

RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Pain: Neuropathic & Inflammatory

Cat. no. 330231 PARN-162ZR

For pathway expression analysis

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

Description

The Rat Pain: Neuropathic & Inflammatory RT² Profiler PCR Array profiles the expression of 84 genes involved in the transduction, maintenance, and modulation of pain responses. Noxious environmental stimuli, tissue damage, and disease all evoke pain. Since it afflicts up to 20% of the population at any given time, pain provides both a massive therapeutic target and a route to understanding the molecular mechanisms of nervous system function. While neuropathic pain often results from damage to the peripheral (PNS) or central nervous system (CNS), peripheral tissue damage and/or inflammation generally initiates inflammatory pain. Neuropathic and inflammatory pain both cause activation of damage-sensing neurons (nociceptors) that innervate the skin, muscle and viscera and terminate in the laminae of the spinal cord dorsal horn. Nociceptors conduct information to the CNS via neurotransmission and action potentials generated by ion channel and purinergic, opioid, and cannabinoid receptors leading to second order neuron activation. Synaptic transmission via glutamate, serotonin, and dopamine systems then follows. The transduction by nociceptors can be modulated by mediators of inflammation released by infiltrating immune cells and damaged neurons. Excitability of spinal neurons is also modulated by activation of resident microglia that release growth factors (such as BDNF), chemokines, and cytokines. Endogenous opioid peptides and arachidonic acid metabolites acting through G-protein coupled receptors also modulate neuronal excitability. A number of these pathways are currently being evaluated as potential pharmacological targets for analgesic development for pain management. Using real time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes associated with neuropathic and inflammatory pain with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² 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 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

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.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.10149	NM_012544	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Rn.32078	NM_017155	Adora1	Adenosine A1 receptor
A03	Rn.10206	NM_012492	Adrb2	Adrenergic, beta-2-, receptor, surface
A04	Rn.9662	NM_012822	Alox5	Arachidonate 5-lipoxygenase
A05	Rn.10762	NM_030851	Bdkrb1	Bradykinin receptor B1
A06	Rn.11266	NM_012513	Bdnf	Brain-derived neurotrophic factor
A07	Rn.85880	NM_147141	Cacna1b	Calcium channel, voltage-dependent, N type, alpha 1B subunit
A08	Rn.90085	NM_017338	Calca	Calcitonin-related polypeptide alpha
A09	Rn.9781	NM_012829	Cck	Cholecystokinin
A10	Rn.90997	NM_013165	Cckbr	Cholecystokinin B receptor
A11	Rn.137780	NM_001105822	Ccl12	Chemokine (C-C motif) ligand 12
A12	Rn.211983	NM_021866	Ccr2	Chemokine (C-C motif) receptor 2
B01	Rn.7085	NM_031518	Cd200	Cd200 molecule
B02	Rn.10748	NM_012705	Cd4	Cd4 molecule
B03	Rn.9697	NM_024354	Chrna4	Cholinergic receptor, nicotinic, alpha 4
B04	Rn.89774	NM_012784	Cnr1	Cannabinoid receptor 1 (brain)
B05	Rn.48776	NM_020543	Cnr2	Cannabinoid receptor 2 (macrophage)
B06	Rn.220	NM_012531	Comt	Catechol-O-methyltransferase
B07	Rn.83632	NM_023981	Csf1	Colony stimulating factor 1 (macrophage)
B08	Rn.10482	NM_133534	Cx3cr1	Chemokine (C-X3-C motif) receptor 1
B09	Rn.87166	NM_013158	Dbh	Dopamine beta-hydroxylase (dopamine beta-monoxygenase)
B10	Rn.10918	NM_012548	Edn1	Endothelin 1
B11	Rn.10915	NM_012550	Ednra	Endothelin receptor type A
B12	Rn.89119	NM_024132	Faah	Fatty acid amide hydrolase
C01	Rn.28195	NM_024356	Gch1	GTP cyclohydrolase 1
C02	Rn.53970	NM_019139	Gdnf	Glial cell derived neurotrophic factor
C03	Rn.9840	NM_017010	Grin1	Glutamate receptor, ionotropic, N-methyl D-aspartate 1
C04	Rn.9711	NM_012574	Grin2b	Glutamate receptor, ionotropic, N-methyl D-aspartate 2B
C05	Rn.87787	NM_017011	Grm1	Glutamate receptor, metabotropic 1
C06	Rn.29972	NM_017012	Grm5	Glutamate receptor, metabotropic 5
C07	Rn.44486	NM_012585	Htr1a	5-hydroxytryptamine (serotonin) receptor 1A
C08	Rn.10294	NM_017254	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
C09	Rn.9868	NM_012854	Il10	Interleukin 10
C10	Rn.11118	NM_019165	Il18	Interleukin 18
C11	Rn.12300	NM_017019	Il1a	Interleukin 1 alpha
C12	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
D01	Rn.9871	NM_053836	Il2	Interleukin 2
D02	Rn.9873	NM_012589	Il6	Interleukin 6
D03	Rn.54465	NM_012711	Itgam	Integrin, alpha M
D04	Rn.42962	NM_001037780	Itgb2	Integrin, beta 2
D05	Rn.74239	NM_032462	Kcnp3	Kv channel interacting protein 3, calsénin
D06	Rn.10185	NM_013192	Kcnj6	Potassium inwardly-rectifying channel, subfamily J, member 6
D07	Rn.33317	NM_133322	Kcnq2	Potassium voltage-gated channel, KQT-like subfamily, member 2
D08	Rn.205060	NM_031597	Kcnq3	Potassium voltage-gated channel, KQT-like subfamily, member 3
D09	Rn.6656	NM_013198	Maob	Monoamine oxidase B
D10	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
D11	Rn.88085	NM_031020	Mapk14	Mitogen activated protein kinase 14
D12	Rn.2592	NM_017347	Mapk3	Mitogen activated protein kinase 3
E01	Rn.4090	XM_341399	Mapk8	Mitogen-activated protein kinase 8
E02	Rn.22168	XM_227525	Ngf	Nerve growth factor (beta polypeptide)
E03	Rn.39098	NM_021589	Ntrk1	Neurotrophic tyrosine kinase, receptor, type 1
E04	Rn.10310	NM_012617	Oprd1	Opioid receptor, delta 1
E05	Rn.89571	NM_017167	Oprk1	Opioid receptor, kappa 1
E06	Rn.10118	NM_013071	Oprm1	Opioid receptor, mu 1
E07	Rn.10388	NM_031075	P2rx3	Purinergic receptor P2X, ligand-gated ion channel, 3
E08	Rn.7176	NM_031594	P2rx4	Purinergic receptor P2X, ligand-gated ion channel 4
E09	Rn.10510	NM_019256	P2rx7	Purinergic receptor P2X, ligand-gated ion channel, 7

Position	UniGene	GenBank	Symbol	Description
E10	Rn.10217	NM_012800	P2ry1	Purinergic receptor P2Y, G-protein coupled, 1
E11	Rn.44471	NM_019374	Pdyn	Prodynorphin
E12	Rn.10015	NM_017139	Penk	Proenkephalin
F01	Rn.4283	NM_031585	Pla2g1b	Phospholipase A2, group IB, pancreas
F02	Rn.87935	NM_013007	Pnoc	Prepronociceptin
F03	Rn.211872	NM_138852	Prok2	Prokineticin 2
F04	Rn.11423	NM_013100	Ptger1	Prostaglandin E receptor 1 (subtype EP1)
F05	Rn.10361	NM_012704	Ptger3	Prostaglandin E receptor 3 (subtype EP3)
F06	Rn.16062	NM_032076	Ptger4	Prostaglandin E receptor 4 (subtype EP4)
F07	Rn.7730	NM_021583	Ptges	Prostaglandin E synthase
F08	Rn.39290	NM_001107832	Ptges2	Prostaglandin E synthase 2
F09	Rn.2344	NM_001130989	Ptges3	Prostaglandin E synthase 3 (cytosolic)
F10	Rn.44404	NM_017043	Ptgs1	Prostaglandin-endoperoxide synthase 1
F11	Rn.44369	NM_017232	Ptgs2	Prostaglandin-endoperoxide synthase 2
F12	Rn.10246	NM_017247	Scn10a	Sodium channel, voltage-gated, type X, alpha subunit
G01	Rn.30023	NM_019265	Scn11a	Sodium channel, voltage-gated, type XI, alpha
G02	Rn.87394	NM_013119	Scn3a	Sodium channel, voltage-gated, type III, alpha
G03	Rn.88082	NM_133289	Scn9a	Sodium channel, voltage-gated, type IX, alpha
G04	Rn.14577	NM_031343	Slc6a2	Solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2
G05	Rn.1920	NM_012666	Tac1	Tachykinin 1
G06	Rn.89609	NM_012667	Tacr1	Tachykinin receptor 1
G07	Rn.46387	NM_198769	Tlr2	Toll-like receptor 2
G08	Rn.14534	NM_019178	Tlr4	Toll-like receptor 4
G09	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G10	Rn.105247	NM_207608	Trpa1	Transient receptor potential cation channel, subfamily A, member 1
G11	Rn.3073	NM_031982	Trpv1	Transient receptor potential cation channel, subfamily V, member 1
G12	Rn.163151	NM_001025757	Trpv3	Transient receptor potential cation channel, subfamily V, member 3
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 ROX [™] 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.

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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