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

Human Unfolded Protein Response

Cat. no. 330231 PAHS-089ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² 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
RT² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT² Profiler PCR Array, Format H	Fluidigm® BioMark™

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Description

The Human 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 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	AMFR	ATF4	ATF6	ATF6B	ATXN3	BAX	CALR	CANX	CCT4	CCT7	CEBPB	CREB3
B	CREB3L3	DDIT3	DERL1	DERL2	DNAJB2	DNAJB9	DNAJC10	DNAJC3	DNAJC4	EDEM1	EDEM3	EIF2A
C	EIF2AK3	ERN1	ERN2	ERO1L	ERO1LB	ERP44	FBXO6	GANAB	GANC	HERPUD1	HSPA1B	HSPA1L
D	HSPA2	HSPA4	HSPA4L	HSPA5	HSPH1	HTRA2	HTRA4	INSIG1	INSIG2	MANF	MAPK10	MAPK8
E	MAPK9	MBTPS1	MBTPS2	NPLOC4	NUCB1	OS9	PDIA3	PFDN2	PFDN5	PPIA	PPP1R15A	PRKCSH
F	RNF139	RNF5	RPN1	SCAP	SEC62	SEC63	SEL1L	SELS	SERP1	SIL1	SREBF1	SREBF2
G	SYVN1	TCP1	TOR1A	UBE2G2	UBE2J2	UBXN4	UFD1L	UGGT1	UGGT2	USP14	VCP	XBP1
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.295137	NM_001144	AMFR	Autocrine motility factor receptor
A02	Hs.496487	NM_001675	ATF4	Activating transcription factor 4 (tax-responsive enhancer element B67)
A03	Hs.492740	NM_007348	ATF6	Activating transcription factor 6
A04	Hs.42853	NM_004381	ATF6B	Activating transcription factor 6 beta
A05	Hs.532632	NM_004993	ATXN3	Ataxin 3
A06	Hs.624291	NM_004324	BAX	BCL2-associated X protein
A07	Hs.515162	NM_004343	CALR	Calreticulin
A08	Hs.699155	NM_001746	CANX	Calnexin
A09	Hs.421509	NM_006430	CCT4	Chaperonin containing TCP1, subunit 4 (delta)
A10	Hs.368149	NM_006429	CCT7	Chaperonin containing TCP1, subunit 7 (eta)
A11	Hs.517106	NM_005194	CEBPB	CCAAT/enhancer binding protein (C/EBP), beta
A12	Hs.522110	NM_006368	CREB3	CAMP responsive element binding protein 3
B01	Hs.247744	NM_032607	CREB3L3	CAMP responsive element binding protein 3-like 3
B02	Hs.728989	NM_004083	DDIT3	DNA-damage-inducible transcript 3
B03	Hs.241576	NM_024295	DERL1	Der1-like domain family, member 1
B04	Hs.286131	NM_016041	DERL2	Der1-like domain family, member 2
B05	Hs.77768	NM_006736	DNAJB2	DnaJ (Hsp40) homolog, subfamily B, member 2
B06	Hs.6790	NM_012328	DNAJB9	DnaJ (Hsp40) homolog, subfamily B, member 9
B07	Hs.516632	NM_018981	DNAJC10	DnaJ (Hsp40) homolog, subfamily C, member 10
B08	Hs.59214	NM_006260	DNAJC3	DnaJ (Hsp40) homolog, subfamily C, member 3
B09	Hs.172847	NM_005528	DNAJC4	DnaJ (Hsp40) homolog, subfamily C, member 4
B10	Hs.224616	NM_014674	EDEM1	ER degradation enhancer, mannosidase alpha-like 1
B11	Hs.523811	NM_025191	EDEM3	ER degradation enhancer, mannosidase alpha-like 3
B12	Hs.655782	NM_032025	EIF2A	Eukaryotic translation initiation factor 2A, 65kDa
C01	Hs.591589	NM_004836	EIF2AK3	Eukaryotic translation initiation factor 2-alpha kinase 3
C02	Hs.133982	NM_001433	ERN1	Endoplasmic reticulum to nucleus signaling 1
C03	Hs.592041	NM_033266	ERN2	Endoplasmic reticulum to nucleus signaling 2
C04	Hs.592304	NM_014584	ERO1L	ERO1-like (S. cerevisiae)
C05	Hs.558519	NM_019891	ERO1LB	ERO1-like beta (S. cerevisiae)
C06	Hs.154023	NM_015051	ERP44	Endoplasmic reticulum protein 44
C07	Hs.464419	NM_018438	FBXO6	F-box protein 6
C08	Hs.595071	NM_198334	GANAB	Glucosidase, alpha; neutral AB
C09	Hs.693779	NM_198141	GANC	Glucosidase, alpha; neutral C
C10	Hs.146393	NM_014685	HERPUD1	Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1
C11	Hs.274402	NM_005346	HSPA1B	Heat shock 70kDa protein 1B
C12	Hs.690634	NM_005527	HSPA1L	Heat shock 70kDa protein 1-like
D01	Hs.728938	NM_021979	HSPA2	Heat shock 70kDa protein 2
D02	Hs.90093	NM_002154	HSPA4	Heat shock 70kDa protein 4
D03	Hs.135554	NM_014278	HSPA4L	Heat shock 70kDa protein 4-like
D04	Hs.716396	NM_005347	HSPA5	Heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)
D05	Hs.36927	NM_006644	HSPH1	Heat shock 105kDa/110kDa protein 1
D06	Hs.115721	NM_013247	HTRA2	HtrA serine peptidase 2
D07	Hs.661014	NM_153692	HTRA4	HtrA serine peptidase 4
D08	Hs.520819	NM_005542	INSIG1	Insulin induced gene 1

Position	UniGene	GenBank	Symbol	Description
D09	Hs.7089	NM_016133	INSIG2	Insulin induced gene 2
D10	Hs.436446	NM_006010	MANF	Mesencephalic astrocyte-derived neurotrophic factor
D11	Hs.125503	NM_002753	MAPK10	Mitogen-activated protein kinase 10
D12	Hs.138211	NM_002750	MAPK8	Mitogen-activated protein kinase 8
E01	Hs.484371	NM_002752	MAPK9	Mitogen-activated protein kinase 9
E02	Hs.75890	NM_003791	MBTPS1	Membrane-bound transcription factor peptidase, site 1
E03	Hs.443490	NM_015884	MBTPS2	Membrane-bound transcription factor peptidase, site 2
E04	Hs.464333	NM_017921	NPLOC4	Nuclear protein localization 4 homolog (S. cerevisiae)
E05	Hs.631602	NM_006184	NUCB1	Nucleobindin 1
E06	Hs.527861	NM_006812	OS9	Osteosarcoma amplified 9, endoplasmic reticulum lectin
E07	Hs.591095	NM_005313	PDIA3	Protein disulfide isomerase family A, member 3
E08	Hs.492516	NM_012394	PFDN2	Prefoldin subunit 2
E09	Hs.655327	NM_002624	PFDN5	Prefoldin subunit 5
E10	Hs.356331	NM_021130	PPIA	Peptidylprolyl isomerase A (cyclophilin A)
E11	Hs.631593	NM_014330	PPP1R15A	Protein phosphatase 1, regulatory (inhibitor) subunit 15A
E12	Hs.610830	NM_002743	PRKCSH	Protein kinase C substrate 80K-H
F01	Hs.632057	NM_007218	RNF139	Ring finger protein 139
F02	Hs.718462	NM_006913	RNF5	Ring finger protein 5
F03	Hs.518244	NM_002950	RPN1	Ribophorin I
F04	Hs.531789	NM_012235	SCAP	SREBF chaperone
F05	Hs.622596	NM_003262	SEC62	SEC62 homolog (S. cerevisiae)
F06	Hs.26904	NM_007214	SEC63	SEC63 homolog (S. cerevisiae)
F07	Hs.181300	NM_005065	SEL1L	Sel-1 suppressor of lin-12-like (C. elegans)
F08	Hs.32148	NM_203472	SELS	Selenoprotein S
F09	Hs.518326	NM_014445	SERP1	Stress-associated endoplasmic reticulum protein 1
F10	Hs.483521	NM_022464	SIL1	SIL1 homolog, endoplasmic reticulum chaperone (S. cerevisiae)
F11	Hs.592123	NM_004176	SREBF1	Sterol regulatory element binding transcription factor 1
F12	Hs.443258	NM_004599	SREBF2	Sterol regulatory element binding transcription factor 2
G01	Hs.715498	NM_172230	SYVN1	Synovial apoptosis inhibitor 1, synoviolin
G02	Hs.363137	NM_030752	TCP1	T-complex 1
G03	Hs.534312	NM_000113	TOR1A	Torsin family 1, member A (torsin A)
G04	Hs.529420	NM_182688	UBE2G2	Ubiquitin-conjugating enzyme E2G 2
G05	Hs.191987	NM_194458	UBE2J2	Ubiquitin-conjugating enzyme E2, J2
G06	Hs.591242	NM_014607	UBXN4	UBX domain protein 4
G07	Hs.474213	NM_005659	UFD1L	Ubiquitin fusion degradation 1 like (yeast)
G08	Hs.34180	NM_020120	UGGT1	UDP-glucose glycoprotein glucosyltransferase 1
G09	Hs.193226	NM_020121	UGGT2	UDP-glucose glycoprotein glucosyltransferase 2
G10	Hs.464416	NM_005151	USP14	Ubiquitin specific peptidase 14 (tRNA-guanine transglycosylase)
G11	Hs.529782	NM_007126	VCP	Valosin containing protein
G12	Hs.437638	NM_005080	XBP1	X-box binding protein 1
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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 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
RT² 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
RT² 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.

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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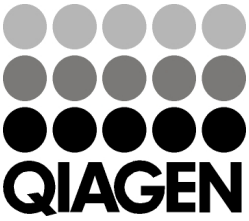

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