RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Circadian Rhythms

Cat. no. 330231 PARN-153ZR

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 Rat Circadian Rhythms RT² Profiler PCR Array profiles the expression of 84 key genes defining and regulating the biological clock. Synchronization, or "entrainment", of the circadian clock occurs via light stimulus of the hypothalamic suprachiasmatic nucleus (SCN) in the brain and via hormone signaling from the SCN in peripheral tissues. Interacting positive and negative circadian gene feedback loops at the transcriptional and post-translational level set up the circadian "oscillator" and insure tight control over transcription factors regulating expression of the appropriate genes required during circadian days or nights. Genes regulated by circadian rhythms are involved in a diverse range of biological processes that affect physiology, metabolism, and behavior. Although the circadian rhythm target genes in its "output" pathways vary widely from tissue to tissue, the transcription factors encoded by central clock and clock-controlled genes are mostly shared across all cell types. Sleeping disorders (such as apnea, insomnia, and desynchronosis) disrupt the timing of the circadian clock, requiring re-entrainment and causing fatigue. Continued disruption of the circadian clock is a source of bodily stress and a risk factor for cancer and cardiovascular disease. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in circadian rhythms 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.88180	NM_012818	Aanat	Arylalkylamine N-acetyltransferase
A02	Rn.97126	NM_024484	Alas1	Aminolevulinate, delta-, synthase 1
A03	Rn.14532	NM_024362	Arntl	Aryl hydrocarbon receptor nuclear translocator-like
A04	Rn.41612	XM_001075231	Arntl2	Aryl hydrocarbon receptor nuclear translocator-like 2
A05	Rn.133599	XM_001080515	Atoh7	Atonal homolog 7 (Drosophila)
A06	Rn.81055	NM_053328	Bhlhe40	Basic helix-loop-helix family, member e40
A07	Rn.10784	XM_001074956	Bhlhe41	Basic helix-loop-helix family, member e41
A08	Rn.107499	NM_012920	Camk2a	Calcium/calmodulin-dependent protein kinase II alpha
A09	Rn.9743	NM_021739	Camk2b	Calcium/calmodulin-dependent protein kinase II beta
A10	Rn.87208	NM_012519	Camk2d	Calcium/calmodulin-dependent protein kinase II delta
A11	Rn.10961	NM_133605	Camk2g	Calcium/calmodulin-dependent protein kinase II gamma
A12	Rn.89164	NM_017110	Cartpt	CART prepropeptide
B01	Rn.15040	NM_138526	Ccrn4l	CCR4 carbon catabolite repression 4-like (S. cerevisiae)
B02	Rn.53978	NM_019297	Chrnb2	Cholinergic receptor, nicotinic, beta 2 (neuronal)
B03	Rn.205839	NM_021856	Clock	Clock homolog (mouse)
B04	Rn.90061	NM_031017	Creb1	CAMP responsive element binding protein 1
B05	Rn.104043	NM_001013092	Creb3	CAMP responsive element binding protein 3
B06	Rn.44287	NM_021855	Crx	Cone-rod homeobox
B07	Rn.43646	NM_198750	Cry1	Cryptochrome 1 (photolyase-like)
B08	Rn.21150	NM_133405	Cry2	Cryptochrome 2 (photolyase-like)
B09	Rn.23810	NM_053615	Csnk1a1	Casein kinase 1, alpha 1
B10	Rn.8046	NM_139060	Csnk1d	Casein kinase 1, delta
B11	Rn.203721	NM_031617	Csnk1e	Casein kinase 1, epsilon
B12	Rn.4231	NM_053824	Csnk2a1	Casein kinase 2, alpha 1 polypeptide
C01	Rn.24013	NM_001107409	Csnk2a2	Casein kinase 2, alpha prime polypeptide
C02	Rn.11274	NM_012543	Dbp	D site of albumin promoter (albumin D-box) binding protein
C03	Rn.9096	NM_012551	Egr1	Early growth response 1
C04	Rn.44371	NM_017086	Egr3	Early growth response 3
C05	Rn.11365	NM_017001	Epo	Erythropoietin
C06	Rn.130171	NM_001008511	Esrra	Estrogen related receptor, alpha
C07	Rn.36356	NM_001100568	Fbxl3	F-box and leucine-rich repeat protein 3
C08	Rn.6886	NM_001108651	Hebp1	Heme binding protein 1
C09	Rn.137741	XM_001081149	Hlf	Hepatic leukemia factor
C10	Rn.87132	NM_022938	Htr7	5-hydroxytryptamine (serotonin) receptor 7
C11	Rn.6396	NM_012591	Irf1	Interferon regulatory factor 1
C12	Rn.30616	NM_031828	Kcnma1	Potassium large conductance calcium-activated channel, subfamily M, alpha member 1
D01	Rn.34914	NM_053842	Mapk1	Mitogen activated protein kinase 1
D02	Rn.88085	NM_031020	Mapk14	Mitogen activated protein kinase 14
D03	Rn.2592	NM_017347	Mapk3	Mitogen activated protein kinase 3
D04	Rn.41420	NM_134351	Mat2a	Methionine adenosyltransferase II, alpha
D05	Rn.92357	NM_053676	Mtnr1a	Melatonin receptor 1A
D06	Rn.83599	NM_001100641	Mtnr1b	Melatonin receptor 1B
D07	Rn.9493	NM_176079	Myod1	Myogenic differentiation 1
D08	Rn.20691	XM_215947	Ncoa3	Nuclear receptor coactivator 3
D09	Rn.54147	NM_053727	Nfil3	Nuclear factor, interleukin 3 regulated
D10	Rn.6179	NM_053651	Nkx2-5	NK2 transcription factor related, locus 5 (Drosophila)
D11	Rn.137581	NM_001012233	Nms	Neuromedin S
D12	Rn.8285	NM_001108214	Npas2	Neuronal PAS domain protein 2
E01	Rn.219001	NM_145775	Nr1d1	Nuclear receptor subfamily 1, group D, member 1
E02	Rn.10055	NM_147210	Nr1d2	Nuclear receptor subfamily 1, group D, member 2
E03	Rn.25840	NM_139113	Nr2f6	Nuclear receptor subfamily 2, group F, member 6
E04	Rn.204549	XM_573517	Opn3	Opsin 3
E05	Rn.54303	NM_138860	Opn4	Opsin 4
E06	Rn.14531	NM_031799	Pax4	Paired box 4
E07	Rn.34433	NM_001034125	Per1	Period homolog 1 (Drosophila)
E08	Rn.25935	NM_031678	Per2	Period homolog 2 (Drosophila)

Position	UniGene	GenBank	Symbol	Description
E09	Rn.63521	NM_023978	Per3	Period homolog 3 (Drosophila)
E10	Rn.46306	NM_001100639	Pou2f1	POU class 2 homeobox 1
E11	Rn.9753	NM_013196	Ppara	Peroxisome proliferator activated receptor alpha
E12	Rn.19172	NM_031347	Ppargc1a	Peroxisome proliferator-activated receptor gamma, coactivator 1 alpha
F01	Rn.11206	NM_017330	Prf1	Perforin 1 (pore forming protein)
F02	Rn.20	NM_001100922	Prkaca	Protein kinase, cAMP-dependent, catalytic, alpha
F03	Rn.202491	NM_001077645	Prkacb	Protein kinase, cAMP dependent, catalytic, beta
F04	Rn.10990	NM_013181	Prkar1a	Protein kinase, cAMP-dependent, regulatory, type I, alpha
F05	Rn.145151	NM_001033679	Prkar1b	Protein kinase, cAMP dependent regulatory, type I, beta
F06	Rn.9742	NM_019264	Prkar2a	Protein kinase, cAMP dependent regulatory, type II alpha
F07	Rn.4075	NM_001030020	Prkar2b	Protein kinase, cAMP dependent regulatory, type II beta
F08	Rn.207908	NM_001105713	Prkca	Protein kinase C, alpha
F09	Rn.91118	NM_012713	Prkcb	Protein kinase C, beta
F10	Rn.82760	NM_138978	Prokr2	Prokineticin receptor 2
F11	Rn.11400	NM_013015	Ptgds	Prostaglandin D2 synthase (brain)
F12	Rn.43530	NM_001106834	Rora	RAR-related orphan receptor A
G01	Rn.210157	XM_219749	Rorb	RAR-related orphan receptor B
G02	Rn.21421	XM_347322	Rorc	RAR-related orphan receptor C
G03	Rn.9706	NM_012654	Slc9a3	Solute carrier family 9 (sodium/hydrogen exchanger), member 3
G04	Rn.9774	NM_019275	Smad4	SMAD family member 4
G05	Rn.44609	NM_012655	Sp1	Sp1 transcription factor
G06	Rn.221929	XM_213329	Srebf1	Sterol regulatory element binding transcription factor 1
G07	Rn.154399	NM_017064	Stat5a	Signal transducer and activator of transcription 5A
G08	Rn.22545	NM_001107345	Tcfap2a	Transcription factor AP-2, alpha
G09	Rn.59871	NM_019194	Tef	Thyrotrophic embryonic factor
G10	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G11	Rn.31755	NM_031340	Timeless	Timeless homolog (Drosophila)
G12	Rn.208255	NM_001012742	Wee1	Wee 1 homolog (S. pombe)
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.
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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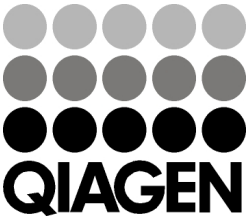

Sample & Assay Technologies