

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

Human Ubiquitination (Ubiquitylation)

Cat. no. 330231 PAHS-079ZA

For pathway expression analysis

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



Sample & Assay Technologies

Description

The Human 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 human 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	ANAPC11	ANAPC2	ARIH1	ATG7	BARD1	BRCA1	BRC3	BTRC	CBL	CDC34	CUL1	CUL2
B	CUL3	CUL4A	CUL4B	CUL5	CUL7	CUL9	DDB1	DZIP3	FBXO3	FBXO31	FBXO4	FBXW10
C	FBXW9	HECW1	HECW2	HERC5	HUWE1	MARCH5	MDM2	MIB1	MOC33	MUL1	NAE1	NEDD8
D	PARK2	RFWD2	RNF123	RNF148	SAE1	SKP1	SKP2	SMURF1	SMURF2	STUB1	SYVN1	TMEM189
E	TP53	UBA1	UBA2	UBA3	UBA5	UBA6	UBE2A	UBE2B	UBE2C	UBE2D1	UBE2D2	UBE2D3
F	UBE2E1	UBE2E2	UBE2E3	UBE2G1	UBE2G2	UBE2H	UBE2I	UBE2J1	UBE2J2	UBE2K	UBE2L3	UBE2M
G	UBE2N	UBE2Q1	UBE2R2	UBE2S	UBE2T	UBE2W	UBE2Z	UBE4B	UBR1	UBR2	VHL	WWP1
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.534456	NM_001002244	ANAPC11	Anaphase promoting complex subunit 11
A02	Hs.533262	NM_013366	ANAPC2	Anaphase promoting complex subunit 2
A03	Hs.268787	NM_005744	ARIH1	Ariadne homolog, ubiquitin-conjugating enzyme E2 binding protein, 1 (Drosophila)
A04	Hs.716466	NM_006395	ATG7	ATG7 autophagy related 7 homolog (S. cerevisiae)
A05	Hs.591642	NM_000465	BARD1	BRCA1 associated RING domain 1
A06	Hs.194143	NM_007294	BRCA1	Breast cancer 1, early onset
A07	Hs.558537	NM_024332	BRC3	BRCA1/BRCA2-containing complex, subunit 3
A08	Hs.643802	NM_033637	BTRC	Beta-transducin repeat containing
A09	Hs.504096	NM_005188	CBL	Cas-Br-M (murine) ecotropic retroviral transforming sequence
A10	Hs.514997	NM_004359	CDC34	Cell division cycle 34 homolog (S. cerevisiae)
A11	Hs.146806	NM_003592	CUL1	Cullin 1
A12	Hs.82919	NM_003591	CUL2	Cullin 2
B01	Hs.372286	NM_003590	CUL3	Cullin 3
B02	Hs.339735	NM_003589	CUL4A	Cullin 4A
B03	Hs.102914	NM_003588	CUL4B	Cullin 4B
B04	Hs.440320	NM_003478	CUL5	Cullin 5
B05	Hs.520136	NM_014780	CUL7	Cullin 7
B06	Hs.485434	NM_015089	CUL9	Cullin 9
B07	Hs.290758	NM_001923	DDB1	Damage-specific DNA binding protein 1, 127kDa
B08	Hs.409210	NM_014648	DZIP3	DAZ interacting protein 3, zinc finger
B09	Hs.406787	NM_012175	FBXO3	F-box protein 3
B10	Hs.567582	NM_024735	FBXO31	F-box protein 31
B11	Hs.165575	NM_012176	FBXO4	F-box protein 4
B12	Hs.592128	NM_031456	FBXW10	F-box and WD repeat domain containing 10
C01	Hs.515154	NM_032301	FBXW9	F-box and WD repeat domain containing 9
C02	Hs.164453	NM_015052	HECW1	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1
C03	Hs.654742	NM_020760	HECW2	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 2
C04	Hs.26663	NM_016323	HERC5	Hect domain and RLD 5
C05	Hs.136905	NM_031407	HUWE1	HECT, UBA and WWE domain containing 1
C06	Hs.573490	NM_017824	MARCH5	Membrane-associated ring finger (C3HC4) 5
C07	Hs.484551	NM_002392	MDM2	Mdm2 p53 binding protein homolog (mouse)
C08	Hs.140903	NM_020774	MIB1	Mindbomb homolog 1 (Drosophila)
C09	Hs.159410	NM_014484	MOC33	Molybdenum cofactor synthesis 3
C10	Hs.10101	NM_024544	MUL1	Mitochondrial E3 ubiquitin protein ligase 1
C11	Hs.460978	NM_003905	NAE1	NEDD8 activating enzyme E1 subunit 1
C12	Hs.531064	NM_006156	NEDD8	Neural precursor cell expressed, developmentally down-regulated 8
D01	Hs.132954	NM_004562	PARK2	Parkinson protein 2, E3 ubiquitin protein ligase (parkin)
D02	Hs.523744	NM_022457	RFWD2	Ring finger and WD repeat domain 2
D03	Hs.553723	NM_022064	RNF123	Ring finger protein 123
D04	Hs.675191	NM_198085	RNF148	Ring finger protein 148
D05	Hs.515500	NM_005500	SAE1	SUMO1 activating enzyme subunit 1
D06	Hs.171626	NM_006930	SKP1	S-phase kinase-associated protein 1
D07	Hs.23348	NM_005983	SKP2	S-phase kinase-associated protein 2 (p45)
D08	Hs.189329	NM_020429	SMURF1	SMAD specific E3 ubiquitin protein ligase 1

Position	UniGene	GenBank	Symbol	Description
D09	Hs.705442	NM_022739	SMURF2	SMAD specific E3 ubiquitin protein ligase 2
D10	Hs.592081	NM_005861	STUB1	STIP1 homology and U-box containing protein 1, E3 ubiquitin protein ligase
D11	Hs.715498	NM_172230	SYVN1	Synovial apoptosis inhibitor 1, synoviolin
D12	Hs.696710	NM_199129	TMEM189	Transmembrane protein 189
E01	Hs.654481	NM_000546	TP53	Tumor protein p53
E02	Hs.533273	NM_003334	UBA1	Ubiquitin-like modifier activating enzyme 1
E03	Hs.631580	NM_005499	UBA2	Ubiquitin-like modifier activating enzyme 2
E04	Hs.154320	NM_003968	UBA3	Ubiquitin-like modifier activating enzyme 3
E05	Hs.170737	NM_198329	UBA5	Ubiquitin-like modifier activating enzyme 5
E06	Hs.212774	NM_018227	UBA6	Ubiquitin-like modifier activating enzyme 6
E07	Hs.379466	NM_003336	UBE2A	Ubiquitin-conjugating enzyme E2A
E08	Hs.730071	NM_003337	UBE2B	Ubiquitin-conjugating enzyme E2B
E09	Hs.93002	NM_181803	UBE2C	Ubiquitin-conjugating enzyme E2C
E10	Hs.129683	NM_003338	UBE2D1	Ubiquitin-conjugating enzyme E2D 1
E11	Hs.108332	NM_181838	UBE2D2	Ubiquitin-conjugating enzyme E2D 2
E12	Hs.518773	NM_181893	UBE2D3	Ubiquitin-conjugating enzyme E2D 3
F01	Hs.164853	NM_182666	UBE2E1	Ubiquitin-conjugating enzyme E2E 1
F02	Hs.475688	NM_152653	UBE2E2	Ubiquitin-conjugating enzyme E2E 2
F03	Hs.470804	NM_006357	UBE2E3	Ubiquitin-conjugating enzyme E2E 3
F04	Hs.714345	NM_003342	UBE2G1	Ubiquitin-conjugating enzyme E2G 1
F05	Hs.529420	NM_182688	UBE2G2	Ubiquitin-conjugating enzyme E2G 2
F06	Hs.643548	NM_182697	UBE2H	Ubiquitin-conjugating enzyme E2H
F07	Hs.302903	NM_003345	UBE2I	Ubiquitin-conjugating enzyme E2I
F08	Hs.163776	NM_016021	UBE2J1	Ubiquitin-conjugating enzyme E2, J1, U
F09	Hs.191987	NM_194458	UBE2J2	Ubiquitin-conjugating enzyme E2, J2
F10	Hs.728888	NM_005339	UBE2K	Ubiquitin-conjugating enzyme E2K
F11	Hs.108104	NM_003347	UBE2L3	Ubiquitin-conjugating enzyme E2L 3
F12	Hs.406068	NM_003969	UBE2M	Ubiquitin-conjugating enzyme E2M
G01	Hs.524630	NM_003348	UBE2N	Ubiquitin-conjugating enzyme E2N
G02	Hs.607928	NM_017582	UBE2Q1	Ubiquitin-conjugating enzyme E2Q family member 1
G03	Hs.718444	NM_017811	UBE2R2	Ubiquitin-conjugating enzyme E2R 2
G04	Hs.396393	NM_014501	UBE2S	Ubiquitin-conjugating enzyme E2S
G05	Hs.5199	NM_014176	UBE2T	Ubiquitin-conjugating enzyme E2T (putative)
G06	Hs.728774	NM_018299	UBE2W	Ubiquitin-conjugating enzyme E2W (putative)
G07	Hs.514297	NM_023079	UBE2Z	Ubiquitin-conjugating enzyme E2Z
G08	Hs.632370	NM_006048	UBE4B	Ubiquitination factor E4B
G09	Hs.591121	NM_174916	UBR1	Ubiquitin protein ligase E3 component n-recognin 1
G10	Hs.529925	NM_015255	UBR2	Ubiquitin protein ligase E3 component n-recognin 2
G11	Hs.517792	NM_000551	VHL	Von Hippel-Lindau tumor suppressor
G12	Hs.655189	NM_007013	WWP1	WW domain containing E3 ubiquitin protein ligase 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.
RT ² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT ² 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
RT ² 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
RT ² 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.

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