RT² Profiler PCR Array (Rotor-Gene® Format)

Chinese Hamster Ovary (CHO) Cell Pain: Neuropathic & Inflammatory Signaling

Cat. no. 330231 PAJJ-162ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Chinese Hamster Ovary (CHO) Cell 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	N/A	NM_001246754	5-ht1b	Serotonin receptor
A02	N/A	XM_003502984	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A03	N/A	XM_003513084	Alox5	Arachidonate 5-lipoxygenase
A04	N/A	XM_003503269	Bdkrb2	Bradykinin receptor, beta 2
A05	N/A	XM_003503129	Chrna4	Cholinergic receptor, nicotinic, alpha polypeptide 4
A06	N/A	XM_003497927	Chrnb4	Cholinergic receptor, nicotinic, beta polypeptide 4
A07	N/A	XM_003514205	Csf1	Colony stimulating factor 1 (macrophage)
A08	N/A	XM_003500698	Ednra	Endothelin receptor type A
A09	N/A	XM_003497356	Faah	Fatty acid amide hydrolase
A10	N/A	XM_003496374	Grin2a	Glutamate receptor, ionotropic, NMDA2A (epsilon 1)
A11	N/A	XM_003504421	Grin2b	Glutamate receptor, ionotropic, NMDA2B (epsilon 2)
A12	N/A	XM_003510382	Grm5	Glutamate receptor, metabotropic 5
B01	N/A	NM_001246728	Htr2a	5-hydroxytryptamine (serotonin) receptor 2A
B02	N/A	XM_003507441	Il6	Interleukin 6
B03	N/A	XM_003510996	Itgam	Integrin alpha M
B04	N/A	XM_003500561	Itgb2	Integrin beta 2
B05	N/A	XM_003500288	Kcnj10	Potassium inwardly-rectifying channel, subfamily J, member 10
B06	N/A	XM_003500293	Kcnj5	Potassium inwardly-rectifying channel, subfamily J, member 5
B07	N/A	XM_003498537	LOC100750469	Interleukin-18-like
B08	N/A	XM_003500048	LOC100750667	GTP cyclohydrolase 1-like
B09	N/A	XM_003503859	LOC100750778	Beta-nerve growth factor-like
B10	N/A	XM_003498843	LOC100751346	Adenosine receptor A1-like
B11	N/A	XM_003509473	LOC100751384	Transient receptor potential cation channel subfamily A member 1-like
B12	N/A	XM_003494978	LOC100751502	Potassium channel subfamily K member 2-like
C01	N/A	XM_003510971	LOC100751598	Metabotropic glutamate receptor 1-like
C02	N/A	XM_003501339	LOC100752421	Prostaglandin E2 receptor EP3 subtype-like
C03	N/A	XM_003504924	LOC100752745	Cannabinoid receptor 2-like
C04	N/A	XM_003501885	LOC100753028	Prostaglandin E2 receptor EP1 subtype-like
C05	N/A	XM_003505931	LOC100753050	CX3C chemokine receptor 1-like
C06	N/A	XM_003510126	LOC100753149	Mitogen-activated protein kinase 3-like
C07	N/A	XM_003508592	LOC100753654	Kappa-type opioid receptor-like
C08	N/A	XM_003513170	LOC100754060	Gastrin/cholecystokinin type B receptor-like
C09	N/A	XM_003506764	LOC100755773	Interleukin-2-like
C10	N/A	XM_003510362	LOC100757057	Monocyte differentiation antigen CD14-like
C11	N/A	XM_003501828	LOC100757113	Potassium voltage-gated channel subfamily KQT member 4-like
C12	N/A	XM_003509020	LOC100758301	Leukemia inhibitory factor-like
D01	N/A	XM_003509021	LOC100758591	Oncostatin-M-like
			LOC100758	

Position	UniGene	GenBank	Symbol	Description
D02	N/A	XM_003507172	776	Prostaglandin E synthase 2-like
D03	N/A	XM_003513185	LOC100758902	Beta-2 adrenergic receptor-like
D04	N/A	XM_003501219	LOC100759320	Interleukin-10-like
D05	N/A	XM_003502846	LOC100759514	Mitogen-activated protein kinase 1-like
D06	N/A	XM_003513664	LOC100761411	Dopamine beta-hydroxylase-like
D07	N/A	XM_003507519	LOC100762356	Tachykinin-3-like
D08	N/A	XM_003507730	LOC100762449	C-C chemokine receptor type 2-like
D09	N/A	XM_003498350	LOC100762884	Delta-type opioid receptor-like
D10	N/A	XM_003509649	LOC100762950	Protein kinase C gamma type-like
D11	N/A	XM_003503972	LOC100764263	Reticulon-4-like
D12	N/A	XM_003508487	LOC100764780	Tumor necrosis factor-like
E01	N/A	XM_003506731	LOC100765158	Kv channel-interacting protein 1-like
E02	N/A	XM_003503151	LOC100766596	Potassium voltage-gated channel subfamily KQT member 2-like
E03	N/A	XM_003496094	LOC100766761	T-cell surface glycoprotein CD4-like
E04	N/A	XM_003509178	LOC100767987	Transient receptor potential cation channel subfamily V member 3-like
E05	N/A	XM_003497941	LOC100768493	Endothelin-1-like
E06	N/A	XM_003512746	LOC100768664	Brain-derived neurotrophic factor-like
E07	N/A	XM_003508027	LOC100768847	Translocator protein-like
E08	N/A	XM_003497790	LOC100769260	Interleukin-1 alpha-like
E09	N/A	XM_003503296	LOC100769862	Prostaglandin E2 receptor EP4 subtype-like
E10	N/A	XM_003514343	LOC100770495	Voltage-dependent N-type calcium channel subunit alpha-1B-like
E11	N/A	XM_003502438	LOC100770626	Catechol O-methyltransferase-like
E12	N/A	XM_003495883	LOC100770962	Mu-type opioid receptor-like
F01	N/A	XM_003513976	LOC100770965	Prostaglandin E synthase-like
F02	N/A	XM_003509185	LOC100771135	Transient receptor potential cation channel subfamily V member 1-like
F03	N/A	XM_003504404	LOC100771693	P2Y purinoceptor 1-like
F04	N/A	XM_003510753	LOC100772011	Prepronociceptin-like
F05	N/A	XM_003506403	LOC100772276	Calcitonin gene-related peptide 1-like
F06	N/A	XM_003500692	LOC100772438	Cholecystokinin-like
F07	N/A	XM_003503995	LOC100773138	Glial cell line-derived neurotrophic factor-like
F08	N/A	XM_003506214	LOC100774202	Prostaglandin E synthase 3-like
F09	N/A	XM_003512833	LOC100774423	Proenkephalin-A-like
F10	N/A	XM_003498233	LOC100775030	Beta-3 adrenergic receptor-like
F11	N/A	XM_003509063	LOC100775079	Interleukin-1 beta-like
F12	N/A	XM_003510296	Maob	Monoamine oxidase B
G01	N/A	XM_003508617	Mapk14	Mitogen-activated protein kinase 14
G02	N/A	XM_003495315	Mapk8	Mitogen-activated protein kinase 8
G03	N/A	XM_003511315	Ntrk2	Neurotrophic tyrosine kinase, receptor, type 2

Position	UniGene	GenBank	Symbol	Description
G04	N/A	XM_003502840	P2rx6	Purinergic receptor P2X, ligand-gated ion channel, 6
G05	N/A	XM_003498432	P2rx7	Purinergic receptor P2X, ligand-gated ion channel, 7
G06	N/A	XM_003512367	Ptgs1	Prostaglandin-endoperoxide synthase 1
G07	N/A	XM_003496774	Ptgs2	Prostaglandin-endoperoxide synthase 2
G08	N/A	XM_003501863	Scn4a	Sodium channel, voltage-gated, type IV, alpha
G09	N/A	XM_003512410	Scn8a	Sodium channel, voltage-gated, type VIII, alpha
G10	N/A	XM_003505785	Scn9a	Sodium channel, voltage-gated, type IX, alpha
G11	N/A	XM_003498017	Slc6a2	Solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2
G12	N/A	NM_001246762	Tlr4	Toll-like receptor 4
H01	N/A	NM_001244575	Actb	Actin, beta
H02	N/A	XM_003497123	Actr5	ARP5 actin-related protein 5 homolog (yeast)
H03	N/A	NM_001246674	B2m	Beta-2 microglobulin
H04	N/A	NM_001244854	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H05	N/A	XM_003503017	LOC100769768	Hypoxanthine-guanine phosphoribosyltransferase-like
H06	N/A	SA_00519	JGDC	Hamster 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.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² 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.

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 or can be requested from QIAGEN Technical Services or your local distributor.

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