

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

Rat Synaptic Plasticity

Cat. no. 330231 PARN-126ZA

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 Rat Synaptic Plasticity RT² Profiler PCR Array profiles the expression of 84 key genes central to synaptic alterations during learning and memory. The brain recalls immediate events via short-term memories; however, it must consolidate these events into long-term memory for later recall. Memory consolidation requires synaptic plasticity characterized by physical changes to, and gene expression changes in, neuronal synapses. Synaptic plasticity studies have discovered immediate-early genes (IEGs) that alter expression immediately after neuronal events. IEGs mediate long-term potentiation (LTP), a process that enhances synaptic connections and consolidates memories. However, as not all events become long-term memories, the opposite synaptic remodeling response, long-term depression (LTD), also plays a central role in synaptic plasticity. Gene expression changes associated with LTD yield physical changes in the neuronal synapse that recycle receptors and either enhance or inhibit synaptic connections. This array includes IEGs and other genes important for LTP and LTD, as well as key neuronal receptor genes and genes important for synapse remodeling. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in synaptic plasticity, LTP and LTD 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	Adam10	Adcy1	Adcy8	Akt1	Arc	Bdnf	Camk2a	Camk2g	Cdh2	Cebpb	Cebpd	Cnr1
B	Creb1	Creml	Dlg4	Egr1	Egr2	Egr3	Egr4	Ephb2	Fos	Gabra5	Gnai1	Gria1
C	Gria2	Gria3	Gria4	Grin1	Grin2a	Grin2b	Grin2c	Grin2d	Grip1	Grm1	Grm2	Grm3
D	Grm4	Grm5	Grm7	Grm8	Homer1	Igf1	Inhba	Jun	Junb	Klf10	Mapk1	Mmp9
E	Ncam1	Nfkb1	Nfkbib	Ngf	Ngfr	Nos1	Nptx2	Nr4a1	Nrf3	Nrf4	Ntrk2	Pcdh8
F	Pick1	Pim1	Plat	Pfeg1	Ppp1ca	Ppp1cc	Ppp1r14a	Ppp2ca	Ppp3ca	Prkca	Prkcg	Prkg1
G	Rab3a	Rela	Reln	RGD1562511	Rgs2	Rheb	Sirt1	Srf	Synpo	Timp1	Tnf	Ywhaq
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.42924	XM_217197	Adam10	ADAM metallopeptidase domain 10
A02	Rn.214145	NM_001107239	Adcy1	Adenylate cyclase 1 (brain)
A03	Rn.10382	NM_017142	Adcy8	Adenylate cyclase 8 (brain)
A04	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1
A05	Rn.10086	NM_019361	Arc	Activity-regulated cytoskeleton-associated protein
A06	Rn.11266	NM_012513	Bdnf	Brain-derived neurotrophic factor
A07	Rn.107499	NM_012920	Camk2a	Calcium/calmodulin-dependent protein kinase II alpha
A08	Rn.10961	NM_133605	Camk2g	Calcium/calmodulin-dependent protein kinase II gamma
A09	Rn.23200	NM_031333	Cdh2	Cadherin 2
A10	Rn.6479	NM_024125	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
A11	Rn.202620	NM_013154	Cebpd	CCAAT/enhancer binding protein (C/EBP), delta
A12	Rn.89774	NM_012784	Cnr1	Cannabinoid receptor 1 (brain)
B01	Rn.90061	NM_031017	Creb1	CAMP responsive element binding protein 1
B02	Rn.10251	NM_001110860	Creml	CAMP responsive element modulator
B03	Rn.9765	NM_019621	Dlg4	Discs, large homolog 4 (Drosophila)
B04	Rn.9096	NM_012551	Egr1	Early growth response 1
B05	Rn.89235	NM_053633	Egr2	Early growth response 2
B06	Rn.44371	NM_017086	Egr3	Early growth response 3
B07	Rn.31998	NM_019137	Egr4	Early growth response 4
B08	Rn.27233	NM_001127319	Ephb2	Eph receptor B2
B09	Rn.103750	NM_022197	Fos	FBJ osteosarcoma oncogene
B10	Rn.10368	NM_017295	Gabra5	Gamma-aminobutyric acid (GABA) A receptor, alpha 5
B11	Rn.11391	NM_013145	Gnai1	Guanine nucleotide binding protein (G protein), alpha inhibiting 1
B12	Rn.29971	NM_031608	Gria1	Glutamate receptor, ionotropic, AMPA 1
C01	Rn.91361	NM_017261	Gria2	Glutamate receptor, ionotropic, AMPA 2
C02	Rn.74049	NM_032990	Gria3	Glutamate receptor, ionotropic, AMPA 3
C03	Rn.10938	NM_017263	Gria4	Glutamate receptor, ionotropic, AMPA 4
C04	Rn.9840	NM_017010	Grin1	Glutamate receptor, ionotropic, N-methyl D-aspartate 1
C05	Rn.9710	NM_012573	Grin2a	Glutamate receptor, ionotropic, N-methyl D-aspartate 2A
C06	Rn.9711	NM_012574	Grin2b	Glutamate receptor, ionotropic, N-methyl D-aspartate 2B
C07	Rn.9709	NM_012575	Grin2c	Glutamate receptor, ionotropic, N-methyl D-aspartate 2C
C08	Rn.91209	NM_022797	Grin2d	Glutamate receptor, ionotropic, N-methyl D-aspartate 2D
C09	Rn.74240	NM_032069	Grip1	Glutamate receptor interacting protein 1
C10	Rn.87787	NM_017011	Grm1	Glutamate receptor, metabotropic 1
C11	Rn.9681	NM_001105711	Grm2	Glutamate receptor, metabotropic 2
C12	Rn.41715	NM_001105712	Grm3	Glutamate receptor, metabotropic 3
D01	Rn.89046	NM_022666	Grm4	Glutamate receptor, metabotropic 4
D02	Rn.29972	NM_017012	Grm5	Glutamate receptor, metabotropic 5
D03	Rn.10409	NM_031040	Grm7	Glutamate receptor, metabotropic 7
D04	Rn.44420	NM_022202	Grm8	Glutamate receptor, metabotropic 8
D05	Rn.37500	NM_031707	Homer1	Homer homolog 1 (Drosophila)
D06	Rn.6282	NM_178866	Igf1	Insulin-like growth factor 1
D07	Rn.9874	NM_017128	Inhba	Inhibin beta-A
D08	Rn.93714	NM_021835	Jun	Jun oncogene
D09	Rn.15806	NM_021836	Junb	Jun B proto-oncogene

Position	UniGene	GenBank	Symbol	Description
D10	Rn.2398	NM_031135	Klf10	Kruppel-like factor 10
D11	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
D12	Rn.10209	NM_031055	Mmp9	Matrix metalloproteinase 9
E01	Rn.11283	NM_031521	Ncam1	Neural cell adhesion molecule 1
E02	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E03	Rn.8395	NM_030867	Nfkbib	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, beta
E04	Rn.22168	XM_227525	Ngf	Nerve growth factor (beta polypeptide)
E05	Rn.10980	NM_012610	Ngfr	Nerve growth factor receptor (TNFR superfamily, member 16)
E06	Rn.10573	NM_052799	Nos1	Nitric oxide synthase 1, neuronal
E07	Rn.162101	NM_001034199	Nptx2	Neuronal pentraxin 2
E08	Rn.10000	NM_024388	Nr4a1	Nuclear receptor subfamily 4, group A, member 1
E09	Rn.9715	NM_031073	Nrf3	Neurotrophin 3
E10	Rn.44225	NM_013184	Nrf4	Neurotrophin 4
E11	Rn.11246	NM_012731	Ntrk2	Neurotrophic tyrosine kinase, receptor, type 2
E12	Rn.23337	NM_022868	Pcdh8	Protocadherin 8
F01	Rn.24750	NM_053460	Pick1	Protein interacting with PRKCA 1
F02	Rn.34888	NM_017034	Pim1	Pim-1 oncogene
F03	Rn.107102	NM_013151	Plat	Plasminogen activator, tissue
F04	Rn.11243	NM_013187	Plcg1	Phospholipase C, gamma 1
F05	Rn.2024	NM_031527	Ppp1ca	Protein phosphatase 1, catalytic subunit, alpha isoform
F06	Rn.1495	NM_022498	Ppp1cc	Protein phosphatase 1, catalytic subunit, gamma isoform
F07	Rn.73852	NM_130403	Ppp1r14a	Protein phosphatase 1, regulatory (inhibitor) subunit 14A
F08	Rn.1271	NM_017039	Ppp2ca	Protein phosphatase 2, catalytic subunit, alpha isoform
F09	Rn.6866	NM_017041	Ppp3ca	Protein phosphatase 3, catalytic subunit, alpha isoform
F10	Rn.207908	NM_001105713	Prkca	Protein kinase C, alpha
F11	Rn.9747	NM_012628	Prkcg	Protein kinase C, gamma
F12	Rn.204724	NM_001105731	Prkg1	Protein kinase, cGMP-dependent, type 1
G01	Rn.44409	NM_013018	Rab3a	RAB3A, member RAS oncogene family
G02	Rn.19480	NM_199267	Rela	V-rel reticuloendotheliosis viral oncogene homolog A (avian)
G03	Rn.98353	NM_080394	Reln	Reelin
G04	Rn.123251	XR_008709	RGD156251 1	Similar to MmKIF17
G05	Rn.1892	NM_053453	Rgs2	Regulator of G-protein signaling 2
G06	Rn.859	NM_013216	Rheb	Ras homolog enriched in brain
G07	Rn.219976	NM_001107627	Sirt1	Sirtuin (silent mating type information regulation 2 homolog) 1 (<i>S. cerevisiae</i>)
G08	Rn.1501	NM_001109302	Srf	Serum response factor (c-fos serum response element-binding transcription factor)
G09	Rn.42910	NM_021695	Synpo	Synaptopodin
G10	Rn.25754	NM_053819	Timp1	TIMP metalloproteinase inhibitor 1
G11	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G12	Rn.2502	NM_013053	Ywhaq	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide
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.
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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