RT² Profiler PCR Array (Rotor-Gene® Format)

Human Circadian Rhythms

Cat. no. 330231 PAHS-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 Human 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*.

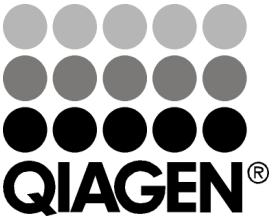
Shipping and storage

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	Hs.431417	NM_001088	AANAT	Aralkylamine N-acetyltransferase
A02	Hs.476308	NM_000688	ALAS1	Aminolevulinate, delta-, synthase 1
A03	Hs.65734	NM_001178	ARNTL	Aryl hydrocarbon receptor nuclear translocator-like
A04	Hs.434269	NM_020183	ARNTL2	Aryl hydrocarbon receptor nuclear translocator-like 2
A05	Hs.728782	NM_003670	BHLHE40	Basic helix-loop-helix family, member e40
A06	Hs.177841	NM_030762	BHLHE41	Basic helix-loop-helix family, member e41
A07	Hs.716391	NM_015981	CAMK2A	Calcium/calmodulin-dependent protein kinase II alpha
A08	Hs.351887	NM_001220	CAMK2B	Calcium/calmodulin-dependent protein kinase II beta
A09	Hs.144114	NM_001221	CAMK2D	Calcium/calmodulin-dependent protein kinase II delta
A10	Hs.523045	NM_001222	CAMK2G	Calcium/calmodulin-dependent protein kinase II gamma
A11	Hs.1707	NM_004291	CARTPT	CART prepropeptide
A12	Hs.639842	NM_012118	CCRN4L	CCR4 carbon catabolite repression 4-like (S. cerevisiae)
B01	Hs.2306	NM_000748	CHRNB2	Cholinergic receptor, nicotinic, beta 2 (neuronal)
B02	Hs.436975	NM_004898	CLOCK	Clock homolog (mouse)
B03	Hs.516646	NM_004379	CREB1	CAMP responsive element binding protein 1
B04	Hs.522110	NM_006368	CREB3	CAMP responsive element binding protein 3
B05	Hs.617342	NM_000554	CRX	Cone-rod homeobox
B06	Hs.151573	NM_004075	CRY1	Cryptochrome 1 (photolyase-like)
B07	Hs.532491	NM_021117	CRY2	Cryptochrome 2 (photolyase-like)
B08	Hs.529862	NM_001892	CSNK1A1	Casein kinase 1, alpha 1
B09	Hs.631725	NM_001893	CSNK1D	Casein kinase 1, delta
B10	Hs.474833	NM_001894	CSNK1E	Casein kinase 1, epsilon
B11	Hs.644056	NM_001895	CSNK2A1	Casein kinase 2, alpha 1 polypeptide
B12	Hs.82201	NM_001896	CSNK2A2	Casein kinase 2, alpha prime polypeptide
C01	Hs.414480	NM_001352	DBP	D site of albumin promoter (albumin D-box) binding protein
C02	Hs.326035	NM_001964	EGR1	Early growth response 1
C03	Hs.534313	NM_004430	EGR3	Early growth response 3
C04	Hs.2303	NM_000799	EPO	Erythropoietin
C05	Hs.110849	NM_004451	ESRRA	Estrogen-related receptor alpha
C06	Hs.591275	NM_012159	FBXL21	F-box and leucine-rich repeat protein 21 (gene/pseudogene)
C07	Hs.508284	NM_012158	FBXL3	F-box and leucine-rich repeat protein 3
C08	Hs.642618	NM_015987	HEBP1	Heme binding protein 1
C09	Hs.196952	NM_002126	HLF	Hepatic leukemia factor
C10	Hs.73739	NM_000872	HTR7	5-hydroxytryptamine (serotonin) receptor 7 (adenylate cyclase-coupled)
C11	Hs.436061	NM_002198	IRF1	Interferon regulatory factor 1
C12	Hs.144795	NM_002247	KCNMA1	Potassium large conductance calcium-activated channel, subfamily M, alpha member 1
D01	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1
D02	Hs.485233	NM_001315	MAPK14	Mitogen-activated protein kinase 14
D03	Hs.861	NM_002746	MAPK3	Mitogen-activated protein kinase 3
D04	Hs.516157	NM_005911	MAT2A	Methionine adenosyltransferase II, alpha
D05	Hs.243467	NM_005958	MTNR1A	Melatonin receptor 1A
D06	Hs.569039	NM_005959	MTNR1B	Melatonin receptor 1B
D07	Hs.181768	NM_002478	MYOD1	Myogenic differentiation 1
D08	Hs.592142	NM_181659	NCOA3	Nuclear receptor coactivator 3
D09	Hs.79334	NM_005384	NFIL3	Nuclear factor, interleukin 3 regulated
D10	Hs.54473	NM_004387	NKX2-5	NK2 homeobox 5
D11	Hs.567676	NM_001011717	NMS	Neuromedin S
D12	Hs.156832	NM_002518	NPAS2	Neuronal PAS domain protein 2
E01	Hs.592130	NM_021724	NR1D1	Nuclear receptor subfamily 1, group D, member 1
E02	Hs.37288	NM_005126	NR1D2	Nuclear receptor subfamily 1, group D, member 2
E03	Hs.466148	NM_005234	NR2F6	Nuclear receptor subfamily 2, group F, member 6
E04	Hs.534399	NM_014322	OPN3	Opsin 3
E05	Hs.283922	NM_033282	OPN4	Opsin 4
E06	Hs.129706	NM_006193	PAX4	Paired box 4
E07	Hs.445534	NM_002616	PER1	Period homolog 1 (Drosophila)
E08	Hs.58756	NM_022817	PER2	Period homolog 2 (Drosophila)

Position	UniGene	GenBank	Symbol	Description
E09	Hs.162200	NM_016831	PER3	Period homolog 3 (Drosophila)
E10	Hs.493649	NM_002697	POU2F1	POU class 2 homeobox 1
E11	Hs.103110	NM_005036	PPARA	Peroxisome proliferator-activated receptor alpha
E12	Hs.527078	NM_013261	PPARGC1A	Peroxisome proliferator-activated receptor gamma, coactivator 1 alpha
F01	Hs.2200	NM_005041	PRF1	Perforin 1 (pore forming protein)
F02	Hs.487325	NM_182948	PRKACB	Protein kinase, cAMP-dependent, catalytic, beta
F03	Hs.158029	NM_002732	PRKACG	Protein kinase, cAMP-dependent, catalytic, gamma
F04	Hs.280342	NM_002734	PRKAR1A	Protein kinase, cAMP-dependent, regulatory, type I, alpha (tissue specific extinguisher 1)
F05	Hs.520851	NM_002735	PRKAR1B	Protein kinase, cAMP-dependent, regulatory, type I, beta
F06	Hs.631923	NM_004157	PRKAR2A	Protein kinase, cAMP-dependent, regulatory, type II, alpha
F07	Hs.433068	NM_002736	PRKAR2B	Protein kinase, cAMP-dependent, regulatory, type II, beta
F08	Hs.531704	NM_002737	PRKCA	Protein kinase C, alpha
F09	Hs.460355	NM_002738	PRKCB	Protein kinase C, beta
F10	Hs.375029	NM_144773	PROKR2	Prokineticin receptor 2
F11	Hs.446429	NM_000954	PTGDS	Prostaglandin D2 synthase 21kDa (brain)
F12	Hs.560343	NM_134260	RORA	RAR-related orphan receptor A
G01	Hs.494178	NM_006914	RORB	RAR-related orphan receptor B
G02	Hs.256022	NM_005060	RORC	RAR-related orphan receptor C
G03	Hs.658120	NM_004174	SLC9A3	Solute carrier family 9 (sodium/hydrogen exchanger), member 3
G04	Hs.75862	NM_005359	SMAD4	SMAD family member 4
G05	Hs.620754	NM_138473	SP1	Sp1 transcription factor
G06	Hs.592123	NM_004176	SREBF1	Sterol regulatory element binding transcription factor 1
G07	Hs.437058	NM_003152	STAT5A	Signal transducer and activator of transcription 5A
G08	Hs.181159	NM_003216	TEF	Thyrotrophic embryonic factor
G09	Hs.519880	NM_003220	TFAP2A	Transcription factor AP-2 alpha (activating enhancer binding protein 2 alpha)
G10	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G11	Hs.118631	NM_003920	TIMELESS	Timeless homolog (Drosophila)
G12	Hs.249441	NM_003390	WEE1	WEE1 homolog (S. pombe)
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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.

www.qiagen.com

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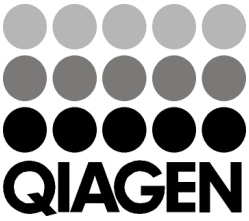

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