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

Rat Ubiquitination (Ubiquitinylation)

Cat. no. 330231 PARN-079ZA

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 Rat Ubiquitination or Ubiquitylation Pathway RT² Profiler PCR Array profiles the expression of 84 key genes involved in the regulated degradation of cellular proteins by the ubiquitin-proteasome system. Disruption of the proteasomal degradation pathway has been implicated in a wide range of Rat diseases, such as cancer, diabetes and cardiovascular and neurodegenerative diseases. The array includes ubiquitin-activating enzymes (E1), ubiquitin-conjugating enzymes (E2), and ubiquitin ligases (E3). These enzymes have also been sub-categorized as regulators of key cellular processes, such as apoptosis, the cell cycle and transcription. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes involved in ubiquitin degradation 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	Anapc2	Arih1	Atg7	Bard1	Brca1	Brcc3	Btrc	Cbl	Cdc34	Cul1	Cul2	Cul3
B	Cul4b	Cul5	Ddb1	Fbxo11	Fbxo32	Fbxo4	Fbxo6	Fbxw9	Hecw2	Itch	March5	Mdm2
C	Mib1	Mocs3	Mul1	Nae1	Nedd8	Park2	Rfwd2	Rlim	Rnf144b	Rnf167	Rnf180	Rnf2
D	Rnf20	Rnf34	Rnf40	Rnf6	Rnf8	Sae1	Skp1	Skp2	Smurf2	Stub1	Syvn1	Tmem189
E	Tp53	Uba1	Uba3	Uba5	Uba6	Ube2a	Ube2b	Ube2c	Ube2d1	Ube2d3	Ube2e2	Ube2e3
F	Ube2g1	Ube2g2	Ube2i	Ube2j1	Ube2j2	Ube2k	Ube2l3	Ube2l6	Ube2m	Ube2n	Ube2q1	Ube2q2
G	Ube2q2l	Ube2s	Ube2t	Ube2v1	Ube2v2	Ube2z	Ube4a	Uchl1	Uchl3	Uchl5	Vhl	Wwp1
H	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.20099	NM_001100532	Anapc2	Anaphase promoting complex subunit 2
A02	Rn.29865	NM_001013108	Arih1	Ariadne ubiquitin-conjugating enzyme E2 binding protein homolog 1 (Drosophila)
A03	Rn.162765	NM_001012097	Atg7	ATG7 autophagy related 7 homolog (S. cerevisiae)
A04	Rn.48735	NM_022622	Bard1	BRCA1 associated RING domain 1
A05	Rn.48840	NM_012514	Brca1	Breast cancer 1
A06	Rn.52727	NM_001127300	Brcc3	BRCA1/BRCA2-containing complex, subunit 3
A07	Rn.21800	NM_001007148	Btrc	Beta-transducin repeat containing
A08	Rn.35589	XM_576396	Cbl	Cas-Br-M (murine) ecotropic retroviral transforming sequence
A09	Rn.2427	NM_001013103	Cdc34	Cell division cycle 34 homolog (S. cerevisiae)
A10	Rn.68078	NM_001108627	Cul1	Cullin 1
A11	Rn.2970	NM_001108417	Cul2	Cullin 2
A12	Rn.101949	NM_001106923	Cul3	Cullin 3
B01	Rn.21178	NM_001106951	Cul4b	Cullin 4B
B02	Rn.163001	NM_022683	Cul5	Cullin 5
B03	Rn.8402	XM_002725785	Ddb1	Damage-specific DNA binding protein 1
B04	Rn.36585	NM_181631	Fbxo11	F-box protein 11
B05	Rn.72619	NM_133521	Fbxo32	F-box protein 32
B06	Rn.45165	NM_001107672	Fbxo4	F-box protein 4
B07	Rn.57325	NM_138917	Fbxo6	F-box protein 6
B08	Rn.29201	NM_001081634	Fbxw9	F-box and WD repeat domain containing 9
B09	Rn.198842	NM_001108218	Hecw2	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 2
B10	Rn.20718	NM_001005887	Itch	Itchy E3 ubiquitin protein ligase homolog (mouse)
B11	Rn.218003	NM_001106372	March5	Membrane-associated ring finger (C3HC4) 5
B12	Rn.91829	NM_001108099	Mdm2	Mdm2 p53 binding protein homolog (mouse)
C01	Rn.218158	NM_001107405	Mib1	Mindbomb homolog 1 (Drosophila)
C02	Rn.35140	NM_001107804	Mocs3	Molybdenum cofactor synthesis 3
C03	Rn.152339	NM_001106695	Mul1	Mitochondrial ubiquitin ligase activator of NFKB 1
C04	Rn.4279	NM_032072	Nae1	NEDD8 activating enzyme E1 subunit 1
C05	Rn.216415	NM_138878	Nedd8	Neural precursor cell expressed, developmentally down-regulated 8
C06	Rn.207194	NM_020093	Park2	Parkinson disease (autosomal recessive, juvenile) 2, parkin
C07	Rn.108036	NM_001025126	Rfwd2	Ring finger and WD repeat domain 2
C08	Rn.85539	NM_001024892	Rlim	Ring finger protein, LIM domain interacting
C09	Rn.178363	NM_001108881	Rnf144b	Ring finger protein 144B
C10	Rn.26488	NM_001008361	Rnf167	Ring finger protein 167
C11	Rn.109186	NM_001134986	Rnf180	Ring finger protein 180
C12	Rn.19719	NM_001025667	Rnf2	Ring finger protein 2
D01	Rn.15969	NM_001107929	Rnf20	Ring finger protein 20
D02	Rn.14904	NM_001004075	Rnf34	Ring finger protein 34
D03	Rn.162466	NM_153471	Rnf40	Ring finger protein 40
D04	Rn.53030	NM_001107118	Rnf6	Ring finger protein (C3H2C3 type) 6
D05	Rn.12463	NM_001025727	Rnf8	Ring finger protein 8
D06	Rn.9014	NM_001012063	Sae1	SUMO1 activating enzyme subunit 1
D07	Rn.3477	NM_001007608	Skp1	S-phase kinase-associated protein 1
D08	Rn.154278	NM_001106416	Skp2	S-phase kinase-associated protein 2 (p45)

Position	UniGene	GenBank	Symbol	Description
D09	Rn.92843	NM_001107061	Smurf2	SMAD specific E3 ubiquitin protein ligase 2
D10	Rn.6504	NM_001025625	Stub1	STIP1 homology and U-Box containing protein 1
D11	Rn.162486	NM_001100739	Syvn1	Synovial apoptosis inhibitor 1, synoviolin
D12	Rn.101810	NM_001113752	Tmem189	Transmembrane protein 189
E01	Rn.54443	NM_030989	Tp53	Tumor protein p53
E02	Rn.11800	NM_001014080	Uba1	Ubiquitin-like modifier activating enzyme 1
E03	Rn.162761	NM_057205	Uba3	Ubiquitin-like modifier activating enzyme 3
E04	Rn.18210	NM_001009669	Uba5	Ubiquitin-like modifier activating enzyme 5
E05	Rn.94245	NM_001107213	Uba6	Ubiquitin-like modifier activating enzyme 6
E06	Rn.8585	NM_001013933	Ube2a	Ubiquitin-conjugating enzyme E2A (RAD6 homolog)
E07	Rn.20766	NM_031138	Ube2b	Ubiquitin-conjugating enzyme E2B (RAD6 homolog, S. cerevisiae)
E08	Rn.3102	NM_001106542	Ube2c	Ubiquitin-conjugating enzyme E2C
E09	Rn.24937	NM_001108530	Ube2d1	Ubiquitin-conjugating enzyme E2D 1, UBC4/5 homolog (yeast)
E10	Rn.2778	NM_031237	Ube2d3	Ubiquitin-conjugating enzyme E2D 3 (UBC4/5 homolog, yeast)
E11	Rn.15203	NM_001108371	Ube2e2	Ubiquitin-conjugating enzyme E2E 2 (UBC4/5 homolog, yeast)
E12	Rn.2784	NM_001047857	Ube2e3	Ubiquitin-conjugating enzyme E2E 3, UBC4/5 homolog (yeast)
F01	Rn.163149	NM_022690	Ube2g1	Ubiquitin-conjugating enzyme E2G 1 (UBC7 homolog, yeast)
F02	Rn.139603	NM_001106380	Ube2g2	Ubiquitin-conjugating enzyme E2G 2 (UBC7 homolog, yeast)
F03	Rn.2274	NM_013050	Ube2i	Ubiquitin-conjugating enzyme E2I (UBC9 homolog, yeast)
F04	Rn.18843	NM_001106642	Ube2j1	Ubiquitin-conjugating enzyme E2, J1 (UBC6 homolog, yeast)
F05	Rn.106299	NM_001007655	Ube2j2	Ubiquitin-conjugating enzyme E2, J2 (UBC6 homolog, yeast)
F06	Rn.203330	NM_001106006	Ube2k	Ubiquitin-conjugating enzyme E2K (UBC1 homolog, yeast)
F07	Rn.163186	NM_001108847	Ube2l3	Ubiquitin-conjugating enzyme E2L 3
F08	Rn.8609	NM_001024755	Ube2l6	Ubiquitin-conjugating enzyme E2L 6
F09	Rn.15135	NM_001108471	Ube2m	Ubiquitin-conjugating enzyme E2M (UBC12 homolog, yeast)
F10	Rn.165094	NM_053928	Ube2n	Ubiquitin-conjugating enzyme E2N (UBC13 homolog, yeast)
F11	Rn.19034	NM_001106448	Ube2q1	Ubiquitin-conjugating enzyme E2Q family member 1
F12	Rn.19628	XM_001072896	Ube2q2	Ubiquitin-conjugating enzyme E2Q family member 2
G01	Rn.106891	NM_001135997	Ube2q2l	Ubiquitin-conjugating enzyme E2Q family member 2-like
G02	Rn.120398	NM_001106224	Ube2s	Ubiquitin-conjugating enzyme E2S
G03	Rn.18835	NM_001108344	Ube2t	Ubiquitin-conjugating enzyme E2T (putative)
G04	Rn.133763	NM_001110345	Ube2v1	Ubiquitin-conjugating enzyme E2 variant 1
G05	Rn.3933	NM_183052	Ube2v2	Ubiquitin-conjugating enzyme E2 variant 2
G06	Rn.16992	NM_001037643	Ube2z	Ubiquitin-conjugating enzyme E2Z
G07	Rn.102204	NM_207610	Ube4a	Ubiquitination factor E4A (UFD2 homolog, yeast)
G08	Rn.107213	NM_017237	Uchl1	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)
G09	Rn.46952	NM_001110165	Uchl3	Ubiquitin carboxyl-terminal esterase L3 (ubiquitin thiolesterase)
G10	Rn.40424	NM_001012149	Uchl5	Ubiquitin carboxyl-terminal hydrolase L5
G11	Rn.11059	NM_052801	Vhl	Von Hippel-Lindau tumor suppressor
G12	Rn.144867	NM_001024757	Wwp1	WW domain containing E3 ubiquitin protein ligase 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 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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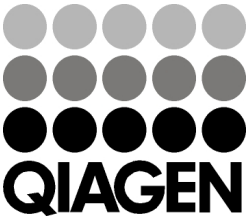

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