

# RT<sup>2</sup> Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

## Rat Cell Junction PathwayFinder

Cat. no. 330231 PARN-213ZA

For pathway expression analysis

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



Sample & Assay Technologies

## Description

The Rat Cell Junction PathwayFinder RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes encoding components of various subcellular macromolecular structures connecting cells to each other or to the extracellular matrix (ECM). Cell junctions include focal adhesions, tight junctions, gap junctions, adherens junctions, desmosomes, and hemidesmosomes, and each one plays a specific role in adhesion, communication, and transduction of mechanical force. 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 epithelial surfaces. Adjacent cells communicate through gap junctions that allow ions and small molecules to pass between their cytoplasm. Adherens junctions and desmosomes form around cadherin-mediated cell–cell contacts, while focal adhesions and hemidesmosomes form around integrin-mediated cell–ECM contacts. Adherens junctions and focal adhesions connect the intracellular domains of their cell surface receptors to actin filaments, while the desmosomes and hemidesmosomes connect to intermediate filaments. Although specific cell junctions predominate in certain cell types, all cells interact with their environment via more than one or even all of these junctions. Analyzing the expression of junction components can help determine their relative importance to the biology of the cellular or disease processes under study. Follow-up studies with arrays specific to the relevant junctions can then further explore the junctions' roles in cell biology. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in cell-cell and cell-ECM junctions with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

## Shipping and storage

RT<sup>2</sup> 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. RT<sup>2</sup> 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 RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

**Note:** Open the package and store the products appropriately immediately on receipt.

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## Array layout (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT<sup>2</sup> Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
<b>A</b>	Cav1	Cav2	Cav3	Cdh1	Cdh2	Cdh5	Cldn1	Cldn10	Cldn11	Cldn12	Cldn14	Cldn15
<b>B</b>	Cldn16	Cldn17	Cldn18	Cldn19	Cldn2	Cldn3	Cldn4	Cldn5	Cldn6	Cldn7	Cldn8	Cldn9
<b>C</b>	Dll1	Dsc1	Dsc2	Dsc3	Dsg1b	Dsg3	Dsg4	Dsp	Dst	Esam	F11r	Gja1
<b>D</b>	Gja3	Gja4	Gja5	Gja8	Gjb1	Gjb2	Gjb3	Gjb4	Gjb5	Gjb6	Gjc2	Gjc3
<b>E</b>	Gjd2	Icam1	Icam2	Itga1	Itga2	Itga3	Itga4	Itga5	Itga6	Itga7	Itga8	Itgal
<b>F</b>	Itgam	Itgav	Itgax	Itgb1	Itgb2	Itgb3	Itgb4	Itgb5	Itgb6	Jam3	Jup	Notch1
<b>G</b>	Notch2	Notch3	Notch4	Ocln	Pecam1	Plec	Pvrl1	Pvrl2	Pvrl3	Tjp1	Tjp2	Tjp3
<b>H</b>	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

## Gene table: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.22518	NM_031556	Cav1	Caveolin 1, caveolae protein
A02	Rn.81070	NM_131914	Cav2	Caveolin 2
A03	Rn.98191	NM_019155	Cav3	Caveolin 3
A04	Rn.1303	NM_031334	Cdh1	Cadherin 1
A05	Rn.23200	NM_031333	Cdh2	Cadherin 2
A06	Rn.164510	NM_001107407	Cdh5	Cadherin 5
A07	Rn.24293	NM_031699	Cldn1	Claudin 1
A08	Rn.99994	NM_001106058	Cldn10	Claudin 10
A09	Rn.8282	NM_053457	Cldn11	Claudin 11
A10	Rn.18416	NM_001100813	Cldn12	Claudin 12
A11	Rn.11783	NM_001013429	Cldn14	Claudin 14
A12	Rn.202600	NM_001107135	Cldn15	Claudin 15
B01	Rn.43852	NM_131905	Cldn16	Claudin 16
B02	Rn.19782	NM_001107112	Cldn17	Claudin 17
B03	Rn.105888	NM_001014096	Cldn18	Claudin 18
B04	Rn.106342	NM_001008514	Cldn19	Claudin 19
B05	Rn.93431	NM_001106846	Cldn2	Claudin 2
B06	Rn.4513	NM_031700	Cldn3	Claudin 3
B07	Rn.6830	NM_001012022	Cldn4	Claudin 4
B08	Rn.17420	NM_031701	Cldn5	Claudin 5
B09	Rn.18647	NM_001102364	Cldn6	Claudin 6
B10	Rn.32259	NM_031702	Cldn7	Claudin 7
B11	Rn.79297	NM_001037774	Cldn8	Claudin 8
B12	Rn.113196	NM_001011889	Cldn9	Claudin 9
C01	Rn.10628	NM_032063	Dll1	Delta-like 1 (Drosophila)
C02	Rn.21711	NM_001106161	Dsc1	Desmocollin 1
C03	Rn.3954	NM_001033688	Dsc2	Desmocollin 2
C04	Rn.99931	NM_001107402	Dsc3	Desmocollin 3
C05	Rn.35296	XM_214616	Dsg1b	Desmoglein 1 beta
C06	Rn.214863	XM_001054333	Dsg3	Desmoglein 3
C07	Rn.122657	NM_199490	Dsg4	Desmoglein 4
C08	Rn.54711	XM_225259	Dsp	Desmoplakin
C09	Rn.79807	NM_001108208	Dst	Dystonin
C10	Rn.17089	NM_001004245	Esam	Endothelial cell adhesion molecule
C11	Rn.107273	NM_053796	F11r	F11 receptor
C12	Rn.10346	NM_012567	Gja1	Gap junction protein, alpha 1
D01	Rn.10345	NM_024376	Gja3	Gap junction protein, alpha 3
D02	Rn.23406	NM_021654	Gja4	Gap junction protein, alpha 4
D03	Rn.88300	NM_019280	Gja5	Gap junction protein, alpha 5
D04	Rn.86658	NM_153465	Gja8	Gap junction membrane channel protein alpha 8
D05	Rn.10444	NM_017251	Gjb1	Gap junction protein, beta 1
D06	Rn.219269	NM_001004099	Gjb2	Gap junction protein, beta 2
D07	Rn.162823	NM_019240	Gjb3	Gap junction protein, beta 3
D08	Rn.10344	NM_053984	Gjb4	Gap junction protein, beta 4
D09	Rn.16074	NM_019241	Gjb5	Gap junction protein, beta 5

Position	UniGene	GenBank	Symbol	Description
D10	Rn.18935	NM_053388	Gjb6	Gap junction protein, beta 6
D11	Rn.203000	XM_573100	Gjc2	Gap junction protein, gamma 2
D12	N/A	XM_221997	Gjc3	Gap junction protein, gamma 3
E01	Rn.9904	NM_019281	Gjd2	Gap junction protein, delta 2
E02	Rn.12	NM_012967	Icam1	Intercellular adhesion molecule 1
E03	Rn.162206	NM_001007725	Icam2	Intercellular adhesion molecule 2
E04	Rn.91044	NM_030994	Itga1	Integrin, alpha 1
E05	Rn.83597	XM_345156	Itga2	Integrin, alpha 2
E06	Rn.154664	NM_001108292	Itga3	Integrin, alpha 3
E07	Rn.12704	NM_001107737	Itga4	Integrin, alpha 4
E08	Rn.100796	NM_001108118	Itga5	Integrin, alpha 5 (fibronectin receptor, alpha polypeptide)
E09	Rn.161799	XM_215984	Itga6	Integrin, alpha 6
E10	Rn.54492	NM_030842	Itga7	Integrin, alpha 7
E11	Rn.69726	NM_001173972	Itga8	Integrin, alpha 8
E12	Rn.14655	NM_001033998	Itgal	Integrin, alpha L
F01	Rn.54465	NM_012711	Itgam	Integrin, alpha M
F02	Rn.23339	NM_001106549	Itgav	Integrin, alpha V
F03	Rn.215658	XM_001080404	Itgax	Integrin, alpha X
F04	Rn.25733	NM_017022	Itgb1	Integrin, beta 1
F05	Rn.42962	NM_001037780	Itgb2	Integrin, beta 2
F06	Rn.162202	NM_153720	Itgb3	Integrin, beta 3
F07	Rn.198908	NM_013180	Itgb4	Integrin, beta 4
F08	Rn.16988	NM_147139	Itgb5	Integrin, beta 5
F09	Rn.19828	NM_001004263	Itgb6	Integrin, beta 6
F10	Rn.104684	NM_001004269	Jam3	Junctional adhesion molecule 3
F11	Rn.11255	NM_031047	Jup	Junction plakoglobin
F12	Rn.25046	NM_001105721	Notch1	Notch homolog 1, translocation-associated (Drosophila)
G01	Rn.65930	NM_024358	Notch2	Notch homolog 2 (Drosophila)
G02	Rn.53876	NM_020087	Notch3	Notch homolog 3 (Drosophila)
G03	Rn.12967	NM_001002827	Notch4	Notch homolog 4 (Drosophila)
G04	Rn.31429	NM_031329	Ocln	Occludin
G05	Rn.1878	NM_031591	Pecam1	Platelet/endothelial cell adhesion molecule 1
G06	Rn.1085	NM_022401	Plec	Plectin
G07	Rn.207176	XM_236210	Pvr11	Poliovirus receptor-related 1
G08	Rn.203297	NM_001012064	Pvr12	Poliovirus receptor-related 2
G09	Rn.56373	NM_001105883	Pvr13	Poliovirus receptor-related 3
G10	Rn.101871	NM_001106266	Tjp1	Tight junction protein 1
G11	Rn.10965	NM_053773	Tjp2	Tight junction protein 2
G12	Rn.145098	NM_001108073	Tjp3	Tight junction protein 3
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, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> 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
RT <sup>2</sup> 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
RT <sup>2</sup> 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.

RT<sup>2</sup> 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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