RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Unfolded Protein Response

Cat. no. 330231 PARN-089ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Rat Unfolded Protein Response RT² Profiler PCR Array profiles the expression of 84 key genes recognizing and responding to misfolded protein accumulation in the endoplasmic reticulum (ER). Chaperones bound to unfolded proteins in the ER initiate protein kinase cascades that immediately inhibit ER translation, reverse ER translocation, activate ER-specific ubiquitination enzymes, and even induce apoptosis under extreme stress. The signaling event also activates endonucleases to process specific mature cytosolic mRNA into variants that now translate into active transcription factors that increase the expression of heat shock proteins, protein disulfide isomerases, and even more chaperones. The pathway also includes protein glycosylation enzymes mediating ER protein folding quality control and the sensors recognizing, and the transcription factors responding to, stress from cholesterol biosynthesis dysregulation in the ER. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes responding to unfolded protein and other ER stresses 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.

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
A01	Rn.2423	NM_024403	Atf4	Activating transcription factor 4 (tax-responsive enhancer element B67)
A02	Rn.221907	NM_001107196	Atf6	Activating transcription factor 6
A03	Rn.42932	NM_021702	Atxn3	Ataxin 3
A04	Rn.10668	NM_017059	Bax	Bcl2-associated X protein
A05	Rn.974	NM_022399	Calr	Calreticulin
A06	Rn.1762	NM_172008	Canx	Calnexin
A07	Rn.97889	NM_182814	Cct4	Chaperonin containing Tcp1, subunit 4 (delta)
A08	Rn.62267	NM_001106603	Cct7	Chaperonin containing Tcp1, subunit 7 (eta)
A09	Rn.6479	NM_024125	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
A10	Rn.104043	NM_001013092	Creb3	CAMP responsive element binding protein 3
A11	Rn.24541	NM_001005562	Creb3l1	CAMP responsive element binding protein 3-like 1
A12	Rn.23031	NM_001012188	Creb3l2	CAMP responsive element binding protein 3-like 2
B01	Rn.20059	NM_001012115	Creb3l3	CAMP responsive element binding protein 3-like 3
B02	Rn.19624	NM_001007093	Creb3l4	CAMP responsive element binding protein 3-like 4
B03	Rn.11183	NM_024134	Ddit3	DNA-damage inducible transcript 3
B04	Rn.110990	NM_001014202	Derl1	Der1-like domain family, member 1
B05	Rn.29778	NM_012699	Dnajb9	DnaJ (Hsp40) homolog, subfamily B, member 9
B06	Rn.8642	NM_001106486	Dnajc10	DnaJ (Hsp40) homolog, subfamily C, member 10
B07	Rn.162234	NM_022232	Dnajc3	DnaJ (Hsp40) homolog, subfamily C, member 3
B08	Rn.91398	NM_001013196	Dnajc4	DnaJ (Hsp40) homolog, subfamily C, member 4
B09	Rn.20041	NM_153303	Dyt1	Dystonia 1
B10	Rn.8162	XM_238366	Edem1	ER degradation enhancer, mannosidase alpha-like 1
B11	Rn.18635	NM_001004230	Edem2	ER degradation enhancer, mannosidase alpha-like 2
B12	Rn.198593	NM_001109339	Eif2a	Eukaryotic translation initiation factor 2A
C01	Rn.10022	NM_019335	Eif2ak2	Eukaryotic translation initiation factor 2-alpha kinase 2
C02	Rn.24897	NM_031599	Eif2ak3	Eukaryotic translation initiation factor 2 alpha kinase 3
C03	Rn.219585	NM_001105744	Eif2ak4	Eukaryotic translation initiation factor 2 alpha kinase 4
C04	Rn.218563	NM_001108919	Ern2	Endoplasmic reticulum to nucleus signaling 2
C05	Rn.64648	NM_138528	Ero1l	ERO1-like (S. cerevisiae)
C06	Rn.57325	NM_138917	Fbxo6	F-box protein 6
C07	Rn.99241	NM_001106334	Ganab	Glucosidase, alpha; neutral AB
C08	Rn.4028	NM_053523	Herpud1	Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1
C09	Rn.102428	NM_001024988	Herpud2	HERPUD family member 2
C10	Rn.101146	NM_001012197	Hsp90b1	Heat shock protein 90, beta, member 1
C11	Rn.187184	NM_212546	Hspa1l	Heat shock protein 1-like
C12	Rn.211303	NM_021863	Hspa2	Heat shock protein 2
D01	Rn.163092	NM_153629	Hspa4	Heat shock protein 4
D02	Rn.144829	NM_001106428	Hspa4l	Heat shock protein 4-like
D03	Rn.11088	NM_013083	Hspa5	Heat shock protein 5
D04	Rn.47212	NM_001108835	Hspb9	Heat shock protein, alpha-crystallin-related, B9
D05	Rn.37805	NM_001011901	Hsph1	Heat shock 105/110 protein 1
D06	Rn.107325	NM_001106599	Htra2	HtrA serine peptidase 2
D07	Rn.163330	NM_001107321	Htra4	HtrA serine peptidase 4
D08	Rn.772	NM_022392	Insig1	Insulin induced gene 1
D09	Rn.16736	NM_178091	Insig2	Insulin induced gene 2
D10	Rn.161941	NM_001108183	Manf	Mesencephalic astrocyte-derived neurotrophic factor
D11	Rn.9911	NM_012806	Mapk10	Mitogen activated protein kinase 10
D12	Rn.4090	XM_341399	Mapk8	Mitogen-activated protein kinase 8
E01	Rn.9910	NM_017322	Mapk9	Mitogen-activated protein kinase 9
E02	Rn.2362	NM_053569	Mbtps1	Membrane-bound transcription factor peptidase, site 1
E03	Rn.212224	NM_001035007	Mbtps2	Membrane-bound transcription factor peptidase, site 2
E04	Rn.144645	NM_080577	Nploc4	Nuclear protein localization 4 homolog (S. cerevisiae)
E05	Rn.1492	NM_053463	Nucb1	Nucleobindin 1
E06	Rn.1579	NM_001007265	Os9	Osteosarcoma amplified 9
E07	Rn.11527	NM_017319	Pdia3	Protein disulfide isomerase family A, member 3
E08	Rn.3401	NM_001106794	Pfdn5	Prefoldin subunit 5

Position	UniGene	GenBank	Symbol	Description
E09	Rn.109	NM_212506	Pfdn6	Prefoldin subunit 6
E10	Rn.1463	NM_017101	Ppia	Peptidylprolyl isomerase A (cyclophilin A)
E11	Rn.1893	NM_022536	Ppib	Peptidylprolyl isomerase B
E12	Rn.144176	NM_001004215	Ppic	Peptidylprolyl isomerase C
F01	Rn.2232	NM_133546	Ppp1r15a	Protein phosphatase 1, regulatory (inhibitor) subunit 15A
F02	Rn.78049	NM_001107175	Ppp1r15b	Protein phosphatase 1, regulatory (inhibitor) subunit 15b
F03	Rn.104417	NM_001106806	Prkcsh	Protein kinase C substrate 80K-H
F04	Rn.209127	NM_001127545	Rnf139	Ring finger protein 139
F05	Rn.4224	NM_013067	Rpn1	Ribophorin I
F06	Rn.99548	NM_001100966	Scap	SREBF chaperone
F07	Rn.98327	NM_001034129	Sec62	SEC62 homolog (S. cerevisiae)
F08	Rn.24233	NM_001107637	Sec63	SEC63 homolog (S. cerevisiae)
F09	Rn.20802	NM_177933	Sel1l	Sel-1 suppressor of lin-12-like (C. elegans)
F10	Rn.4197	NM_173120	Sels	Selenoprotein S
F11	Rn.2119	NM_030835	Serp1	Stress-associated endoplasmic reticulum protein 1
F12	Rn.103851	NM_199376	Sil1	SIL1 homolog, endoplasmic reticulum chaperone (S. cerevisiae)
G01	Rn.221929	XM_213329	Srebf1	Sterol regulatory element binding transcription factor 1
G02	Rn.41063	NM_001033694	Srebf2	Sterol regulatory element binding transcription factor 2
G03	Rn.162486	NM_001100739	Syvn1	Synovial apoptosis inhibitor 1, synoviolin
G04	Rn.7102	NM_012670	Tcp1	T-complex 1
G05	Rn.139603	NM_001106380	Ube2g2	Ubiquitin-conjugating enzyme E2G 2 (UBC7 homolog, yeast)
G06	Rn.106299	NM_001007655	Ube2j2	Ubiquitin-conjugating enzyme E2, J2 (UBC6 homolog, yeast)
G07	Rn.2022	NM_001012025	Ubxn4	UBX domain protein 4
G08	Rn.11946	NM_053418	Ufd1l	Ubiquitin fusion degradation 1 like (yeast)
G09	Rn.162227	NM_133596	Uggt1	UDP-glucose glycoprotein glucosyltransferase 1
G10	Rn.11790	NM_001008301	Usp14	Ubiquitin specific peptidase 14
G11	Rn.98891	NM_053864	Vcp	Valosin-containing protein
G12	Rn.101044	NM_001004210	Xbp1	X-box binding protein 1
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.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² 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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