RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Stress & Toxicity PathwayFinder

Cat. no. 330231 PARN-003ZR

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 Stress & Toxicity RT² Profiler PCR Array profiles the expression of 84 key genes regulated during cellular responses to stress and toxic compounds. Cells exposed to stress or toxins, either in vitro or in vivo, respond in a variety of ways depending on the stress and the cell type. Key front-line target organs such as heart, kidney, liver, and skin must be equipped to respond to stress-inducing or toxic environmental insults in an appropriate way. Toxicologists use cultured cells from these organs as model systems to ascertain the effects of test compounds. Reactive oxygen species induce oxidative stress, and elevated temperatures induce heat shock. Imbalances in osmolarity and inhibitors of ion channels cause osmotic stress, while protein synthesis inhibitors activate the unfolded protein response. Stress response pathways often cross-talk, particularly under prolonged exposure conditions or exposure to multiple stresses. For example, inflammation induces stress responses, but specific chronic sources of stress, such as oxidative stress and heat shock, also induce inflammation. These stresses can ultimately cause DNA damage or other types of cellular damage, which can lead to cell death if not repaired. Studying the potential activation of these pathways simultaneously can identify compounds or experimental conditions toxic to cells, evaluate the cell's ability to respond to cellular damage, and identify potential interactions between the stress responses. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in cellular stress and toxic insults 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.10232	NM_012715	Adm	Adrenomedullin
A02	Rn.1618	NM_012778	Aqp1	Aquaporin 1
A03	Rn.90076	NM_012909	Aqp2	Aquaporin 2 (collecting duct)
A04	Rn.90091	NM_012825	Aqp4	Aquaporin 4
A05	Rn.10520	NM_012780	Arnt	Aryl hydrocarbon receptor nuclear translocator
A06	Rn.2423	NM_024403	Atf4	Activating transcription factor 4 (tax-responsive enhancer element B67)
A07	Rn.221907	NM_001107196	Atf6	Activating transcription factor 6
A08	Rn.6224	NM_001038495	Atg12	ATG12 autophagy related 12 homolog (S. cerevisiae)
A09	Rn.162765	NM_001012097	Atg7	ATG7 autophagy related 7 homolog (S. cerevisiae)
A10	Rn.214048	NM_001106821	Atm	Ataxia telangiectasia mutated homolog (human)
A11	Rn.25176	NM_173837	Bbc3	Bcl-2 binding component 3
A12	Rn.2776	NM_053739	Becn1	Beclin 1, autophagy related
B01	Rn.31142	NM_022684	Bid	BH3 interacting domain death agonist
B02	Rn.827	NM_080888	Bnip3l	BCL2/adenovirus E1B interacting protein 3-like
B03	Rn.974	NM_022399	Calr	Calreticulin
B04	Rn.162391	NM_001107956	Car9	Carbonic anhydrase 9
B05	Rn.37508	NM_012762	Casp1	Caspase 1
B06	Rn.53995	NM_022260	Casp7	Caspase 7
B07	Rn.137780	NM_001105822	Ccl12	Chemokine (C-C motif) ligand 12
B08	Rn.44218	NM_053353	Cd40lg	CD40 ligand
B09	Rn.10089	NM_080782	Cdkn1a	Cyclin-dependent kinase inhibitor 1A
B10	Rn.124539	NM_031506	Cftr	Cystic fibrosis transmembrane conductance regulator homolog (human)
B11	Rn.33267	NM_080400	Chek1	CHK1 checkpoint homolog (S. pombe)
B12	Rn.163213	NM_053677	Chek2	CHK2 checkpoint homolog (S. pombe)
C01	Rn.16463	NM_017096	Crp	C-reactive protein, pentraxin-related
C02	Rn.154614	XM_242065	Ddb2	Damage specific DNA binding protein 2
C03	Rn.11183	NM_024134	Ddit3	DNA-damage inducible transcript 3
C04	Rn.162234	NM_022232	Dnajc3	DnaJ (Hsp40) homolog, subfamily C, member 3
C05	Rn.10918	NM_012548	Edn1	Endothelin 1
C06	Rn.11365	NM_017001	Epo	Erythropoietin
C07	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
C08	Rn.54447	NM_012848	Fth1	Ferritin, heavy polypeptide 1
C09	Rn.10250	NM_024127	Gadd45a	Growth arrest and DNA-damage-inducible, alpha
C10	Rn.16950	NM_001077640	Gadd45g	Growth arrest and DNA-damage-inducible, gamma
C11	Rn.8365	NM_012815	Gclc	Glutamate-cysteine ligase, catalytic subunit
C12	Rn.2460	NM_017305	Gclm	Glutamate cysteine ligase, modifier subunit
D01	Rn.3360	NM_030846	Grb2	Growth factor receptor bound protein 2
D02	Rn.19721	NM_053906	Gsr	Glutathione reductase
D03	Rn.87063	NM_012577	Gstp1	Glutathione S-transferase pi 1
D04	Rn.3160	NM_012580	Hmox1	Heme oxygenase (decycling) 1
D05	Rn.119867	NM_175761	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1
D06	Rn.101146	NM_001012197	Hsp90b1	Heat shock protein 90, beta, member 1
D07	Rn.1950	NM_212504	Hspa1b	Heat shock 70kD protein 1B (mapped)
D08	Rn.163092	NM_153629	Hspa4	Heat shock protein 4
D09	Rn.144829	NM_001106428	Hspa4l	Heat shock protein 4-like
D10	Rn.11088	NM_013083	Hspa5	Heat shock protein 5
D11	Rn.12812	NM_001109092	Hus1	HUS1 checkpoint homolog (S. pombe)
D12	Rn.10795	NM_138880	Ifng	Interferon gamma
E01	Rn.12300	NM_017019	Il1a	Interleukin 1 alpha
E02	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
E03	Rn.9873	NM_012589	Il6	Interleukin 6
E04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
E05	Rn.129914	NM_021846	Mcl1	Myeloid cell leukemia sequence 1
E06	Rn.10209	NM_031055	Mmp9	Matrix metallopeptidase 9
E07	Rn.209040	NM_022279	Mre11a	MRE11 meiotic recombination 11 homolog A (S. cerevisiae)
E08	Rn.25214	NM_138873	Nbn	Nibrin
E09	Rn.22934	NM_001107425	Nfat5	Nuclear factor of activated T-cells 5

Position	UniGene	GenBank	Symbol	Description
E10	Rn.11234	NM_017000	Nqo1	NAD(P)H dehydrogenase, quinone 1
E11	Rn.11327	NM_013063	Parp1	Poly (ADP-ribose) polymerase 1
E12	Rn.22730	NM_001106030	Parp2	Poly (ADP-ribose) polymerase 2
F01	Rn.2845	NM_057114	Prdx1	Peroxiredoxin 1
F02	Rn.10677	NM_017076	Pvr	Poliovirus receptor
F03	Rn.154275	NM_001024778	Rad17	RAD17 homolog (S. pombe)
F04	Rn.214052	NM_001109204	Rad51	RAD51 homolog (RecA homolog, E. coli) (S. cerevisiae)
F05	Rn.145016	XM_219684	Rad9	RAD9 homolog (S. pombe)
F06	Rn.7572	NM_001107350	Ripk1	Receptor (TNFRSF)-interacting serine-threonine kinase 1
F07	Rn.7110	NM_139342	Ripk3	Receptor-interacting serine-threonine kinase 3
F08	Rn.29367	NM_012620	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F09	Rn.3205	NM_138827	Slc2a1	Solute carrier family 2 (facilitated glucose transporter), member 1
F10	Rn.208396	NM_053715	Slc5a3	Solute carrier family 5 (sodium/myo-inositol cotransporter), member 3
F11	Rn.9706	NM_012654	Slc9a3	Solute carrier family 9 (sodium/hydrogen exchanger), member 3
F12	Rn.107103	NM_181550	Sqstm1	Sequestosome 1
G01	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G02	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G03	Rn.105558	NM_001108873	Tnfrsf10b	Tumor necrosis factor receptor superfamily, member 10b
G04	Rn.11119	NM_013091	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G05	Rn.54443	NM_030989	Tp53	Tumor protein p53
G06	Rn.29777	NM_053800	Txn1	Thioredoxin 1
G07	Rn.7305	NM_001013891	Txnl4b	Thioredoxin-like 4B
G08	Rn.67581	NM_031614	Txnrd1	Thioredoxin reductase 1
G09	Rn.24509	NM_001108341	Ulk1	Unc-51 like kinase 1 (C. elegans)
G10	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
G11	Rn.101044	NM_001004210	Xbp1	X-box binding protein 1
G12	Rn.22820	NM_001107874	Xpc	Xeroderma pigmentosum, complementation group C
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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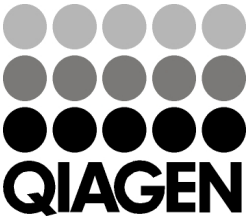

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