RT² Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

Human Male Infertility

Cat. no. 330231 PAHS-165ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format A	Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well block); Bio-Rad® models iCycler®, iQ™5, MyiQ™, MyiQ2; Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®; Takara TP-800
RT² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
RT² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT² Profiler PCR Array, Format F	Roche® LightCycler® 480 (96-well block)
RT² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT² Profiler PCR Array, Format H	Fluidigm® BioMark™

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Description

The Human 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 ΔΔCT 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 formats A, C, D, E, F, and G are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products. RT² Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

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 (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT² Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACSBG2	ADCY10	AHR	AKAP14	AKAP4	AMH	APOB	AR	BOLL	BRD2	BRDT	CARHSP1
B	CATSPER1	CATSPER4	CCNB1	CD46	CDO1	CREB1	CREM	CRISP1	CRISP2	CUL3	CYP19A1	DAZL
C	DDX25	DDX4	DMRT1	DNAJB8	DNAJC28	EIF2B4	EIF4G3	ELSPBP1	FAS	FBXO5	FOS	GLI3
D	GPR64	GPX1	HDAC1	HMOX1	HSD17B7	HSF2	HSPA4L	IL16	KLHL10	LAMA5	LEP	LHCGR
E	LMNA	MCM8	MLLT3	NDUFS7	NPC2	ODF1	PARK7	PCSK4	PDZD8	PGK2	PIWIL1	PLCZ1
F	PRM1	PRM2	SERPINA5	SLC25A5	SLC26A8	SMARCA2	SOD1	SOD2	SPO11	SPZ1	SRPK1	STAG3
G	SYCP3	TBP	TCP11	TEX11	TNP1	TPD52L3	TRIM36	TSGA10	UBAP2	UCHL1	WAPAL	ZP3
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.465720	NM_030924	ACSBG2	Acyl-CoA synthetase bubblegum family member 2
A02	Hs.320892	NM_018417	ADCY10	Adenylate cyclase 10 (soluble)
A03	Hs.171189	NM_001621	AHR	Aryl hydrocarbon receptor
A04	Hs.592245	NM_178813	AKAP14	A kinase (PRKA) anchor protein 14
A05	Hs.97633	NM_003886	AKAP4	A kinase (PRKA) anchor protein 4
A06	Hs.112432	NM_000479	AMH	Anti-Mullerian hormone
A07	Hs.120759	NM_000384	APOB	Apolipoprotein B (including Ag(x) antigen)
A08	Hs.496240	NM_000044	AR	Androgen receptor
A09	Hs.169797	NM_197970	BOLL	Bol, boule-like (Drosophila)
A10	Hs.75243	NM_005104	BRD2	Bromodomain containing 2
A11	Hs.482520	NM_001726	BRDT	Bromodomain, testis-specific
A12	Hs.459857	NM_014316	CARHSP1	Calcium regulated heat stable protein 1, 24kDa
B01	Hs.189105	NM_053054	CATSPER1	Cation channel, sperm associated 1
B02	Hs.123532	NM_198137	CATSPER4	Cation channel, sperm associated 4
B03	Hs.23960	NM_031966	CCNB1	Cyclin B1
B04	Hs.510402	NM_172361	CD46	CD46 molecule, complement regulatory protein
B05	Hs.442378	NM_001801	CDO1	Cysteine dioxygenase, type I
B06	Hs.516646	NM_004379	CREB1	CAMP responsive element binding protein 1
B07	Hs.200250	NM_183011	CREM	CAMP responsive element modulator
B08	Hs.109620	NM_001131	CRISP1	Cysteine-rich secretory protein 1
B09	Hs.2042	NM_003296	CRISP2	Cysteine-rich secretory protein 2
B10	Hs.372286	NM_003590	CUL3	Cullin 3
B11	Hs.260074	NM_000103	CYP19A1	Cytochrome P450, family 19, subfamily A, polypeptide 1
B12	Hs.131179	NM_001351	DAZL	Deleted in azoospermia-like
C01	Hs.420263	NM_013264	DDX25	DEAD (Asp-Glu-Ala-Asp) box polypeptide 25
C02	Hs.223581	NM_024415	DDX4	DEAD (Asp-Glu-Ala-Asp) box polypeptide 4
C03	Hs.98586	NM_021951	DMRT1	Doublesex and mab-3 related transcription factor 1
C04	Hs.518241	NM_153330	DNAJB8	DnaJ (Hsp40) homolog, subfamily B, member 8
C05	Hs.458308	NM_017833	DNAJC28	DnaJ (Hsp40) homolog, subfamily C, member 28
C06	Hs.169474	NM_172195	EIF2B4	Eukaryotic translation initiation factor 2B, subunit 4 delta, 67kDa
C07	Hs.467084	NM_003760	EIF4G3	Eukaryotic translation initiation factor 4 gamma, 3
C08	Hs.104894	NM_022142	ELSPBP1	Epididymal sperm binding protein 1
C09	Hs.244139	NM_000043	FAS	Fas (TNF receptor superfamily, member 6)
C10	Hs.520506	NM_012177	FBXO5	F-box protein 5
C11	Hs.728789	NM_005252	FOS	FBJ murine osteosarcoma viral oncogene homolog
C12	Hs.21509	NM_000168	GLI3	GLI family zinc finger 3
D01	Hs.146978	NM_005756	GPR64	G protein-coupled receptor 64
D02	Hs.76686	NM_000581	GPX1	Glutathione peroxidase 1
D03	Hs.88556	NM_004964	HDAC1	Histone deacetylase 1
D04	Hs.517581	NM_002133	HMOX1	Heme oxygenase (decycling) 1
D05	Hs.492925	NM_016371	HSD17B7	Hydroxysteroid (17-beta) dehydrogenase 7
D06	Hs.158195	NM_004506	HSF2	Heat shock transcription factor 2
D07	Hs.135554	NM_014278	HSPA4L	Heat shock 70kDa protein 4-like
D08	Hs.459095	NM_004513	IL16	Interleukin 16
D09	Hs.127510	NM_152467	KLHL10	Kelch-like 10 (Drosophila)

Position	UniGene	GenBank	Symbol	Description
D10	Hs.473256	NM_005560	LAMA5	Laminin, alpha 5
D11	Hs.194236	NM_000230	LEP	Leptin
D12	Hs.468490	NM_000233	LHCGR	Luteinizing hormone/choriogonadotropin receptor
E01	Hs.594444	NM_005572	LMNA	Lamin A/C
E02	Hs.631506	NM_182802	MCM8	Minichromosome maintenance complex component 8
E03	Hs.591085	NM_004529	MLLT3	Myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 3
E04	Hs.211914	NM_024407	NDUFS7	NADH dehydrogenase (ubiquinone) Fe-S protein 7, 20kDa (NADH-coenzyme Q reductase)
E05	Hs.433222	NM_006432	NPC2	Niemann-Pick disease, type C2
E06	Hs.159274	NM_024410	ODF1	Outer dense fiber of sperm tails 1
E07	Hs.419640	NM_007262	PARK7	Parkinson protein 7
E08	Hs.46884	NM_017573	PCSK4	Proprotein convertase subtilisin/kexin type 4
E09	Hs.501149	NM_173791	PDZD8	PDZ domain containing 8
E10	Hs.367727	NM_138733	PGK2	Phosphoglycerate kinase 2
E11	Hs.405659	NM_004764	PIWIL1	Piwi-like 1 (Drosophila)
E12	Hs.97542	NM_033123	PLCZ1	Phospholipase C, zeta 1
F01	Hs.2909	NM_002761	PRM1	Protamine 1
F02	Hs.2324	NM_002762	PRM2	Protamine 2
F03	Hs.510334	NM_000624	SERPINA5	Serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 5
F04	Hs.632282	NM_001152	SLC25A5	Solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 5
F05	Hs.435836	NM_052961	SLC26A8	Solute carrier family 26, member 8
F06	Hs.298990	NM_003070	SMARCA2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2
F07	Hs.443914	NM_000454	SOD1	Superoxide dismutase 1, soluble
F08	Hs.487046	NM_000636	SOD2	Superoxide dismutase 2, mitochondrial
F09	Hs.159737	NM_012444	SPO11	SPO11 meiotic protein covalently bound to DSB homolog (S. cerevisiae)
F10	Hs.519403	NM_032567	SPZ1	Spermatogenic leucine zipper 1
F11	Hs.443861	NM_003137	SRPK1	SRSF protein kinase 1
F12	Hs.592283	NM_012447	STAG3	Stromal antigen 3
G01	Hs.506504	NM_153694	SYCP3	Synaptonemal complex protein 3
G02	Hs.590872	NM_003194	TBP	TATA box binding protein
G03	Hs.435371	NM_018679	TCP11	T-complex 11 homolog (mouse)
G04	Hs.121776	NM_031276	TEX11	Testis expressed 11
G05	Hs.3017	NM_003284	TNP1	Transition protein 1 (during histone to protamine replacement)
G06	Hs.351815	NM_033516	TPD52L3	Tumor protein D52-like 3
G07	Hs.519514	NM_018700	TRIM36	Tripartite motif containing 36
G08	Hs.120267	NM_182911	TSGA10	Testis specific, 10
G09	Hs.493739	NM_018449	UBAP2	Ubiquitin associated protein 2
G10	Hs.518731	NM_004181	UCHL1	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)
G11	Hs.203099	NM_015045	WAPAL	Wings apart-like homolog (Drosophila)
G12	Hs.656137	NM_007155	ZP3	Zona pellucida glycoprotein 3 (sperm receptor)
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 qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad models CFX96, CFX384, DNA Engine Opticon 2; Bio-Rad/MJ Research Chromo4; Roche LightCycler 480 (96-well and 384-well); all other cyclers	330500
RT² SYBR Green ROX™ qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 5700, 7000, 7300, 7500 [Standard and FAST], 7700, 7900HT 96-well block [Standard and FAST] and 384-well block, StepOnePlus; Eppendorf Mastercycler ep realplex models 2, 2S, 4, 4S; Stratagene models Mx3000P, Mx3005P, Mx4000; Takara TP-800	330520
RT² SYBR Green Fluor qPCR Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler, iQ5, MyiQ, MyiQ2	330510

* 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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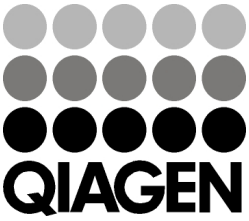

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