

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

## Rat Fibrosis

Cat. no. 330231 PARN-120ZA

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™



## Description

The Rat Fibrosis RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes involved in dysregulated tissue remodeling during the repair and healing of wounds. Wound healing consists of three phases: inflammation, granulation and tissue remodeling. During tissue remodeling, apoptosis removes myofibroblasts, and the deposited extracellular matrix (ECM) is remodeled to resemble the original tissue. Fibrosis occurs when inappropriate tissue remodeling results in excess ECM deposition due to inappropriate survival of myofibroblasts or lack of ECM proteolytic degradation. The inflammation and enhanced TGF $\beta$  signaling often present in fibrotic tissues causes cells to differentiate into myofibroblasts via epithelial-to-mesenchymal transition (EMT). On the other side of the spectrum, chronic wounds feature dysregulated tissue remodeling with enhanced ECM degradation. This array contains genes encoding ECM remodeling enzymes, TGF $\beta$  signaling molecules and inflammatory cytokines, as well as additional genes important for fibrosis. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in fibrosis and chronic wounds 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  $-20^{\circ}\text{C}$ .

**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>	Acta2	Agt	Akt1	Bcl2	Bmp7	Cav1	Ccl11	Ccl12	Ccl3	Ccr2	Cebpb	Col1a2
<b>B</b>	Col3a1	Ctgf	Cxcr4	Dcn	Edn1	Egf	Eng	Faslg	Grem1	Hgf	Ifng	Il10
<b>C</b>	Il13	Il13ra2	Il1a	Il1b	Il4	Il5	Ilk	Inhbe	Itga1	Itga2	Itga3	Itgav
<b>D</b>	Itgb1	Itgb3	Itgb5	Itgb6	Itgb8	Jun	Lox	Libp1	Mmp13	Mmp14	Mmp1a	Mmp2
<b>E</b>	Mmp3	Mmp8	Mmp9	Myc	Nfkb1	Pdgfa	Pdgfb	Plat	Plau	Plg	Serpina1	Serpine1
<b>F</b>	Serpinh1	Smad2	Smad3	Smad4	Smad6	Smad7	Snai1	Sp1	Stat1	Stat6	Tgfb1	Tgfb2
<b>G</b>	Tgfb3	Tgfb1	Tgfb2	Tgfb1	Thbs1	Thbs2	Timp1	Timp2	Timp3	Timp4	Tnf	Vegfa
<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.195319	NM_031004	Acta2	Smooth muscle alpha-actin
A02	Rn.6319	NM_134432	Agt	Angiotensinogen (serpin peptidase inhibitor, clade A, member 8)
A03	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1
A04	Rn.9996	NM_016993	Bcl2	B-cell CLL/lymphoma 2
A05	Rn.18030	XM_342591	Bmp7	Bone morphogenetic protein 7
A06	Rn.22518	NM_031556	Cav1	Caveolin 1, caveolae protein
A07	Rn.10632	NM_019205	Ccl11	Chemokine (C-C motif) ligand 11
A08	Rn.137780	NM_001105822	Ccl12	Chemokine (C-C motif) ligand 12
A09	Rn.10139	NM_013025	Ccl3	Chemokine (C-C motif) ligand 3
A10	Rn.211983	NM_021866	Ccr2	Chemokine (C-C motif) receptor 2
A11	Rn.6479	NM_024125	Cebpb	CCAAT/enhancer binding protein (C/EBP), beta
A12	Rn.107239	NM_053356	Col1a2	Collagen, type I, alpha 2
B01	Rn.3247	NM_032085	Col3a1	Collagen, type III, alpha 1
B02	Rn.17145	NM_022266	Ctgf	Connective tissue growth factor
B03	Rn.44431	NM_022205	Cxcr4	Chemokine (C-X-C motif) receptor 4
B04	Rn.106103	NM_024129	Dcn	Decorin
B05	Rn.10918	NM_012548	Edn1	Endothelin 1
B06	Rn.6075	NM_012842	Egf	Epidermal growth factor
B07	Rn.187025	NM_001010968	Eng	Endoglin
B08	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
B09	Rn.42929	NM_019282	Grem1	Gremlin 1, cysteine knot superfamily, homolog (Xenopus laevis)
B10	Rn.10468	NM_017017	Hgf	Hepatocyte growth factor
B11	Rn.10795	NM_138880	Ifng	Interferon gamma
B12	Rn.9868	NM_012854	Il10	Interleukin 10
C01	Rn.9921	NM_053828	Il13	Interleukin 13
C02	Rn.162308	NM_133538	Il13ra2	Interleukin 13 receptor, alpha 2
C03	Rn.12300	NM_017019	Il1a	Interleukin 1 alpha
C04	Rn.9869	NM_031512	Il1b	Interleukin 1 beta
C05	Rn.108255	NM_201270	Il4	Interleukin 4
C06	Rn.44227	NM_021834	Il5	Interleukin 5
C07	Rn.95042	NM_133409	Ilk	Integrin-linked kinase
C08	Rn.30020	NM_031815	Inhbe	Inhibin beta E
C09	Rn.91044	NM_030994	Itga1	Integrin, alpha 1
C10	Rn.83597	XM_345156	Itga2	Integrin, alpha 2
C11	Rn.154664	NM_001108292	Itga3	Integrin, alpha 3
C12	Rn.23339	NM_001106549	Itgav	Integrin, alpha V
D01	Rn.25733	NM_017022	Itgb1	Integrin, beta 1
D02	Rn.162202	NM_153720	Itgb3	Integrin, beta 3
D03	Rn.16988	NM_147139	Itgb5	Integrin, beta 5
D04	Rn.19828	NM_001004263	Itgb6	Integrin, beta 6
D05	Rn.212213	NM_001108726	Itgb8	Integrin, beta 8
D06	Rn.93714	NM_021835	Jun	Jun oncogene
D07	Rn.11372	NM_017061	Lox	Lysyl oxidase
D08	Rn.40942	NM_021587	Libp1	Latent transforming growth factor beta binding protein 1
D09	Rn.10997	NM_133530	Mmp13	Matrix metalloproteinase 13

Position	UniGene	GenBank	Symbol	Description
D10	Rn.10371	NM_031056	Mmp14	Matrix metalloproteinase 14 (membrane-inserted)
D11	Rn.79007	NM_001134530	Mmp1a	Matrix metalloproteinase 1a (interstitial collagenase)
D12	Rn.6422	NM_031054	Mmp2	Matrix metalloproteinase 2
E01	Rn.32086	NM_133523	Mmp3	Matrix metalloproteinase 3
E02	Rn.44474	NM_022221	Mmp8	Matrix metalloproteinase 8
E03	Rn.10209	NM_031055	Mmp9	Matrix metalloproteinase 9
E04	Rn.12072	NM_012603	Myc	Myelocytomatosis oncogene
E05	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E06	Rn.10999	NM_012801	Pdgfa	Platelet-derived growth factor alpha polypeptide
E07	Rn.198230	NM_031524	Pdgfb	Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)
E08	Rn.107102	NM_013151	Plat	Plasminogen activator, tissue
E09	Rn.6064	NM_013085	Plau	Plasminogen activator, urokinase
E10	Rn.20178	NM_053491	Plg	Plasminogen
E11	Rn.1419	NM_022519	Serpina1	Serpin peptidase inhibitor, clade A (alpha-1 antitrypsin, antitrypsin), member 1
E12	Rn.29367	NM_012620	Serpine1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
F01	Rn.98199	NM_017173	Serpinh1	Serine (or cysteine) peptidase inhibitor, clade H, member 1
F02	Rn.2755	NM_019191	Smad2	SMAD family member 2
F03	Rn.10636	NM_013095	Smad3	SMAD family member 3
F04	Rn.9774	NM_019275	Smad4	SMAD family member 4
F05	Rn.42472	NM_001109002	Smad6	SMAD family member 6
F06	Rn.29980	NM_030858	Smad7	SMAD family member 7
F07	Rn.8008	NM_053805	Snai1	Snail homolog 1 (Drosophila)
F08	Rn.44609	NM_012655	Sp1	Sp1 transcription factor
F09	Rn.33229	NM_032612	Stat1	Signal transducer and activator of transcription 1
F10	Rn.6880	NM_001044250	Stat6	Signal transducer and activator of transcription 6
F11	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
F12	Rn.24539	NM_031131	Tgfb2	Transforming growth factor, beta 2
G01	Rn.7018	NM_013174	Tgfb3	Transforming growth factor, beta 3
G02	Rn.44402	NM_012775	Tgfb1r1	Transforming growth factor, beta receptor 1
G03	Rn.9954	NM_031132	Tgfb2r2	Transforming growth factor, beta receptor II
G04	Rn.154349	NM_001015020	Tgif1	TGF-beta-induced factor homeobox 1
G05	Rn.185771	NM_001013062	Thbs1	Thrombospondin 1
G06	Rn.165619	NM_001169138	Thbs2	Thrombospondin 2
G07	Rn.25754	NM_053819	Timp1	TIMP metalloproteinase inhibitor 1
G08	Rn.10161	NM_021989	Timp2	TIMP metalloproteinase inhibitor 2
G09	Rn.119634	NM_012886	Timp3	TIMP metalloproteinase inhibitor 3
G10	Rn.155651	NM_001109393	Timp4	Tissue inhibitor of metalloproteinase 4
G11	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G12	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
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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