

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

Rat Cancer PathwayFinder

Cat. no. 330231 PARN-033ZA

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 Cancer PathwayFinder RT² Profiler PCR Array profiles the expression of 84 genes representative of 9 different biological pathways involved in transformation and tumorigenesis. During oncogenesis, gene mutations and related expression changes accumulate in pathways regulating specific aspects of cell growth. Biological pathways that, when deregulated, allow cells to grow and divide unchecked include apoptosis (or programmed cell death), cell cycle, DNA damage repair, cellular senescence, and telomere maintenance. Recent studies indicate that changes in metabolism also occur as tumors grow, due in part to altered gene expression. Angiogenesis, another commonly affected pathway, allows further tumor growth via vascularization and oxygenation when stimulated by tumor cell hypoxia signaling. Epithelial-to-mesenchymal transition (EMT) permits tumors to invade surrounding tissue and metastasize. Many genes mediate and control each of these pathways, and changes in the expression of any of those genes can deregulate its pathway. Thus, the combination of affected genes in any given cancer or tumor can be distinctive. Understanding the molecular mechanisms behind specific cancers and researching diagnostic and prognostic biomarkers requires analyses of not just one of these pathways in isolation, but of all the pathways together. This array includes target genes for these 9 important cancer-related pathways, and its results can suggest pathways that are potentially activated or inhibited in tumor cell samples for further follow-up studies. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes related to oncogenesis 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	Acsl4	Adm	Angpt1	Angpt2	Apaf1	Arnt	Atp5a1	Atrx	Aurka	Bcl2l11	Birc3
B	Bmi1	Car9	Casp2	Casp7	Casp9	Ccl2	Ccnd2	Ccnd3	Cdc20	Cdh2	Cflar	Cox5a
C	Cpt2	Ddb2	Dkc1	Dsp	E2f4	Epo	Ercc3	Ercc5	Ets2	Faslg	Fgf2	Fli1
D	Foxc2	G6pd	Gadd45g	Gpd2	Gsc	Hmox1	Igfbp3	Igfbp5	Igfbp7	Ing1	Kdr	Krt14
E	Ldha	Lig4	Lpl	Map2k1	Map2k3	Mcm2	Mki67	Nol3	Ocln	Pfkf	Pgf	Pinx1
F	Ppp1r15a	Serpib2	Serpinf1	Sirt2	Stp2	Slc2a1	Snai1	Snai2	Snai3	Sod1	Sox10	Stmn1
G	Tbx2	Tek	Tep1	Terr2ip	Tinf2	Tnks	Tnks2	Uqcrfs1	Vegfc	Wee1	Xiap	Xrcc4
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.87821	NM_053623	Acsl4	Acyl-CoA synthetase long-chain family member 4
A03	Rn.10232	NM_012715	Adm	Adrenomedullin
A04	Rn.161953	NM_053546	Angpt1	Angiopoietin 1
A05	Rn.138360	NM_134454	Angpt2	Angiopoietin 2
A06	Rn.64522	NM_023979	Apaf1	Apoptotic peptidase activating factor 1
A07	Rn.10520	NM_012780	Arnt	Aryl hydrocarbon receptor nuclear translocator
A08	Rn.40255	NM_023093	Atp5a1	ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle
A09	Rn.107838	NM_001105757	Atrx	Alpha thalassemia/mental retardation syndrome X-linked (RAD54 homolog, <i>S. cerevisiae</i>)
A10	Rn.161874	NM_153296	Aurka	Aurora kinase A
A11	Rn.82709	NM_022612	Bcl2l11	BCL2-like 11 (apoptosis facilitator)
A12	Rn.64578	NM_023987	Birc3	Baculoviral IAP repeat-containing 3
B01	Rn.220522	NM_001107368	Bmi1	Bmi1 polycomb ring finger oncogene
B02	Rn.162391	NM_001107956	Car9	Carbonic anhydrase 9
B03	Rn.1438	NM_022522	Casp2	Caspase 2
B04	Rn.53995	NM_022260	Casp7	Caspase 7
B05	Rn.32199	NM_031632	Casp9	Caspase 9, apoptosis-related cysteine peptidase
B06	Rn.4772	NM_031530	Ccl2	Chemokine (C-C motif) ligand 2
B07	Rn.96083	NM_022267	Ccnd2	Cyclin D2
B08	Rn.3483	NM_012766	Ccnd3	Cyclin D3
B09	Rn.9262	NM_171993	Cdc20	Cell division cycle 20 homolog (<i>S. cerevisiae</i>)
B10	Rn.23200	NM_031333	Cdh2	Cadherin 2
B11	Rn.204752	NM_057138	Cflar	CASP8 and FADD-like apoptosis regulator
B12	Rn.11077	NM_145783	Cox5a	Cytochrome c oxidase, subunit Va
C01	Rn.11389	NM_012930	Cpt2	Carnitine palmitoyltransferase 2
C02	Rn.154614	XM_242065	Ddb2	Damage specific DNA binding protein 2
C03	Rn.4223	NM_133419	Dkc1	Dyskeratosis congenita 1, dyskerin
C04	Rn.54711	XM_225259	Dsp	Desmoplakin
C05	Rn.154586	XM_226441	E2f4	E2F transcription factor 4
C06	Rn.11365	NM_017001	Epo	Erythropoietin
C07	Rn.44012	NM_001031644	Ercc3	Excision repair cross-complementing rodent repair deficiency, complementation group 3
C08	Rn.208330	NM_001106910	Ercc5	Excision repair cross-complementing rodent repair deficiency, complementation group 5
C09	Rn.164554	NM_001107107	Ets2	V-ets erythroblastosis virus E26 oncogene homolog 2 (avian)
C10	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
C11	Rn.31808	NM_019305	Fgf2	Fibroblast growth factor 2
C12	Rn.10239	NM_019306	Fli1	Fms-related tyrosine kinase 1
D01	Rn.216723	NM_001101680	Foxc2	Forkhead box C2
D02	Rn.11040	NM_017006	G6pd	Glucose-6-phosphate dehydrogenase
D03	Rn.16950	NM_001077640	Gadd45g	Growth arrest and DNA-damage-inducible, gamma
D04	Rn.89705	NM_012736	Gpd2	Glycerol-3-phosphate dehydrogenase 2, mitochondrial
D05	Rn.198763	XM_343101	Gsc	Goosecoid homeobox

Position	UniGene	GenBank	Symbol	Description
D06	Rn.3160	NM_012580	Hmox1	Heme oxygenase (decycling) 1
D07	Rn.26369	NM_012588	Igfbp3	Insulin-like growth factor binding protein 3
D08	Rn.1593	NM_012817	Igfbp5	Insulin-like growth factor binding protein 5
D09	Rn.203012	NM_001013048	Igfbp7	Insulin-like growth factor binding protein 7
D10	Rn.145491	NM_001038591	Ing1	Inhibitor of growth family, member 1
D11	Rn.88869	NM_013062	Kdr	Kinase insert domain receptor
D12	Rn.153972	NM_001008751	Krt14	Keratin 14
E01	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
E02	Rn.219326	NM_001106095	Lig4	Ligase IV, DNA, ATP-dependent
E03	Rn.3834	NM_012598	Lpl	Lipoprotein lipase
E04	Rn.5850	NM_031643	Map2k1	Mitogen activated protein kinase kinase 1
E05	Rn.100064	NM_001100674	Map2k3	Mitogen activated protein kinase kinase 3
E06	Rn.2715	NM_001107873	Mcm2	Minichromosome maintenance complex component 2
E07	Rn.73551	XM_225460	Mki67	Antigen identified by monoclonal antibody Ki-67
E08	Rn.86956	NM_053516	Nol3	Nucleolar protein 3 (apoptosis repressor with CARD domain)
E09	Rn.31429	NM_031329	Ocln	Occludin
E10	Rn.4212	NM_013190	Pfkf	Phosphofructokinase, liver
E11	Rn.6960	NM_053595	Pgf	Placental growth factor
E12	Rn.15365	NM_001083337	Pinx1	PIN2-interacting protein 1
F01	Rn.2232	NM_133546	Ppp1r15a	Protein phosphatase 1, regulatory (inhibitor) subunit 15A
F02	Rn.42912	NM_021696	Serpib2	Serpin peptidase inhibitor, clade B (ovalbumin), member 2
F03	Rn.16993	NM_177927	Serpinf1	Serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1
F04	Rn.59887	NM_001008368	Sirt2	Sirtuin (silent mating type information regulation 2 homolog) 2 (<i>S. cerevisiae</i>)
F05	Rn.154278	NM_001106416	Skp2	S-phase kinase-associated protein 2 (p45)
F06	Rn.3205	NM_138827	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
F07	Rn.8008	NM_053805	Snai1	Snail homolog 1 (<i>Drosophila</i>)
F08	Rn.43117	NM_013035	Snai2	Snail homolog 2 (<i>Drosophila</i>)
F09	Rn.127187	NM_001107439	Snai3	Snail homolog 3 (<i>Drosophila</i>)
F10	Rn.6059	NM_017050	Sod1	Superoxide dismutase 1, soluble
F11	Rn.10883	NM_019193	Sox10	SRY (sex determining region Y)-box 10
F12	Rn.555	NM_017166	Stmn1	Stathmin 1
G01	Rn.38282	NM_001107033	Tbx2	T-box 2
G02	Rn.9159	NM_001105737	Tek	TEK tyrosine kinase, endothelial
G03	Rn.5890	NM_022591	Tep1	Telomerase associated protein 1
G04	Rn.2055	NM_001013143	Terf2ip	Telomeric repeat binding factor 2, interacting protein
G05	Rn.107132	NM_001006962	Tinf2	TERF1 (TRF1)-interacting nuclear factor 2
G06	Rn.213840	NM_001106084	Tnks	Tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase
G07	Rn.75288	NM_001107607	Tnks2	Tankyrase, TRF1-interacting ankyrin-related ADP-ribose polymerase 2
G08	Rn.2603	NM_001008888	Uqcrrs1	Ubiquinol-cytochrome c reductase, Rieske iron-sulfur polypeptide 1
G09	Rn.6913	NM_053653	Vegfc	Vascular endothelial growth factor C
G10	Rn.208255	NM_001012742	Wee1	Wee 1 homolog (<i>S. pombe</i>)
G11	Rn.91239	NM_022231	Xiap	X-linked inhibitor of apoptosis
G12	Rn.40979	NM_001006999	Xrcc4	X-ray repair complementing defective repair in Chinese hamster cells 4
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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