

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

Mouse Synaptic Plasticity

Cat. no. 330231 PAMM-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 Mouse 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	Kif17	Kif10	Mapk1
E	Mmp9	Ncam1	Nfkb1	Nfkbib	Ngf	Ngfr	Nos1	Nph2	Nr4a1	Nf3	Nf5	Ntrk2
F	Pcdh8	Pick1	Pim1	Plat	Plcg1	Ppp1ca	Ppp1cc	Ppp1r14a	Ppp2ca	Ppp3ca	Prkca	Prkcc
G	Prkg1	Rab3a	Rela	Reln	Rgs2	Rheb	Sirt1	Srf	Synpo	Timp1	Tnf	Ywhaq
H	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.3037	NM_007399	Adam10	A disintegrin and metallopeptidase domain 10
A02	Mm.259733	NM_009622	Adcy1	Adenylate cyclase 1
A03	Mm.1425	NM_009623	Adcy8	Adenylate cyclase 8
A04	Mm.6645	NM_009652	Akt1	Thymoma viral proto-oncogene 1
A05	Mm.25405	NM_018790	Arc	Activity regulated cytoskeletal-associated protein
A06	Mm.1442	NM_007540	Bdnf	Brain derived neurotrophic factor
A07	Mm.131530	NM_177407	Camk2a	Calcium/calmodulin-dependent protein kinase II alpha
A08	Mm.235182	NM_178597	Camk2g	Calcium/calmodulin-dependent protein kinase II gamma
A09	Mm.257437	NM_007664	Cdh2	Cadherin 2
A10	Mm.439656	NM_009883	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
A11	Mm.347407	NM_007679	Cebpd	CCAAT/enhancer binding protein (C/EBP), delta
A12	Mm.7992	NM_007726	Cnr1	Cannabinoid receptor 1 (brain)
B01	Mm.453295	NM_133828	Creb1	CAMP responsive element binding protein 1
B02	Mm.5244	NM_013498	Creml	CAMP responsive element modulator
B03	Mm.27256	NM_007864	Dlg4	Discs, large homolog 4 (Drosophila)
B04	Mm.181959	NM_007913	Egr1	Early growth response 1
B05	Mm.290421	NM_010118	Egr2	Early growth response 2
B06	Mm.103737	NM_018781	Egr3	Early growth response 3
B07	Mm.44137	NM_020596	Egr4	Early growth response 4
B08	Mm.250981	NM_010142	Ephb2	Eph receptor B2
B09	Mm.246513	NM_010234	Fos	FBJ osteosarcoma oncogene
B10	Mm.273114	NM_176942	Gabra5	Gamma-aminobutyric acid (GABA) A receptor, subunit alpha 5
B11	Mm.254629	NM_010305	Gnai1	Guanine nucleotide binding protein (G protein), alpha inhibiting 1
B12	Mm.4920	NM_008165	Gria1	Glutamate receptor, ionotropic, AMPA1 (alpha 1)
C01	Mm.220224	NM_013540	Gria2	Glutamate receptor, ionotropic, AMPA2 (alpha 2)
C02	Mm.327681	NM_016886	Gria3	Glutamate receptor, ionotropic, AMPA3 (alpha 3)
C03	Mm.209263	NM_019691	Gria4	Glutamate receptor, ionotropic, AMPA4 (alpha 4)
C04	Mm.278672	NM_008169	Grin1	Glutamate receptor, ionotropic, NMDA1 (zeta 1)
C05	Mm.2953	NM_008170	Grin2a	Glutamate receptor, ionotropic, NMDA2A (epsilon 1)
C06	Mm.436649	NM_008171	Grin2b	Glutamate receptor, ionotropic, NMDA2B (epsilon 2)
C07	Mm.39090	NM_010350	Grin2c	Glutamate receptor, ionotropic, NMDA2C (epsilon 3)
C08	Mm.322594	NM_008172	Grin2d	Glutamate receptor, ionotropic, NMDA2D (epsilon 4)
C09	Mm.196692	NM_133442	Grip1	Glutamate receptor interacting protein 1
C10	Mm.391904	NM_016976	Grm1	Glutamate receptor, metabotropic 1
C11	Mm.410822	NM_001160353	Grm2	Glutamate receptor, metabotropic 2
C12	Mm.318966	NM_181850	Grm3	Glutamate receptor, metabotropic 3
D01	Mm.358940	NM_001013385	Grm4	Glutamate receptor, metabotropic 4
D02	Mm.235018	NM_001081414	Grm5	Glutamate receptor, metabotropic 5
D03	Mm.240881	NM_177328	Grm7	Glutamate receptor, metabotropic 7
D04	Mm.320732	NM_008174	Grm8	Glutamate receptor, metabotropic 8
D05	Mm.37533	NM_152134	Homer1	Homer homolog 1 (Drosophila)
D06	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1
D07	Mm.8042	NM_008380	Inhba	Inhibin beta-A
D08	Mm.275071	NM_010591	Jun	Jun oncogene
D09	Mm.1167	NM_008416	Junb	Jun-B oncogene

Position	UniGene	GenBank	Symbol	Description
D10	Mm.347452	NM_010623	Kif17	Kinesin family member 17
D11	Mm.4292	NM_013692	Klf10	Kruppel-like factor 10
D12	Mm.196581	NM_011949	Mapk1	Mitogen-activated protein kinase 1
E01	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9
E02	Mm.4974	NM_010875	Ncam1	Neural cell adhesion molecule 1
E03	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1, p105
E04	Mm.220333	NM_010908	Nfkbib	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, beta
E05	Mm.1259	NM_013609	Ngf	Nerve growth factor
E06	Mm.283893	NM_033217	Ngfr	Nerve growth factor receptor (TNFR superfamily, member 16)
E07	Mm.44249	NM_008712	Nos1	Nitric oxide synthase 1, neuronal
E08	Mm.10099	NM_016789	Nptx2	Neuronal pentraxin 2
E09	Mm.119	NM_010444	Nr4a1	Nuclear receptor subfamily 4, group A, member 1
E10	Mm.267570	NM_008742	Ntr3	Neurotrophin 3
E11	Mm.20344	NM_198190	Ntr5	Neurotrophin 5
E12	Mm.130054	NM_008745	Ntrk2	Neurotrophic tyrosine kinase, receptor, type 2
F01	Mm.390715	NM_021543	Pcdh8	Protocadherin 8
F02	Mm.259464	NM_008837	Pick1	Protein interacting with C kinase 1
F03	Mm.405293	NM_008842	Pim1	Proviral integration site 1
F04	Mm.154660	NM_008872	Plat	Plasminogen activator, tissue
F05	Mm.44463	NM_021280	Plcg1	Phospholipase C, gamma 1
F06	Mm.1970	NM_031868	Ppp1ca	Protein phosphatase 1, catalytic subunit, alpha isoform
F07	Mm.280784	NM_013636	Ppp1cc	Protein phosphatase 1, catalytic subunit, gamma isoform
F08	Mm.2343	NM_026731	Ppp1r14a	Protein phosphatase 1, regulatory (inhibitor) subunit 14A
F09	Mm.260288	NM_019411	Ppp2ca	Protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform
F10	Mm.331389	NM_008913	Ppp3ca	Protein phosphatase 3, catalytic subunit, alpha isoform
F11	Mm.222178	NM_011101	Prkca	Protein kinase C, alpha
F12	Mm.7980	NM_011102	Prkcc	Protein kinase C, gamma
G01	Mm.381172	NM_011160	Prkg1	Protein kinase, cGMP-dependent, type I
G02	Mm.5083	NM_009001	Rab3a	RAB3A, member RAS oncogene family
G03	Mm.249966	NM_009045	Rela	V-rel reticuloendotheliosis viral oncogene homolog A (avian)
G04	Mm.425236	NM_011261	Reln	Reelin
G05	Mm.28262	NM_009061	Rgs2	Regulator of G-protein signaling 2
G06	Mm.319175	NM_053075	Rheb	Ras homolog enriched in brain
G07	Mm.351459	NM_019812	Sirt1	Sirtuin 1 (silent mating type information regulation 2, homolog) 1 (S. cerevisiae)
G08	Mm.45044	NM_020493	Srf	Serum response factor
G09	Mm.252321	NM_177340	Synpo	Synaptopodin
G10	Mm.8245	NM_011593	Timp1	Tissue inhibitor of metalloproteinase 1
G11	Mm.1293	NM_013693	Tnf	Tumor necrosis factor
G12	Mm.289630	NM_011739	Ywhaq	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide
H01	Mm.328431	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
H06	N/A	SA_00106	MGDC	Mouse 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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