

# RT<sup>2</sup> Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

## Rat Autophagy

Cat. no. 330231 PARN-084ZA

For pathway expression analysis

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



## Description

The Rat Autophagy RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in autophagy, an intracellular catabolic process that destroys a cell's own damaged proteins and organelles via the lysosome. Autophagy has been shown to play roles in a wide variety of normal physiological processes including energy metabolism, organelle turnover, growth regulation, and aging. Impaired autophagy can lead to diseases such as cardiomyopathy and cancer. The array includes genes that encode components of the molecular machinery and key regulators modulating autophagy in response to both extracellular and intracellular signals. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in autophagy with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

## Shipping and storage

RT<sup>2</sup> 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. RT<sup>2</sup> Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

For long term storage, keep plates at  $-20^{\circ}\text{C}$ .

**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

**Note:** Open the package and store the products appropriately immediately on receipt.

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## Array layout (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT<sup>2</sup> Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
<b>A</b>	Akt1	Ambra1	App	Arsa	Atg12	Atg16l1	Atg16l2	Atg3	Atg4b	Atg4c	Atg5	Atg7
<b>B</b>	Atg9a	Bad	Bak1	Bax	Bcl2	Bcl2l1	Becn1	Bid	Bnip3	Casp3	Casp8	Cdig2
<b>C</b>	Cdkn1b	Cdkn2a	Cln3	Ctsb	Ctsd	Ctss	Cxcr4	Dapk1	Dram2	Eif2ak3	Eif4g1	Esr1
<b>D</b>	Fadd	Fas	Gaa	Gabarap	Gabarapl2	Hdac1	Hdac6	Hgs	Hsp90aa1	Htt	Ifng	Igf1
<b>E</b>	Ins2	Irgm	Lamp1	Map1lc3a	Map1lc3b	Mapk14	Mapk8	Mapt	Mtor	Nrk1	Park2	Park7
<b>F</b>	Pik3c3	Pik3cg	Pik3r4	Pim2	Pink1	Prkaa1	Psen1	Plen	Rab24	Rb1	Rb1cc1	RGD1359310
<b>G</b>	Rgs19	Rps6kb1	Snca	Sqstm1	Tgfb1	Tgm2	Tm9sf1	Tnf	Tnfrsf10	Tp53	Ulk1	Wipi1
<b>H</b>	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

## Gene table: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1
A02	Rn.133954	NM_001134341	Ambra1	Autophagy/beclin 1 regulator 1
A03	Rn.2104	NM_019288	App	Amyloid beta (A4) precursor protein
A04	Rn.23323	NM_001034933	Arsa	Arylsulfatase A
A05	Rn.6224	NM_001038495	Atg12	ATG12 autophagy related 12 homolog (S. cerevisiae)
A06	Rn.101734	NM_001108809	Atg16l1	ATG16 autophagy related 16-like 1 (S. cerevisiae)
A07	Rn.104199	NM_001191560	Atg16l2	ATG16 autophagy related 16-like 2 (S. cerevisiae)
A08	Rn.3084	NM_134394	Atg3	ATG3 autophagy related 3 homolog (S. cerevisiae)
A09	Rn.163086	NM_001025711	Atg4b	ATG4 autophagy related 4 homolog B (S. cerevisiae)
A10	Rn.23378	NM_001107948	Atg4c	ATG4 autophagy related 4 homolog C (S. cerevisiae)
A11	Rn.98385	NM_001014250	Atg5	ATG5 autophagy related 5 homolog (S. cerevisiae)
A12	Rn.162765	NM_001012097	Atg7	ATG7 autophagy related 7 homolog (S. cerevisiae)
B01	Rn.35248	NM_001014218	Atg9a	ATG9 autophagy related 9 homolog A (S. cerevisiae)
B02	Rn.36696	NM_022698	Bad	BCL2-associated agonist of cell death
B03	Rn.14598	NM_053812	Bak1	BCL2-antagonist/killer 1
B04	Rn.10668	NM_017059	Bax	Bcl2-associated X protein
B05	Rn.9996	NM_016993	Bcl2	B-cell CLL/lymphoma 2
B06	Rn.10323	NM_031535	Bcl2l1	Bcl2-like 1
B07	Rn.2776	NM_053739	Becn1	Beclin 1, autophagy related
B08	Rn.31142	NM_022684	Bid	BH3 interacting domain death agonist
B09	Rn.2060	NM_053420	Bnip3	BCL2/adenovirus E1B interacting protein 3
B10	Rn.10562	NM_012922	Casp3	Caspase 3
B11	Rn.54474	NM_022277	Casp8	Caspase 8
B12	Rn.115253	NM_153624	Cdig2	Cdig2 protein
C01	Rn.29897	NM_031762	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
C02	Rn.48717	NM_031550	Cdkn2a	Cyclin-dependent kinase inhibitor 2A
C03	Rn.102386	NM_001006971	Cln3	Ceroid-lipofuscinosis, neuronal 3
C04	Rn.100909	NM_022597	Ctsb	Cathepsin B
C05	Rn.11085	NM_134334	Ctsd	Cathepsin D
C06	Rn.11347	NM_017320	Ctss	Cathepsin S
C07	Rn.44431	NM_022205	Cxcr4	Chemokine (C-X-C motif) receptor 4
C08	Rn.23108	NM_001107335	Dapk1	Death associated protein kinase 1
C09	Rn.1279	NM_001025018	Dram2	DNA-damage regulated autophagy modulator 2
C10	Rn.24897	NM_031599	Eif2ak3	Eukaryotic translation initiation factor 2 alpha kinase 3
C11	Rn.101803	XM_213569	Eif4g1	Eukaryotic translation initiation factor 4 gamma, 1
C12	Rn.10595	NM_012689	Esr1	Estrogen receptor 1
D01	Rn.16183	NM_152937	Fadd	Fas (TNFRSF6)-associated via death domain
D02	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
D03	Rn.162368	NM_199118	Gaa	Glucosidase, alpha, acid
D04	Rn.8411	NM_172036	Gabarap	GABA(A) receptor-associated protein
D05	Rn.64537	NM_022706	Gabarapl2	GABA(A) receptor-associated protein like 2
D06	Rn.1863	NM_001025409	Hdac1	Histone deacetylase 1
D07	Rn.13453	XM_228753	Hdac6	Histone deacetylase 6
D08	Rn.21	NM_019387	Hgs	Hepatocyte growth factor-regulated tyrosine kinase substrate
D09	Rn.119867	NM_175761	Hsp90aa1	Heat shock protein 90, alpha (cytosolic), class A member 1

Position	UniGene	GenBank	Symbol	Description
D10	Rn.11193	NM_024357	Htt	Huntingtin
D11	Rn.10795	NM_138880	lfng	Interferon gamma
D12	Rn.6282	NM_178866	Igf1	Insulin-like growth factor 1
E01	Rn.989	NM_019130	Ins2	Insulin 2
E02	Rn.20356	NM_001012007	Irgm	Immunity-related GTPase family, M
E03	Rn.40177	NM_012857	Lamp1	Lysosomal-associated membrane protein 1
E04	Rn.3135	NM_199500	Map1lc3a	Microtubule-associated protein 1 light chain 3 alpha
E05	Rn.41412	NM_022867	Map1lc3b	Microtubule-associated protein 1 light chain 3 beta
E06	Rn.88085	NM_031020	Mapk14	Mitogen activated protein kinase 14
E07	Rn.4090	XM_341399	Mapk8	Mitogen-activated protein kinase 8
E08	Rn.2455	NM_017212	Mapt	Microtubule-associated protein tau
E09	Rn.11008	NM_019906	Mtor	Mechanistic target of rapamycin (serine/threonine kinase)
E10	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E11	Rn.207194	NM_020093	Park2	Parkinson disease (autosomal recessive, juvenile) 2, parkin
E12	Rn.30105	NM_057143	Park7	Parkinson disease (autosomal recessive, early onset) 7
F01	Rn.30010	NM_022958	Pik3c3	Phosphoinositide-3-kinase, class 3
F02	Rn.152697	NM_001106723	Pik3cg	Phosphoinositide-3-kinase, catalytic, gamma polypeptide
F03	Rn.8917	NM_001108777	Pik3r4	Phosphoinositide-3-kinase, regulatory subunit 4
F04	Rn.20580	NM_001172103	Pim2	Pim-2 oncogene
F05	Rn.219286	NM_001106694	Pink1	PTEN induced putative kinase 1
F06	Rn.87789	NM_019142	Prkaa1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
F07	Rn.44440	NM_019163	Psen1	Presenilin 1
F08	Rn.22158	NM_031606	Pten	Phosphatase and tensin homolog
F09	Rn.6295	NM_001015023	Rab24	RAB24, member RAS oncogene family
F10	Rn.55115	NM_017045	Rb1	Retinoblastoma 1
F11	Rn.33137	NM_001107901	Rb1cc1	RB1-inducible coiled-coil 1
F12	Rn.4038	NM_001007659	RGD135931 0	Similar to RIKEN cDNA 9430023L20
G01	Rn.88166	NM_021661	Rgs19	Regulator of G-protein signaling 19
G02	Rn.4042	NM_031985	Rps6kb1	Ribosomal protein S6 kinase, polypeptide 1
G03	Rn.1827	NM_019169	Snca	Synuclein, alpha (non A4 component of amyloid precursor)
G04	Rn.107103	NM_181550	Sqstm1	Sequestosome 1
G05	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G06	Rn.10	NM_019386	Tgm2	Transglutaminase 2, C polypeptide
G07	Rn.12071	NM_001012155	Tm9sf1	Transmembrane 9 superfamily member 1
G08	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G09	Rn.83627	NM_145681	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G10	Rn.54443	NM_030989	Tp53	Tumor protein p53
G11	Rn.24509	NM_001108341	Ulk1	Unc-51 like kinase 1 (C. elegans)
G12	Rn.203725	NM_001127297	Wipi1	WD repeat domain, phosphoinositide interacting 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, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> 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 <sup>2</sup> 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 <sup>2</sup> 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.

RT<sup>2</sup> 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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