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

Human Tight Junctions

Cat. no. 330231 PAHS-143ZA

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 Tight Junctions RT² Profiler PCR Array profiles the expression of 84 key genes encoding proteins that form impermeable barriers between epithelial cells to regulate polarity, proliferation, and differentiation. Tight junctions seal adjacent epithelial cells together, preventing the passage of most dissolved molecules as well as membrane-bound lipids and proteins between the apical and basolateral surfaces. Tight junctions maintain this separation anywhere epithelial cells form a barrier between the environment and the interior of the mammalian organism or between internal compartments. Some examples include the blood–brain barrier, blood vessels, intestines, nephrons, and skin. Tissue and organ system development requires the correct formation of tight junctions. Normal biological processes, such as immune cell extravasation/diapedesis and intestinal absorption, require the proper assembly, disassembly, and maintenance of tight junctions. Dysregulation of tight junction integrity and function plays a key role in the pathophysiology of diseases such as inflammatory bowel disease and epithelial-to-mesenchymal transition during tumor metastasis. The core components of tight junctions include the claudins, occludin, and other cell adhesion proteins. Their extracellular domains engage in homophilic and/or heterophilic interactions with other cell surface proteins, while their intracellular domains interact with adaptor proteins such as actinins, catenins, and other junction interacting proteins. These adaptors recruit protein kinases that regulate the cytoskeleton via phosphorylation cascades and G-proteins that directly recruit cytoskeleton components to the junction. Profiling the expression of tight junction components may lead to a better understanding of molecular mechanisms behind tight-junction–mediated cell biology. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in tight junctions 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	ACTN1	ACTN2	ACTN3	ACTN4	AMOTL1	ARHGEF2	ASH1L	CASK	CD99	CDC42	CDK4	CGN
B	CLDN1	CLDN10	CLDN11	CLDN12	CLDN14	CLDN15	CLDN16	CLDN17	CLDN18	CLDN19	CLDN2	CLDN3
C	CLDN4	CLDN5	CLDN6	CLDN7	CLDN8	CLDN9	CRB1	CRB3	CSDA	CSNK2A1	CSNK2A2	CSNK2B
D	CTNNA1	CTNNA2	CTNNA3	CTNNB1	CTTN	EPB41	ESAM	F11R	GNAI1	HCLS1	ICAM1	ICAM2
E	IGSF5	ILK	INADL	JAM2	JAM3	LLGL1	LLGL2	MAGI1	MAGI2	MARK2	MLLT4	MPDZ
F	MPP5	MPP6	OCLN	PARD3	PARD6A	PARD6B	PECAM1	PRKCI	PRKCZ	PTEN	RAC1	RHOA
G	SMURF1	SPTA1	SPTAN1	SPTB	SYMPK	TIAM1	TJAP1	TJP1	TJP2	TJP3	VAPA	ZAK
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.509765	NM_001102	ACTN1	Actinin, alpha 1
A02	Hs.498178	NM_001103	ACTN2	Actinin, alpha 2
A03	Hs.654432	NM_001104	ACTN3	Actinin, alpha 3
A04	Hs.270291	NM_004924	ACTN4	Actinin, alpha 4
A05	Hs.503594	NM_130847	AMOTL1	Angiomotin like 1
A06	Hs.655209	NM_004723	ARHGEF2	Rho/rac guanine nucleotide exchange factor (GEF) 2
A07	Hs.491060	NM_018489	ASH1L	Ash1 (absent, small, or homeotic)-like (Drosophila)
A08	Hs.495984	NM_003688	CASK	Calcium/calmodulin-dependent serine protein kinase (MAGUK family)
A09	Hs.654354	NM_002414	CD99	CD99 molecule
A10	Hs.690198	NM_001791	CDC42	Cell division cycle 42 (GTP binding protein, 25kDa)
A11	Hs.95577	NM_000075	CDK4	Cyclin-dependent kinase 4
A12	Hs.591464	NM_020770	CGN	Cingulin
B01	Hs.439060	NM_021101	CLDN1	Claudin 1
B02	Hs.534377	NM_182848	CLDN10	Claudin 10
B03	Hs.31595	NM_005602	CLDN11	Claudin 11
B04	Hs.258576	NM_012129	CLDN12	Claudin 12
B05	Hs.660278	NM_144492	CLDN14	Claudin 14
B06	Hs.38738	NM_014343	CLDN15	Claudin 15
B07	Hs.251391	NM_006580	CLDN16	Claudin 16
B08	Hs.258589	NM_012131	CLDN17	Claudin 17
B09	Hs.655324	NM_016369	CLDN18	Claudin 18
B10	Hs.496270	NM_148960	CLDN19	Claudin 19
B11	Hs.522746	NM_020384	CLDN2	Claudin 2
B12	Hs.647023	NM_001306	CLDN3	Claudin 3
C01	Hs.729359	NM_001305	CLDN4	Claudin 4
C02	Hs.505337	NM_003277	CLDN5	Claudin 5
C03	Hs.533779	NM_021195	CLDN6	Claudin 6
C04	Hs.513915	NM_001307	CLDN7	Claudin 7
C05	Hs.162209	NM_199328	CLDN8	Claudin 8
C06	Hs.296949	NM_020982	CLDN9	Claudin 9
C07	Hs.126135	NM_201253	CRB1	Crumbs homolog 1 (Drosophila)
C08	Hs.150319	NM_139161	CRB3	Crumbs homolog 3 (Drosophila)
C09	Hs.221889	NM_003651	CSDA	Cold shock domain protein A
C10	Hs.644056	NM_001895	CSNK2A1	Casein kinase 2, alpha 1 polypeptide
C11	Hs.82201	NM_001896	CSNK2A2	Casein kinase 2, alpha prime polypeptide
C12	Hs.73527	NM_001320	CSNK2B	Casein kinase 2, beta polypeptide
D01	Hs.534797	NM_001903	CTNNA1	Catenin (cadherin-associated protein), alpha 1, 102kDa
D02	Hs.167368	NM_004389	CTNNA2	Catenin (cadherin-associated protein), alpha 2
D03	Hs.660362	NM_013266	CTNNA3	Catenin (cadherin-associated protein), alpha 3
D04	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
D05	Hs.596164	NM_005231	CTTN	Cortactin
D06	Hs.175437	NM_004437	EPB41	Erythrocyte membrane protein band 4.1 (elliptocytosis 1, RH-linked)
D07	Hs.173840	NM_138961	ESAM	Endothelial cell adhesion molecule
D08	Hs.517293	NM_016946	F11R	F11 receptor
				Guanine nucleotide binding protein (G protein), alpha inhibiting activity

Position	UniGene	GenBank	Symbol	Description
D09	Hs.134587	NM_002069	GNAI1	polypeptide 1
D10	Hs.14601	NM_005335	HCLS1	Hematopoietic cell-specific Lyn substrate 1
D11	Hs.643447	NM_000201	ICAM1	Intercellular adhesion molecule 1
D12	Hs.431460	NM_000873	ICAM2	Intercellular adhesion molecule 2
E01	Hs.422120	NM_001080444	IGSF5	Immunoglobulin superfamily, member 5
E02	Hs.5158	NM_004517	ILK	Integrin-linked kinase
E03	Hs.478125	NM_176877	INADL	InaD-like (Drosophila)
E04	Hs.517227	NM_021219	JAM2	Junctional adhesion molecule 2
E05	Hs.150718	NM_032801	JAM3	Junctional adhesion molecule 3
E06	Hs.513983	NM_004140	LLGL1	Lethal giant larvae homolog 1 (Drosophila)
E07	Hs.514477	NM_004524	LLGL2	Lethal giant larvae homolog 2 (Drosophila)
E08	Hs.651939	NM_004742	MAGI1	Membrane associated guanylate kinase, WW and PDZ domain containing 1
E09	Hs.603842	NM_012301	MAGI2	Membrane associated guanylate kinase, WW and PDZ domain containing 2
E10	Hs.567261	NM_004954	MARK2	MAP/microtubule affinity-regulating kinase 2
E11	Hs.728849	NM_001040000	MLLT4	Myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 4
E12	Hs.169378	NM_003829	MPDZ	Multiple PDZ domain protein
F01	Hs.652312	NM_022474	MPP5	Membrane protein, palmitoylated 5 (MAGUK p55 subfamily member 5)
F02	Hs.533355	NM_016447	MPP6	Membrane protein, palmitoylated 6 (MAGUK p55 subfamily member 6)
F03	Hs.592605	NM_002538	OCLN	Occludin
F04	Hs.131489	NM_019619	PARD3	Par-3 partitioning defective 3 homolog (C. elegans)
F05	Hs.112933	NM_016948	PARD6A	Par-6 partitioning defective 6 homolog alpha (C. elegans)
F06	Hs.589848	NM_032521	PARD6B	Par-6 partitioning defective 6 homolog beta (C. elegans)
F07	Hs.514412	NM_000442	PECAM1	Platelet/endothelial cell adhesion molecule
F08	Hs.478199	NM_002740	PRKCI	Protein kinase C, iota
F09	Hs.496255	NM_002744	PRKCZ	Protein kinase C, zeta
F10	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog
F11	Hs.413812	NM_006908	RAC1	Ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)
F12	Hs.247077	NM_001664	RHOA	Ras homolog gene family, member A
G01	Hs.189329	NM_020429	SMURF1	SMAD specific E3 ubiquitin protein ligase 1
G02	Hs.119825	NM_003126	SPTA1	Spectrin, alpha, erythrocytic 1 (elliptocytosis 2)
G03	Hs.372331	NM_003127	SPTAN1	Spectrin, alpha, non-erythrocytic 1 (alpha-fodrin)
G04	Hs.417303	NM_000347	SPTB	Spectrin, beta, erythrocytic
G05	Hs.515475	NM_004819	SYMPK	Symplekin
G06	Hs.517228	NM_003253	TIAM1	T-cell lymphoma invasion and metastasis 1
G07	Hs.520145	NM_080604	TJAP1	Tight junction associated protein 1 (peripheral)
G08	Hs.510833	NM_175610	TJP1	Tight junction protein 1 (zona occludens 1)
G09	Hs.50382	NM_004817	TJP2	Tight junction protein 2 (zona occludens 2)
G10	Hs.25527	NM_014428	TJP3	Tight junction protein 3 (zona occludens 3)
G11	Hs.699980	NM_194434	VAPA	VAMP (vesicle-associated membrane protein)-associated protein A, 33kDa
G12	Hs.444451	NM_016653	ZAK	Sterile alpha motif and leucine zipper containing kinase AZK
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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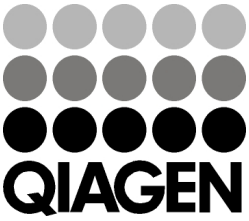

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