

RT² Profiler PCR Array (Rotor-Gene[®] Format)

Rat Male Infertility

Cat. no. 330231 PARN-165ZR

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 Male Infertility RT² Profiler PCR Array profiles the expression of 84 key gene transcripts detected in spermatozoa. During spermatogenesis, primary sperm cells undergo meiosis, ultimately dividing and forming mature spermatozoa (sperm cells). Each sperm cell contains mRNA transcripts, although sperm are transcriptionally inactive. Initially, these mRNA transcripts were thought to be originally expressed by the primary sperm cells, and therefore a non-biologically relevant by-product of the spermatogenic process. However, recent studies have identified mRNAs differentially detected in the sperm of fertile males relative to infertile males. One hypothesis presumes that the initial stages of fertilization and embryogenesis require sperm-derived mRNAs. For example, epigenetic regulation of imprinted genes occurs during embryogenesis, and sperm-derived mRNAs expressing chromatin modification enzymes and remodeling factors may be necessary to complete this process. Sperm-derived mRNAs are also expressed in the testis. Therefore, the analysis of sperm mRNA, unlike a testicular biopsy, potentially provides a less-invasive method to research infertility in males. This array includes genes differentially detected in the sperm of fertile and infertile males. A set of controls present on each array enables data analysis using the $\Delta\Delta\text{CT}$ method of relative quantification, assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in male infertility 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.109833	NM_001080096	Acsbg2	Acyl-CoA synthetase bubblegum family member 2
A02	Rn.42892	NM_021684	Adcy10	Adenylate cyclase 10 (soluble)
A03	Rn.91370	NM_013149	Ahr	Aryl hydrocarbon receptor
A04	Rn.42933	NM_021703	Akap14	A kinase (PRKA) anchor protein 14
A05	Rn.10777	NM_024402	Akap4	A kinase (PRKA) anchor protein 4
A06	Rn.19121	NM_012902	Amh	Anti-Mullerian hormone
A07	Rn.33815	NM_019287	Apob	Apolipoprotein B
A08	Rn.9813	NM_012502	Ar	Androgen receptor
A09	Rn.98146	NM_212495	Brd2	Bromodomain containing 2
A10	Rn.162229	NM_001012031	Brdt	Bromodomain, testis-specific
A11	Rn.14584	NM_152790	Carhsp1	Calcium regulated heat stable protein 1
A12	Rn.211927	XM_342941	Catsper4	Cation channel, sperm associated 4
B01	Rn.9232	NM_171991	Ccnb1	Cyclin B1
B02	Rn.163242	NM_019190	Cd46	CD46 molecule, complement regulatory protein
B03	Rn.2589	NM_052809	Cdo1	Cysteine dioxygenase, type 1
B04	Rn.90061	NM_031017	Creb1	CAMP responsive element binding protein 1
B05	Rn.10251	NM_001110860	Creml	CAMP responsive element modulator
B06	Rn.32098	NM_001011710	Crisp2	Cysteine-rich secretory protein 2
B07	Rn.101949	NM_001106923	Cul3	Cullin 3
B08	Rn.21402	NM_017085	Cyp19a1	Cytochrome P450, family 19, subfamily a, polypeptide 1
B09	Rn.136288	NM_001109414	Dazl	Deleted in azoospermia-like
B10	Rn.205263	NM_031630	Ddx25	DEAD (Asp-Glu-Ala-Asp) box polypeptide 25
B11	Rn.198577	NM_001077647	Ddx4	DEAD (Asp-Glu-Ala-Asp) box polypeptide 4
B12	Rn.74260	NM_053706	Dmrt1	Doublesex and mab-3 related transcription factor 1
C01	Rn.125884	NM_001109248	Dnajb8	DnaJ (Hsp40) homolog, subfamily B, member 8
C02	Rn.103040	NM_001014124	Dnajc28	DnaJ (Hsp40) homolog, subfamily C, member 28
C03	Rn.11060	NM_053950	Eif2b4	Eukaryotic translation initiation factor 2B, subunit 4 delta
C04	Rn.71377	NM_001106693	Eif4g3	Eukaryotic translation initiation factor 4 gamma, 3
C05	Rn.162521	NM_139194	Fas	Fas (TNF receptor superfamily, member 6)
C06	Rn.81585	NM_001106206	Fbxo5	F-box protein 5
C07	Rn.103750	NM_022197	Fos	FBJ osteosarcoma oncogene
C08	Rn.199034	NM_080405	Gli3	GLI-Kruppel family member GLI3
C09	Rn.57243	NM_181366	Gpr64	G protein-coupled receptor 64
C10	Rn.11323	NM_030826	Gpx1	Glutathione peroxidase 1
C11	Rn.1863	NM_001025409	Hdac1	Histone deacetylase 1
C12	Rn.3160	NM_012580	Hmox1	Heme oxygenase (decycling) 1
D01	Rn.7040	NM_017235	Hsd17b7	Hydroxysteroid (17-beta) dehydrogenase 7
D02	Rn.163428	NM_031694	Hsf2	Heat shock transcription factor 2
D03	Rn.144829	NM_001106428	Hspa4l	Heat shock protein 4-like
D04	Rn.104665	NM_001105749	Il16	Interleukin 16
D05	Rn.207863	NM_001001510	Kihl10	Kelch-like 10 (Drosophila)
D06	Rn.62616	XM_215963	Lama5	Laminin, alpha 5
D07	Rn.44444	NM_013076	Lep	Leptin
D08	Rn.11216	NM_012978	Lhcgr	Luteinizing hormone/choriogonadotropin receptor
D09	Rn.44161	NM_001002016	Lmna	Lamin A
D10	Rn.70183	NM_001106514	Mcm8	Minichromosome maintenance complex component 8
D11	Rn.22828	NM_053718	Mllt3	Myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 3
D12	Rn.10779	NM_012602	Muc1	Mucin 1, cell surface associated
E01	Rn.2855	NM_001008525	Ndufs7	NADH dehydrogenase (ubiquinone) Fe-S protein 7
E02	Rn.12550	NM_001105720	Nfkb1a	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha
E03	Rn.3491	NM_173118	Npc2	Niemann-Pick disease, type C2
E04	Rn.9850	NM_024126	Odf1	Outer dense fiber of sperm tails 1
E05	Rn.30105	NM_057143	Park7	Parkinson disease (autosomal recessive, early onset) 7
E06	Rn.2899	NM_133559	Pcsk4	Proprotein convertase subtilisin/kexin type 4
E07	Rn.24878	NM_001107446	Pdzd8	PDZ domain containing 8

Position	UniGene	GenBank	Symbol	Description
E08	Rn.50944	NM_001012130	Pgk2	Phosphoglycerate kinase 2
E09	Rn.6291	NM_001106701	Pin1	Peptidylprolyl cis/trans isomerase, NIMA-interacting 1
E10	Rn.131387	NM_001108853	Piwil1	Piwil-like 1 (Drosophila)
E11	Rn.123184	NM_001012234	Plcz1	Phospholipase C, zeta 1
E12	Rn.40977	NM_001107152	Pole	Polymerase (DNA directed), epsilon
F01	Rn.2011	NM_022540	Prdx3	Peroxiredoxin 3
F02	Rn.27657	NM_001002850	Prrm1	Protamine 1
F03	Rn.10404	NM_012873	Prrm2	Protamine 2
F04	Rn.30006	NM_022957	Serpina5	Serine (or cysteine) peptidase inhibitor, clade A, member 5
F05	Rn.53046	NM_001107614	Slc26a8	Solute carrier family 26, member 8
F06	Rn.94939	NM_001004446	Smarca2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2
F07	Rn.6059	NM_017050	Sod1	Superoxide dismutase 1, soluble
F08	Rn.10488	NM_017051	Sod2	Superoxide dismutase 2, mitochondrial
F09	Rn.31584	NM_001108964	Spo11	SPO11 meiotic protein covalently bound to DSB homolog (S. cerevisiae)
F10	Rn.8871	NM_012881	Spp1	Secreted phosphoprotein 1
F11	Rn.2688	NM_001025726	Srpk1	Srsf protein kinase 1
F12	Rn.18997	NM_053730	Stag3	Stromal antigen 3
G01	Rn.34889	NM_013041	Sycp3	Synaptonemal complex protein 3
G02	Rn.10763	NM_032055	Tap1	Transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)
G03	Rn.22712	NM_001004198	Tbp	TATA box binding protein
G04	Rn.33200	NM_001007695	Tcp11	T-complex protein 11
G05	Rn.99925	XM_001069708	Tex11	Testis expressed 11
G06	Rn.9959	NM_017056	Tnp1	Transition protein 1
G07	Rn.188592	NM_001106349	Tpd52l3	Tumor protein D52-like 3
G08	Rn.137958	NM_001106147	Trim36	Tripartite motif-containing 36
G09	Rn.30052	NM_001030022	Tsga10	Testis specific 10
G10	Rn.7333	NM_001107928	Ubap2	Ubiquitin-associated protein 2
G11	Rn.107213	NM_017237	Uchl1	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)
G12	Rn.10892	NM_053762	Zp3	Zona pellucida glycoprotein 3 (sperm receptor)
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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