

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene® Format)

## Pig Synaptic Plasticity

Cat. no. 330231 PASS-126ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

### Description

The Pig Synaptic Plasticity RT<sup>2</sup> 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 *RT<sup>2</sup> Profiler PCR Array Handbook*.



## **Shipping and storage**

RT<sup>2</sup> Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°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.

## **Array layout**

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

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

Position	UniGene	GenBank	Symbol	Description
1	Ssc.1114	NM_001130531	ADAM10	ADAM metallopeptidase domain 10
2	Ssc.19668	NM_001099926	ADAM17	ADAM metallopeptidase domain 17
3	N/A	XM_013985803	ADCY1	Adenylate cyclase type 1-like
4	N/A	XM_021088903	ADCY8	Adenylate cyclase 8
5	Ssc.19672	NM_001159776	AKT1	V-akt murine thymoma viral oncogene homolog 1
6	N/A	XM_021088786	ARC	Activity regulated cytoskeleton associated protein
7	Ssc.16243	NM_214259	BDNF	Brain-derived neurotrophic factor
8	Ssc.49878	NM_214193	CAMK2G	Calcium/calmodulin-dependent protein kinase II gamma
9	N/A	XR_130700	CDH2	Cadherin 2, type 1, N-cadherin (neuronal)
10	Ssc.32416	NM_001199889	CEPB	CCAAT/enhancer binding protein (C/EBP), beta
11	Ssc.97280	XM_005663091	CEBD	CCAAT/enhancer binding protein (C/EBP), delta
12	N/A	XM_005659288	CNR1	Cannabinoid receptor 1 (brain)
13	Ssc.80814	NM_001099929	CREB1	CAMP responsive element binding protein 1
14	Ssc.2841	XM_003130810	CREM	CAMP responsive element modulator
15	N/A	XM_003481294	DLG4	Discs, large homolog 4 (Drosophila)
16	Ssc.5974	XM_003123974	EGR1	Early growth response 1
17	Ssc.51140	NM_001097488	EGR2	Early growth response 2
18	N/A	XM_003359030	EGR3	Early growth response 3
19	Ssc.10361	NM_001285968	EGR4	Early growth response 4
20	Ssc.48876	XM_005656047	EPHB2	EPH receptor B2
21	Ssc.1555	NM_001123113	FOS	FBJ murine osteosarcoma viral oncogene homolog
22	Ssc.89358	XM_003134089	GABRA1	Gamma-aminobutyric acid type A receptor alpha1 subunit
23	N/A	XM_003121648	GABRA5	Gamma-aminobutyric acid receptor subunit alpha-5-like
24	Ssc.4159	NM_001123115	GNAI1	GB11 protein
25	N/A	XM_003359841	GRIA1	Glutamate receptor, ionotropic, AMPA 1
26	N/A	XM_005656504	GRIA2	Glutamate receptor, ionotropic, AMPA 2
27	N/A	XM_003135380	GRIA3	Glutamate receptor, ionotropic, AMPA 3
28	N/A	XM_003129821	GRIA4	Glutamate receptor, ionotropic, AMPA 4
29	N/A	XM_013992346	GRIN1	Glutamate receptor, ionotropic, N-methyl D-aspartate 1
30	N/A	XM_003355567	GRIN2B	Glutamate receptor, ionotropic, N-methyl D-aspartate 2B
31	N/A	XM_013980765	GRIN2C	Glutamate receptor, ionotropic, N-methyl D-aspartate 2C
32	N/A	XM_003127274	GRIN2D	Glutamate receptor, ionotropic, N-methyl D-aspartate 2D
33	N/A	XM_003353966	GRIN3B	Glutamate receptor, ionotropic, N-methyl-D-aspartate 3B
34	N/A	XM_005659163	GRM1	Glutamate receptor, metabotropic 1
35	N/A	XM_013981686	GRM2	Glutamate receptor, metabotropic 2
36	Ssc.67141	XM_013989603	GRM3	Glutamate receptor, metabotropic 3
37	N/A	XM_001928369	GRM4	Glutamate receptor, metabotropic 4
38	N/A	XM_021102327	GRM5	Glutamate metabotropic receptor 5

Position	UniGene	GenBank	Symbol	Description
39	N/A	XM_013990104	GRM7	Glutamate receptor, metabotropic 7
40	Ssc.76338	NM_001243811	HOMER1	Homer homolog 1 (Drosophila)
41	Ssc.16231	NM_214256	IGF1	Insulin-like growth factor 1 (somatomedin C)
42	Ssc.52080	NM_214028	INHBA	Inhibin, beta A
43	Ssc.94492	NM_213880	JUN	C-JUN protein
44	Ssc.101817	XM_005674483	JUNB	Jun B proto-oncogene
45	Ssc.17289	NM_001134344	KLF10	Krueppel-like factor 10
46	Ssc.54461	XM_013980142	LOC100519209	Neurotrophic tyrosine kinase, receptor, type 2
47	N/A	XM_005673194	LOC100524120	Glutamate receptor, metabotropic 8
48	N/A	XM_003354356	CAMK2A	Calcium/calmodulin dependent protein kinase II alpha
49	N/A	XM_003481048	LOC100736832	Glutamate receptor ionotropic, NMDA 2A-like
50	Ssc.72142	NM_001198922	MAPK1	Extracellular signal-regulated kinase-2
51	Ssc.4086	NM_001038004	MMP9	Matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
52	Ssc.3051	XM_005667343	NCAM1	Neural cell adhesion molecule 1
53	Ssc.17816	NM_001048232	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
54	Ssc.23982	XM_003355897	NFKBIB	NF-kappa-B inhibitor beta-like
55	Ssc.19976	XM_021089996	NGF	Nerve growth factor
56	N/A	XM_003131565	NGFR	Nerve growth factor receptor
57	N/A	XM_013990334	NOS1	Nitric oxide synthase 1 (neuronal)
58	Ssc.58523	XM_021081037	NOTCH1	Notch 1
59	N/A	XM_005661854	NPTX2	Neuronal pentraxin II
60	Ssc.1916	NM_001123152	NTF3	Neurotrophin 3
61	Ssc.67990	NM_001243713	NTF4	Neurotrophin 4
62	N/A	XM_003131007	PCDH8	Protocadherin 8
63	Ssc.2388	XM_003355339	PICK1	Protein interacting with PRKCA 1
64	Ssc.41548	XM_005665927	PIM1	Pim-1 oncogene
65	Ssc.196	NM_214054	PLAT	Plasminogen activator, tissue
66	Ssc.11206	XM_005672938	PLCG1	Phospholipase C, gamma 1
67	Ssc.21716	NM_001044559	PPP1CA	Protein phosphatase 1 catalytic subunit alpha isoform
68	Ssc.11661	NM_001044560	PPP1CC	Protein phosphatase 1 catalytic subunit gamma isoform
69	Ssc.13002	NM_214337	PPP1R14A	Protein phosphatase 1, regulatory (inhibitor) subunit 14A
70	Ssc.13983	NM_214366	PPP2CA	Protein phosphatase 2, catalytic subunit, alpha isozyme
71	Ssc.94720	NM_214128	PPP3CA	Protein phosphatase 3, catalytic subunit, alpha isozyme
72	Ssc.15802	XM_005668672	PRKCA	Protein kinase C, alpha
73	Ssc.78276	XM_003356041	PRKCG	Protein kinase C gamma type-like
74	Ssc.87636	NM_001044574	PRKG1	Protein kinase, cGMP-dependent, type I
75	Ssc.5969	NM_001123179	RAB3A	RAB3A, member RAS oncogene family
76	Ssc.23557	NM_001114281	RELA	V-rel reticuloendotheliosis viral oncogene homolog A (avian)
77	Ssc.49517	NM_001044600	RGS2	Regulator of G-protein signaling 2, 24kDa
78	Ssc.5964	NM_001287846	RHEB	GTP-binding protein Rheb-like

<b>Position</b>	<b>UniGene</b>	<b>GenBank</b>	<b>Symbol</b>	<b>Description</b>
79	Ssc.89851	NM_001145750	SIRT1	Sirtuin 1
80	N/A	XM_005666020	SRF	Serum response factor (c-fos serum response element-binding transcription factor)
81	N/A	XM_013992085	SYNPO	Synaptopodin
82	Ssc.11784	NM_213857	TIMP1	TIMP metallopeptidase inhibitor 1
83	Ssc.100	NM_214022	TNF	Tumor necrosis factor
84	Ssc.2456	XM_003481290	YWHAQ	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide
85	Ssc.10316	XM_003124280	ACTB	Actin, beta
86	Ssc.73773	NM_213978	B2M	Beta-2-microglobulin
87	Ssc.16135	NM_001206359	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
88	Ssc.4158	NM_001032376	HPRT1	Hypoxanthine phosphoribosyltransferase 1
89	Ssc.27927	NM_001244068	RPL13A	Ribosomal protein L13a
90	N/A	SA_00133	SGDC	Pig Genomic DNA Contamination
91	N/A	SA_00104	RTC	Reverse Transcription Control
92	N/A	SA_00104	RTC	Reverse Transcription Control
93	N/A	SA_00104	RTC	Reverse Transcription Control
94	N/A	SA_00103	PPC	Positive PCR Control
95	N/A	SA_00103	PPC	Positive PCR Control
96	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 RT2 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 ROX <sup>™</sup> FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

\* 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.

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](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

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