

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

Rat Glucose Metabolism

Cat. no. 330231 PARN-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 Rat 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	Ag1	Aldoa	Aldob	Aldoc	Bpgm	Cs	Dlat	Dld	Dlst
B	Eno1	Eno2	Eno3	Fbp1	Fbp2	Fh1	G6pc	G6pc3	G6pd	Galm	Gapdh	Gapdhs
C	Gck	Gpi	Gsk3a	Gsk3b	Gys1	Gys2	H6pd	Hk2	Hk3	Idh1	Idh2	Idh3a
D	Idh3b	Idh3g	Mdh1	Mdh1b	Mdh2	Ogdhl	Pc	Pck1	Pck2	Pdha2	Pdhd	Pdhx
E	Pdk1	Pdk2	Pdk3	Pdk4	Pdp2	Pdpr	Pfkfb	Pgam2	Pgk1	Pgk2	Pgls	Pgm1
F	Pgm2	Pgm3	Phk1	Phkb	Phkg1	Phkg2	Pklr	Prps1	Prps11l	Pygl	Pygm	Rbks
G	Rpia	Sdha	Sdhb	Sdhc	Sdhf	Suc2a2	Suc2g1	Suc2g2	Taldo1	Tkt	Tpi1	Ugp2
H	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.29771	NM_016987	Acly	ATP citrate lyase
A02	Rn.35934	NM_017321	Aco1	Aconitase 1, soluble
A03	Rn.43737	NM_024398	Aco2	Aconitase 2, mitochondrial
A04	Rn.34559	NM_001108564	Ag1	Amylo-1,6-glucosidase, 4-alpha-glucanotransferase
A05	Rn.1774	NM_012495	Aldoa	Aldolase A, fructose-bisphosphate
A06	Rn.98207	NM_012496	Aldob	Aldolase B, fructose-bisphosphate
A07	Rn.11211	NM_012497	Aldoc	Aldolase C, fructose-bisphosphate
A08	Rn.204528	NM_199382	Bpgm	2,3-bisphosphoglycerate mutase
A09	Rn.66581	NM_130755	Cs	Citrate synthase
A10	Rn.15413	NM_031025	Dlat	Dihydrolipoamide S-acetyltransferase
A11	Rn.86962	NM_199385	Dld	Dihydrolipoamide dehydrogenase
A12	Rn.99702	NM_001006981	Dlst	Dihydrolipoamide S-succinyltransferase (E2 component of 2-oxo-glutarate complex)
B01	Rn.4236	NM_012554	Eno1	Enolase 1, (alpha)
B02	Rn.10828	NM_139325	Eno2	Enolase 2, gamma, neuronal
B03	Rn.3443	NM_012949	Eno3	Enolase 3, beta, muscle
B04	Rn.33703	NM_012558	Fbp1	Fructose-1,6-bisphosphatase 1
B05	Rn.15319	NM_053716	Fbp2	Fructose-1,6-bisphosphatase 2
B06	Rn.29782	NM_017005	Fh1	Fumarate hydratase 1
B07	Rn.10992	NM_013098	G6pc	Glucose-6-phosphatase, catalytic subunit
B08	Rn.66254	NM_176077	G6pc3	Glucose 6 phosphatase, catalytic, 3
B09	Rn.11040	NM_017006	G6pd	Glucose-6-phosphate dehydrogenase
B10	Rn.83639	NM_001007704	Galm	Galactose mutarotase (aldose 1-epimerase)
B11	Rn.91450	NM_017008	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
B12	Rn.64496	NM_023964	Gapdhs	Glyceraldehyde-3-phosphate dehydrogenase, spermatogenic
C01	Rn.10447	NM_012565	Gck	Glucokinase
C02	Rn.84435	NM_207592	Gpi	Glucose phosphate isomerase
C03	Rn.36807	NM_017344	Gsk3a	Glycogen synthase kinase 3 alpha
C04	Rn.10426	NM_032080	Gsk3b	Glycogen synthase kinase 3 beta
C05	Rn.95278	NM_001109615	Gys1	Glycogen synthase 1, muscle
C06	Rn.2906	NM_013089	Gys2	Glycogen synthase 2
C07	Rn.17292	NM_001106698	H6pd	Hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)
C08	Rn.91375	NM_012735	Hk2	Hexokinase 2
C09	Rn.162179	NM_022179	Hk3	Hexokinase 3 (white cell)
C10	Rn.3561	NM_031510	Idh1	Isocitrate dehydrogenase 1 (NADP+), soluble
C11	Rn.3490	NM_001014161	Idh2	Isocitrate dehydrogenase 2 (NADP+), mitochondrial
C12	Rn.95104	NM_053638	Idh3a	Isocitrate dehydrogenase 3 (NAD+) alpha
D01	Rn.1093	NM_053581	Idh3b	Isocitrate dehydrogenase 3 (NAD+) beta
D02	Rn.2837	NM_031551	Idh3g	Isocitrate dehydrogenase 3 (NAD), gamma
D03	Rn.13492	NM_033235	Mdh1	Malate dehydrogenase 1, NAD (soluble)
D04	Rn.102913	NM_001108221	Mdh1b	Malate dehydrogenase 1B, NAD (soluble)
D05	Rn.1011	NM_031151	Mdh2	Malate dehydrogenase 2, NAD (mitochondrial)
D06	Rn.38202	NM_001106062	Ogdhl	Oxoglutarate dehydrogenase-like
D07	Rn.11094	NM_012744	Pc	Pyruvate carboxylase
D08	Rn.104376	NM_198780	Pck1	Phosphoenolpyruvate carboxykinase 1 (soluble)

Position	UniGene	GenBank	Symbol	Description
D09	Rn.35508	NM_001108377	Pck2	Phosphoenolpyruvate carboxykinase 2 (mitochondrial)
D10	Rn.11126	NM_053994	Pdha2	Pyruvate dehydrogenase (lipoamide) alpha 2
D11	Rn.102424	NM_001007620	Pdhb	Pyruvate dehydrogenase (lipoamide) beta
D12	Rn.2260	NM_001044242	Pdhx	Pyruvate dehydrogenase complex, component X
E01	Rn.11185	NM_053826	Pdk1	Pyruvate dehydrogenase kinase, isozyme 1
E02	Rn.88597	NM_030872	Pdk2	Pyruvate dehydrogenase kinase, isozyme 2
E03	Rn.18101	NM_001106581	Pdk3	Pyruvate dehydrogenase kinase, isozyme 3
E04	Rn.30070	NM_053551	Pdk4	Pyruvate dehydrogenase kinase, isozyme 4
E05	Rn.220381	NM_145091	Pdp2	Pyruvate dehydrogenase phosphatase catalytic subunit 2
E06	Rn.21088	NM_001107430	Pdpr	Pyruvate dehydrogenase phosphatase regulatory subunit
E07	Rn.4212	NM_013190	Pfkf	Phosphofructokinase, liver
E08	Rn.9738	NM_017328	Pgam2	Phosphoglycerate mutase 2 (muscle)
E09	Rn.108127	NM_053291	Pgk1	Phosphoglycerate kinase 1
E10	Rn.50944	NM_001012130	Pgk2	Phosphoglycerate kinase 2
E11	Rn.19855	NM_001106066	Pgls	6-phosphogluconolactonase
E12	Rn.9970	NM_017033	Pgm1	Phosphoglucomutase 1
F01	Rn.203347	NM_001106007	Pgm2	Phosphoglucomutase 2
F02	Rn.24236	NM_001108772	Pgm3	Phosphoglucomutase 3
F03	Rn.48743	NM_022626	Phka1	Phosphorylase kinase, alpha 1
F04	Rn.212212	NM_001014152	Phkb	Phosphorylase kinase, beta
F05	Rn.10399	NM_031573	Phkg1	Phosphorylase kinase, gamma 1
F06	Rn.11153	NM_080584	Phkg2	Phosphorylase kinase, gamma 2 (testis)
F07	Rn.48821	NM_012624	Pklr	Pyruvate kinase, liver and RBC
F08	Rn.9761	NM_017243	Prps1	Phosphoribosyl pyrophosphate synthetase 1
F09	Rn.218454	NM_001105678	Prps1l1	Phosphoribosyl pyrophosphate synthetase 1-like 1
F10	Rn.21399	NM_022268	Pygl	Phosphorylase, glycogen, liver
F11	Rn.11238	NM_012638	Pygm	Phosphorylase, glycogen, muscle
F12	Rn.145214	NM_001108703	Rbks	Ribokinase
G01	Rn.12446	NM_001108632	Rpia	Ribose 5-phosphate isomerase A
G02	Rn.101725	NM_130428	Sdha	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)
G03	Rn.3902	NM_001100539	Sdhb	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)
G04	Rn.1698	NM_001005534	Sdhc	Succinate dehydrogenase complex, subunit C, integral membrane protein
G05	Rn.3040	NM_198788	Sdhd	Succinate dehydrogenase complex, subunit D, integral membrane protein
G06	Rn.62159	NM_001108387	SucLa2	Succinate-CoA ligase, ADP-forming, beta subunit
G07	Rn.3766	NM_053752	SucLg1	Succinate-CoA ligase, alpha subunit
G08	Rn.202591	NM_001100750	SucLg2	Succinate-CoA ligase, GDP-forming, beta subunit
G09	Rn.3136	NM_031811	Taldo1	Transaldolase 1
G10	Rn.5950	NM_022592	Tkt	Transketolase
G11	Rn.37838	NM_022922	Tpi1	Triosephosphate isomerase 1
G12	Rn.3415	NM_001024743	Ugp2	UDP-glucose pyrophosphorylase 2
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat 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 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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