A
D06	N/A	XM_007615525	Rbks	Ribokinase-like	PPJ11360A
D07	N/A	XM_007628193	Pdp2	Pyruvate dehydrogenase [acetyl-transferring]-phosphatase 2-like	PPJ11581A
D08	N/A	XM_007627178	Gck	Glucokinase-like	PPJ11702A
D09	N/A	XM_003506651	Pdk4	Pyruvate dehydrogenase [lipoyamide] kinase-like	PPJ11852A
D10	N/A	XM_003502140	Mdh1	Malate dehydrogenase, cytoplasmic-like	PPJ12290A
D11	N/A	XM_007609801	Rpia	Ribose-5-phosphate isomerase-like	PPJ12628A
D12	N/A	XM_003498135	Hk3	Hexokinase-3-like	PPJ13010A
E01	N/A	XM_003505969	Aco1	Cytoplasmic aconitate hydratase-like	PPJ13059A
E02	N/A	XM_007624374	Gapdhs	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific-like	PPJ13927A
E03	N/A	XM_007624678	Ldhd	L-lactate dehydrogenase B chain-like	PPJ15119A
E04	N/A	XM_003497205	Eno3	Beta-enolase-like	PPJ15487A
E05	N/A	XM_007653636	Sdhb	Succinate dehydrogenase [ubiquinone] iron-sulfur subunit, mitochondrial-like	PPJ15526A
E06	N/A	XM_003499044	Idh3b	Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial-like	PPJ15700A
E07	N/A	XM_003513854	Hk2	Hexokinase-2-like	PPJ15929A
E08	N/A	XM_003513213	Agl	Glycogen debranching enzyme-like	PPJ15975A
E09	N/A	XM_003499844	Fh	Fumarate hydratase, mitochondrial-like	PPJ16372A
E10	N/A	XM_007633272	Acly	ATP-citrate synthase-like	PPJ16417B
E11	N/A	XM_003496115	Tkt	Transketolase-like	PPJ16738A
E12	N/A	XM_003498535	Sdhc	Succinate dehydrogenase [ubiquinone] cytochrome b small subunit, mitochondrial-like	PPJ16989A
F01	N/A	XM_007613428	Pdhd	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial-like	PPJ17108B
F02	N/A	XM_003502117	Mdh1b	Malate dehydrogenase 1B, NAD (soluble)	PPJ01526A
F03	N/A	XM_003504758	Ogdh	Oxoglutarate dehydrogenase (lipoyamide)	PPJ03258A
F04	N/A	XM_003502068	Pck2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)	PPJ02843A
F05	N/A	NM_001252297	Pc	Pyruvate carboxylase	PPJ02105A
F06	N/A	NM_001252299	Pdha1	Pyruvate dehydrogenase E1 alpha 1	PPJ05154A
F07	N/A	XM_003497445	Pdhd	Pyruvate dehydrogenase complex, component X	PPJ00332A
F08	N/A	XM_007611707	Pdk1	Pyruvate dehydrogenase kinase, isoenzyme 1	PPJ05014A
F09	N/A	XM_003503956	Pdk2	Pyruvate dehydrogenase kinase, isoenzyme 2	PPJ02055A
F10	N/A	XM_003505691	Pdk3	Pyruvate dehydrogenase kinase, isoenzyme 3	PPJ04275A
F11	N/A	XM_003509676	Pdpr	Pyruvate dehydrogenase phosphatase regulatory subunit	PPJ04783A
F12	N/A	XM_003513481	Pgm1	Phosphoglucomutase 1	PPJ02535A
G01	N/A	XM_007614528	Pgm2	Phosphoglucomutase 2	PPJ00915A
G02	N/A	XM_003495640	Pgm3	Phosphoglucomutase 3	PPJ02836A
G03	N/A	XM_007633368	Phka1	Phosphorylase kinase alpha 1	PPJ03233A
G04	N/A	XM_003499492	Phka2	Phosphorylase kinase alpha 2	PPJ01177A
G05	N/A	XM_003509482	Phkg1	Phosphorylase kinase gamma 1	PPJ01142A
G06	N/A	XM_007611240	Phkg2	Phosphorylase kinase, gamma 2 (testis)	PPJ00441B
G07	N/A	XM_003501584	Pklr	Pyruvate kinase liver and red blood cell	PPJ01378A
G08	N/A	XM_003510709	Pygm	Muscle glycogen phosphorylase	PPJ01753A
G09	N/A	XM_003513635	Sdha	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)	PPJ00402A
G10	N/A	XM_003495200	Succlg2	Succinate-Coenzyme A ligase, GDP-forming, beta subunit	PPJ00725A
G11	N/A	NM_001246775	Taldo1	Transaldolase 1	PPJ00221A
G12	N/A	NM_001246758	Ugp2	UDP-glucose pyrophosphorylase 2	PPJ00203A
H01	N/A	NM_001244575	Actb	Actin, beta	PPJ00318A
H02	N/A	XM_007607973	Acr5	ARP5 actin-related protein 5 homolog (yeast)	PPJ03378A
H03	N/A	NM_001246674	B2m	Beta-2 microglobulin	PPJ00271A
H04	N/A	NM_001244854	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase	PPJ00327A
H05	N/A	XM_007623161	Hprt1	Hypoxanthine-guanine phosphoribosyltransferase-like	PPJ14829A
H06	N/A	SA_00519	JGDC	Hamster Genomic DNA Contamination	PPJ00001A
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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