

RT² Profiler PCR Array (Rotor-Gene® Format)

Zebrafish mTOR Signaling

Cat. no. 330231 PAZF-098ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Zebrafish mTOR Signaling RT² Profiler™ PCR Array profiles the expression of 84 key genes involved in the mammalian target of rapamycin (mTOR) signaling pathway. mTOR, a serine/threonine protein kinase, integrates responses from a wide variety of signals (nutrients, hormones, growth factors and cellular stresses) to regulate cell growth, metabolism and survival. The first generation of mTOR inhibitors (e.g. rapamycin) failed to inhibit all mTOR functions, because the kinase forms two distinct protein complexes, mTORC1 and mTORC2. The rapamycin-sensitive mTORC1 complex regulates multiple biosynthetic cellular processes (protein synthesis, cell cycle progression, cell growth and proliferation). Until recently, the lack of mTORC2-specific inhibitors complicated elucidation of this protein complex's molecular functions. One definitive mTORC2 response is AKT activation, important for cell proliferation, migration and survival (apoptosis and autophagy inhibition). This array includes members of the mTORC1 and mTORC2 complexes as well as upstream regulators of many mTOR responses, and downstream genes from the many cellular processes regulated by mTOR complex activation. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in mTOR signaling with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

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.



Sample & Assay Technologies

Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description	Assay
A01	Dr.104473	XM_687419	akt1s1	AKT1 substrate 1 (proline-rich)	PPZ11879A
A02	Dr.151154	NM_198146	akt2	V-akt murine thymoma viral oncogene homolog 2	PPZ03184A
A03	Dr.11393	NM_212815	akt2l	V-akt murine thymoma viral oncogene homolog 2, like	PPZ04570A
A04	Dr.158628	XM_001923419	akt3b	V-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	PPZ16909A
A05	Dr.79008	NM_001007327	cab39l	Calcium binding protein 39-like	PPZ06802A
A06	Dr.104797	NM_001018120	cdc42	Cell division cycle 42	PPZ02620A
A07	Dr.14012	NM_200317	chuk	Conserved helix-loop-helix ubiquitous kinase	PPZ03481A
A08	Dr.82488	NM_200107	ddit4	Zgc:64114	PPZ03166A
A09	Dr.26865	NM_001077320	depor	DEP domain containing MTOR-interacting protein	PPZ14176A
A10	Dr.80174	NM_001099237	eif4ba	Eukaryotic translation initiation factor 4Ba	PPZ08003A
A11	Dr.2876	NM_214718	eif4bb	Eukaryotic translation initiation factor 4Bb	PPZ02581A
A12	Dr.5294	NM_131733	eif4ea	Eukaryotic translation initiation factor 4e	PPZ00747A
B01	Dr.78343	NM_199645	eif4ebp1	Zgc:64137	PPZ15325A
B02	Dr.5489	NM_212803	eif4ebp2	Eukaryotic translation initiation factor 4E binding protein 2	PPZ03261A
B03	Dr.28291	NM_199945	fkbp1aa	FK506 binding protein 1Aa	PPZ02386A
B04	Dr.14778	NM_001005594	fkbp1ab	FK506 binding protein 1Ab	PPZ06535A
B05	Dr.78247	NM_200884	fkbp8	FK506 binding protein 8	PPZ03978A
B06	Dr.107139	NM_131381	gsk3b	Glycogen synthase kinase 3 beta	PPZ00419A
B07	Dr.159781	NM_200233	hif1ab	Hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor) b	PPZ03403A
B08	Dr.8916	NM_001020629	hrasb	-Ha-ras Harvey rat sarcoma viral oncogene homolog b	PPZ08326A
B09	Dr.78661	NM_214716	hspa4a	Heat shock protein 4a	PPZ02472A
B10	Dr.77624	NM_199857	hspa4b	Heat shock protein 4b	PPZ02189A
B11	Dr.82556	NM_131825	igf1	Insulin-like growth factor 1	PPZ00849A
B12	Dr.12583	NM_205751	igfbp3	Insulin-like growth factor binding protein 3	PPZ04540A
C01	Dr.101105	NM_001123265	ikkb	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta	PPZ11052A
C02	Dr.77678	NM_200571	ilk	Integrin linked kinase	PPZ03700A
C03	Dr.75811	NM_131056	ins	Preproinsulin	PPZ00133A
C04	Dr.85773	NM_001142672	insra	Insulin receptor a	PPZ01031A
C05	Dr.88572	NM_001123229	insrb	Insulin receptor b	PPZ01032A
C06	Dr.3152	XM_682610	irs1	Insulin receptor substrate 1-B-like	PPZ18147B
C07	N/A	XM_001921680	prkcg	Protein kinase C alpha type-like	PPZ20700A
C08	N/A	XM_003198574	mapkap1	Target of rapamycin complex 2 subunit MAPKAP1-like	PPZ24182A
C09	Dr.95538	XM_005155854	pik3ca	Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit alpha isoform-like	PPZ18430A
C10	N/A	XM_688458	rps6ka5	Ribosomal protein S6 kinase alpha-5-like	PPZ18789A
C11	Dr.10452	NM_182888	mapk1	Mitogen-activated protein kinase 1	PPZ02848A
C12	Dr.75913	NM_201507	mapk3	Mitogen-activated protein kinase 3	PPZ04290A
D01	Dr.7298	NM_199877	mlst8	MTOR associated protein, LST8 homolog (S. cerevisiae)	PPZ14576A
D02	Dr.43038	NM_001077211	mtor	Mechanistic target of rapamycin (serine/threonine kinase)	PPZ01705A
D03	Dr.156219	XM_005157667	myo1c	Myosin IC	PPZ11842A
D04	Dr.29812	NM_205699	pdpk1b	3-phosphoinositide dependent protein kinase-1b	PPZ04478A
D05	Dr.78335	NM_001017550	pik3c3	Phosphoinositide-3-kinase, class 3	PPZ07569A
D06	N/A	XM_001923222	pik3cb	Phosphoinositide-3-kinase, catalytic, beta polypeptide	PPZ15593A
D07	Dr.26647	NM_201199	pik3cd	Phosphoinositide-3-kinase, catalytic, delta polypeptide	PPZ04253A
D08	N/A	XM_687605	LOC564261	Phosphoinositide-3-kinase, catalytic, gamma polypeptide	PPZ11249A
D09	Dr.86329	NM_001160095	pld1a	Phospholipase D1a	PPZ09110A
D10	Dr.39929	XM_005165378	pld2	Phospholipase D2	PPZ11650A
D11	Dr.118073	NM_001017886	ppp2ca	Protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform	PPZ07897A
D12	N/A	NM_001030122	ppp2r2bb	Protein phosphatase 2, regulatory subunit B, beta b	PPZ09729A
E01	Dr.9399	NM_001003425	ppp2r4	Protein phosphatase 2A activator, regulatory subunit 4	PPZ06001A
E02	Dr.76384	NM_001110286	prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit	PPZ15486A
E03	Dr.118580	XM_695739	prkaa2	Protein kinase, AMP-activated, alpha 2 catalytic subunit	PPZ13256A
E04	Dr.84417	NM_001002632	prkab1a	Protein kinase, AMP-activated, beta 1 non-catalytic subunit, a	PPZ05874A

Position	UniGene	GenBank	Symbol	Description	Assay
E05	Dr.114113	NM_001130633	prkab2	Zgc:172285	PPZ17063A
E06	Dr.150253	NM_213161	prkag1	Protein kinase, AMP-activated, gamma 1 non-catalytic subunit	PPZ04939A
E07	N/A	XM_005163300	prkag2b	Protein kinase, AMP-activated, gamma 2 non-catalytic subunit	PPZ12367A
E08	Dr.15632	XM_005160292	prkag3a	Prkag3	PPZ08074A
E09	Dr.33991	NM_001256241	prkca	Protein kinase C, alpha	PPZ07169A
E10	Dr.84921	NM_200978	prkcb	Protein kinase C, beta b	PPZ04061A
E11	N/A	XM_002664118	prkeb	Protein kinase C, epsilon	PPZ17421A
E12	Dr.150341	NM_001001822	ptenb	Phosphatase and tensin homolog B (mutated in multiple advanced cancers 1)	PPZ02931A
F01	Dr.77867	NM_001076748	rhebl1	Ras homolog enriched in brain	PPZ14099A
F02	Dr.25812	NM_212749	rhoab	Ras homolog gene family, member Ab	PPZ15967A
F03	N/A	XM_005161241	ricorb	RPTOR independent companion of MTOR, complex 2	PPZ10556A
F04	Dr.104270	NM_001077775	rps6ka1	Ribosomal protein S6 kinase a, polypeptide 1	PPZ14277A
F05	N/A	XM_694860	rps6ka2	Ribosomal protein S6 kinase, 90kDa, polypeptide 2	PPZ13085A
F06	Dr.24528	NM_213076	rps6kb1b	Ribosomal protein S6 kinase b, polypeptide 1b	PPZ04870A
F07	N/A	XM_005157353	rptor	Regulatory associated protein of MTOR, complex 1	PPZ10185A
F08	Dr.1798	NM_199714	rraga	Ras-related GTP binding A	PPZ01839A
F09	Dr.76118	NM_001020635	rragca	Ras-related GTP binding C	PPZ13375A
F10	Dr.89793	NM_001099424	rragd	Zgc:162165	PPZ12946A
F11	Dr.78523	NM_199212	sgk1	Serum/glucocorticoid regulated kinase 1	PPZ01685A
F12	Dr.1688	NM_001017839	stk11	Serine/threonine kinase 11	PPZ07854A
G01	Dr.80360	NM_199911	strada	Ste20-related kinase adaptor alpha	PPZ02295A
G02	Dr.121351	NM_001030218	telo2	TEL2, telomere maintenance 2, homolog (S. cerevisiae)	PPZ14248A
G03	Dr.75100	NM_131327	tp53	Tumor protein p53	PPZ00370A
G04	N/A	NM_001282392	tsc1b	Tuberous sclerosis 1	PPZ17362A
G05	Dr.156471	XM_009294973	tsc2	Tuberous sclerosis 2	PPZ12137A
G06	Dr.156936	XM_002665925	ulk1b	Unc-51-like kinase 1b (C. elegans)	PPZ09742A
G07	Dr.39439	XM_002664615	ulk2	Unc-51-like kinase 2 (C. elegans)	PPZ17342A
G08	Dr.150231	NM_001110349	vegfaa	Vascular endothelial growth factor Aa	PPZ00444A
G09	Dr.79865	NM_001044855	vegfab	Vascular endothelial growth factor Ab	PPZ09553A
G10	Dr.88903	NM_205734	vegfc	Vascular endothelial growth factor c	PPZ04520A
G11	Dr.76292	NM_201513	ywhaqa	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide a	PPZ04296A
G12	Dr.32392	NM_001003728	rps6	Zgc:92237	PPZ05998A
H01	Dr.47173	NM_214784	acta1b	Actin, alpha 1b, skeletal muscle	PPZ05295A
H02	Dr.51646	NM_001159768	b2m	Beta-2-microglobulin	PPZ00226A
H03	Dr.77915	NM_212986	hprt1	Hypoxanthine phosphoribosyltransferase 1	PPZ04796A
H04	Dr.150274	NM_201579	nono	Non-POU domain containing, octamer-binding	PPZ01381A
H05	Dr.32450	NM_212784	rpl13a	Ribosomal protein L13a	PPZ10281A
H06	N/A zebrafish	SA_00143	ZGDC	Zebrafish Genomic DNA Contamination	PPZ24726A
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 ROX [™] FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

* 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.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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