

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

Hypoxia Signaling Pathway RT² Profiler PCR Array

Cat. no. 330231 PASS-032Z

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 Pig Hypoxia Signaling Pathway RT² Profiler PCR Array profiles the expression of 84 genes that respond to low oxygen levels. Oxygen is required for aerobic energy metabolism processes such as oxidative phosphorylation. Low oxygen conditions activate the hypoxia signaling pathway in eukaryotic cells, primarily via the hypoxia inducible factor (HIF) transcription factor. HIF heterodimers consist of a constitutively-expressed beta subunit and one of 3 alpha subunit isoforms whose expression is tightly regulated. The presence of oxygen activates prolyl hydroxylases to hydroxylate HIF, leading to its polyubiquitination and degradation. Under low oxygen conditions, prolyl hydroxylase inactivity allows HIF to accumulate, initiating target gene expression. Hypoxia-inducible target genes mediate multiple biological functions, such as angiogenesis, hematopoiesis, and the maintenance of vascular tone to provide or replenish tissues with blood and oxygen. Hypoxia signaling dysregulation commonly occurs in diseases such as tumor angiogenesis and chronic inflammation. Hundreds of HIF target genes have been identified using experimental techniques such as expression studies and chromatin immunoprecipitation (ChIP) as well as bioinformatic analysis of predicted transcription factor binding sites. This array includes HIF signaling transcription factors, HIF interacting proteins, and highly relevant target genes identified by multiple studies. Results obtained with this array can be used to analyze activation or inhibition of hypoxia signaling. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes related to the hypoxia signaling pathway 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	ADM	ADORA2B	ALDOC	ANGPTL4	ANKRD37	ANXA2	APEX1	ARNT	ATR	BHLHE40	BLM	BNIP3
B	BNIP3L	BTG1	CA9	CCNG2	COPSS	CTSA	DDIT4	DNAJC5	EDN1	EGLN1	EGLN2	EGR1
C	EIF4EBP1	ENO1	EPO	ERO1A	F10	F3	FAM162A	FOS	GBE1	GPI	GYS1	HIF1A
D	HIF3A	HK2	HMOX1	HNF4A	IER3	IGFBP3	JMJD6	LDHA	LGALS3	LOC1001542 69	LOX	MAP3K1
E	MET	MIF	MMP9	NAMPT	NCOA1	NDRG1	NFKB1	NOS3	ODC1	P4HA1	PDK1	PER1
F	PFKFB3	PFKFB4	PFKL	PFKP	PGAM1	PGF	PGK1	PIM1	PKM	PLAU	RBPJ	RUVBL2
G	SERPINE1	SLC16A3	SLC2A1	SLC2A2	SLC2A3	TFRC	TP53	TP11	TXNIP	USF2	VDAC1	VEGFA
H	ACTB	B2M	GAPDH	HPRT1	RPL13A	SGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	Ssc.314	NM_214107	ADM	Adrenomedullin	PPS00531A
A02	Ssc.29413	XM_005658145	ADORA2B	A2b adenosine receptor	PPS71684A
A03	Ssc.1187	NM_001243928	ALDOC	Aldolase C, fructose-bisphosphate	PPS09952A
A04	Ssc.17345	NM_001038644	ANGPTL4	Angiotensin-like 4	PPS00930A
A05	Ssc.44000	XM_013984052	ANKRD37	Ankyrin repeat domain-containing protein 37-like	PPS08466A
A06	Ssc.12241	NM_001005726	ANXA2	Annexin A2	PPS01067A
A07	Ssc.7943	NM_001139471	APEX1	APEX nuclease (multifunctional DNA repair enzyme) 1	PPS03173A
A08	Ssc.97255	XM_001929670	ARNT	Aryl hydrocarbon receptor nuclear translocator	PPS00077A
A09	Ssc.98279	XM_003132459	ATR	Serine/threonine-protein kinase ATR-like	PPS11693A
A10	Ssc.8861	NM_001245010	BHLHE40	Basic helix-loop-helix family, member e40	PPS11120B
A11	Ssc.71006	NM_001123084	BLM	Bloom syndrome, RecQ helicase-like	PPS01988A
A12	N/A	XM_003359404	BNIP3	BCL2/adenovirus E1B 19 kDa protein-interacting protein 3-like	PPS17954A
B01	Ssc.7152	XM_001927592	BNIP3L	BCL2/adenovirus E1B 19kDa interacting protein 3-like	PPS02480A
B02	Ssc.6833	NM_001099936	BTG1	B-cell translocation gene 1, anti-proliferative	PPS01753A
B03	Ssc.11149	XM_001925520	CA9	Carbonic anhydrase IX	PPS02524A
B04	Ssc.14386	XM_003129099	CCNG2	Cyclin-G2-like	PPS14684A
B05	Ssc.17285	NM_001105300	COPSS	COP9 constitutive photomorphogenic homolog subunit 5 (Arabidopsis)	PPS01821A
B06	Ssc.896	NM_001243629	CTSA	Cathepsin A	PPS03840A
B07	Ssc.96319	NM_001243452	DDIT4	DNA-damage-inducible transcript 4	PPS02854A
B08	Ssc.43328	XM_013992249	DNAJC5	DnaJ (Hsp40) homolog, subfamily C, member 5	PPS16368A
B09	Ssc.9364	NM_213882	EDN1	Endothelin 1	PPS00261A
B10	Ssc.33171	XM_003133025	EGLN1	Egl nine homolog 1 (C. elegans)	PPS02739A
B11	Ssc.31705	XM_005655854	EGLN2	Egl nine homolog 2 (C. elegans)	PPS06786A
B12	Ssc.5974	XM_003123974	EGR1	Early growth response 1	PPS19407A
C01	Ssc.102096	NM_001244225	EIF4EBP1	Eukaryotic translation initiation factor 4E binding protein 1	PPS19112A
C02	Ssc.42590	XM_005664974	ENO1	Enolase 1, (alpha)	PPS71692A
C03	Ssc.15896	NM_214134	EPO	Erythropoietin	PPS00577A
C04	Ssc.9399	NM_001137627	ERO1A	ERO1-like (S. cerevisiae)	PPS04409A
C05	Ssc.32637	NM_001044592	F10	Coagulation factor X protein	PPS07947A
C06	Ssc.19907	NM_213785	F3	Tissue factor	PPS07886A
C07	Ssc.53695	NM_001243573	FAM162A	Family with sequence similarity 162, member A	PPS07748A
C08	Ssc.1555	NM_001123113	FOS	FBJ murine osteosarcoma viral oncogene homolog	PPS02085A
C09	Ssc.25323	XM_013982511	GBE1	Glucan (1,4-alpha-), branching enzyme 1	PPS71686A
C10	Ssc.2375	NM_214330	GPI	Glucose-6-phosphate isomerase	PPS00906A
C11	Ssc.2291	NM_001195508	GYS1	Glycogen synthase 1 (muscle)	PPS01343A
C12	Ssc.42713	NM_001123124	HIF1A	Hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)	PPS00112A
D01	N/A	XM_013998515	HIF3A	Hypoxia inducible factor 3, alpha subunit	PPS71695A
D02	Ssc.42680	NM_001122987	HK2	Hexokinase 2	PPS01288A
D03	Ssc.115	NM_001004027	HMOX1	Heme oxygenase (decycling) 1	PPS01191A
D04	Ssc.19208	NM_001044571	HNF4A	Hepatocyte nuclear factor 4, alpha	PPS01486A
D05	Ssc.5182	XM_001927551	IER3	Radiation-inducible immediate-early gene IEX-1-like	PPS08710A

Position	UniGene	GenBank	Symbol	Description	Assay
D06	Ssc.42774	NM_001005156	IGFBP3	Insulin-like growth factor binding protein 3	PPS01224A
D07	Ssc.5409	XM_013989853	JMJD6	Bifunctional arginine demethylase and lysyl-hydroxylase JMJD6-like	PPS16277A
D08	Ssc.50275	NM_001172363	LDHA	Lactate dehydrogenase A	PPS01075A
D09	Ssc.48519	NM_001097501	LGALS3	Lectin, galactoside-binding, soluble, 3	PPS01680A
D10	Ssc.19163	XM_003133181	LOC100154269	Max-interacting protein 1-like	PPS03008A
D11	Ssc.10386	NM_001206403	LOX	Lysyl oxidase	PPS07031A
D12	Ssc.19729	XM_003133973	MAP3K1	Mitogen-activated protein kinase kinase kinase 1	PPS00055A
E01	Ssc.9275	NM_001038008	MET	Met proto-oncogene (hepatocyte growth factor receptor)	PPS01423A
E02	Ssc.551	NM_001077213	MIF	Macrophage migration inhibitory factor (glycosylation-inhibiting factor)	PPS00724A
E03	Ssc.4086	NM_001038004	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	PPS01420A
E04	Ssc.22083	NM_001031793	NAMPT	Nicotinamide phosphoribosyltransferase	PPS01374A
E05	Ssc.24299	NM_001025228	NCOA1	Nuclear receptor coactivator 1	PPS01347A
E06	Ssc.30964	XM_005662839	NDRG1	N-myc downstream regulated 1	PPS08974A
E07	Ssc.17816	NM_001048232	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1	PPS01542A
E08	Ssc.16364	NM_214295	NOS3	Nitric oxide synthase 3 (endothelial cell)	PPS00864A
E09	Ssc.6356	NM_001122983	ODC1	Ornithine decarboxylase	PPS01127A
E10	Ssc.97027	NM_001097435	P4HA1	Prolyl 4-hydroxylase, alpha polypeptide I	PPS01603A
E11	Ssc.94488	NM_001159608	PKD1	Pyruvate dehydrogenase kinase, isozyme 1	PPS04545A
E12	Ssc.46086	XM_005657040	PER1	Period circadian clock 1	PPS71689A
F01	N/A	XM_013980318	PFKFB3	6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase 3-like	PPS71688A
F02	Ssc.2219	XM_001926168	PFKFB4	6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase 4	PPS04258A
F03	Ssc.2759	XM_013990207	PFKL	Phosphofructokinase, liver	PPS16430A
F04	Ssc.862	XM_005656825	PFKP	Phosphofructokinase, platelet	PPS06460A
F05	Ssc.55891	XM_003483535	PGAM1	Phosphoglycerate mutase 1 (brain)	PPS71685A
F06	Ssc.49068	XM_001925764	PGF	Placental growth factor	PPS03715A
F07	Ssc.23800	NM_001099932	PGK1	Phosphoglycerate kinase 1	PPS01079B
F08	Ssc.41548	XM_005665927	PIM1	Pim-1 oncogene	PPS04180A
F09	Ssc.93839	XM_001929069	PKM	Pyruvate kinase, muscle	PPS04290A
F10	Ssc.11194	NM_213945	PLAU	Plasminogen activator, urokinase	PPS00329A
F11	Ssc.41484	XM_003128890	RBPJ	Recombination signal binding protein for immunoglobulin kappa J region	PPS05968A
F12	Ssc.2036	NM_001243867	RUVBL2	RuvB-like 2 (E. coli)	PPS09780A
G01	Ssc.9781	NM_213910	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	PPS00290B
G02	Ssc.22067	XM_013989834	SLC16A3	Solute carrier family 16, member 3 (monocarboxylic acid transporter 4)	PPS04316A
G03	Ssc.96919	XM_013977359	SLC2A1	Solute carrier family 2 (facilitated glucose transporter), member 1	PPS00716B
G04	Ssc.26564	NM_001097417	SLC2A2	Solute carrier family 2 (facilitated glucose transporter), member 2	PPS00740A
G05	Ssc.58600	XM_013988404	SLC2A3	Solute carrier family 2 (facilitated glucose transporter), member 3	PPS07620A
G06	Ssc.38	NM_214001	TFRC	Transferrin receptor (p90, CD71)	PPS00404A
G07	Ssc.15917	NM_213824	TP53	Tumor protein p53	PPS00603A
G08	Ssc.102258	NM_001037151	TPP1	Triosephosphate isomerase 1	PPS04091A
G09	Ssc.16648	NM_001044614	TXNIP	Thioredoxin interacting protein	PPS01525A
G10	Ssc.20441	XM_003127041	USF2	Upstream transcription factor 2, c-fos interacting	PPS05546A
G11	Ssc.16732	NM_213960	VDAC1	Voltage-dependent anion channel 1	PPS00353A
G12	Ssc.57541	NM_214084	VEGFA	Vascular endothelial growth factor A	PPS00495A
H01	Ssc.10316	XM_003124280	ACTB	Actin, beta	PPS71698A
H02	Ssc.73773	NM_213978	B2M	Beta-2-microglobulin	PPS00376A
H03	Ssc.16135	NM_001206359	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	PPS00192A
H04	Ssc.4158	NM_001032376	HPRT1	Hypoxanthine phosphoribosyltransferase 1	PPS00668B
H05	Ssc.27927	NM_001244068	RPL13A	Ribosomal protein L13a	PPS01574A
H06	N/A	SA_00133	SGDC	Pig Genomic DNA Contamination	PPS71596A
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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