

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

## Epithelial to Mesenchymal Transition

Cat. no. 330231 PAFD-090Z

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 dog Epithelial to Mesenchymal Transition (EMT) RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes that either change their expression during this process or regulate those gene expression changes. EMT and the reciprocal mesenchymal to epithelial transition (MET) are key processes involved in both tumor metastasis and stem cell differentiation and development. During EMT, epithelial cells lose their apical and basolateral polarity, break their intercellular tight junctions, and degrade basement membrane extracellular matrix components to become migratory mesenchymal cells. As such, the array includes cell surface receptor, extracellular matrix, and cytoskeletal genes mediating cell adhesion, migration, motility, and morphogenesis; genes controlling cell differentiation, development, growth, and proliferation; as well as signal transduction and transcription factor genes that cause EMT and all of its associated processes. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in tumor metastasis or stem cell differentiation and development 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
A	AHNAK	AKT1	BMP1	BMP2	BMP7	CALD1	CDH1	CDH2	COL1A2	COL3A1	COL5A2	CTGF
B	CTNNB1	DSC2	DSP	EGFR	ERBB3	ESR1	F11R	FN1	FOXC2	FZD7	GEMIN2	GNG11
C	GSC	GSK3B	IGFBP4	IL1RN	ILK	ITGA5	ITGAV	ITGB1	JAG1	KRT14	KRT19	KRT7
D	LOC488818	LOC612942	MAP1B	MITF	MMP2	MMP3	MMP9	MSN	MST1R	NODAL	NOTCH1	NUDT13
E	OCLN	PDGFRB	PLEK2	PTK2	PTP4A1	RAC1	RGS2	SERPINE1	SMAD2	SNAI1	SNAI2	SNAI3
F	SOX10	SPARC	SPP1	STAT3	STEAP1	TCF3	TCF4	TCF7L1	TFPI2	TGFB1	TGFB2	TGFB3
G	TIMP1	TMEM132A	TSPAN13	TWIST1	VCAN	VIM	VPS13A	WNT11	WNT5A	WNT5B	ZEB1	ZEB2
H	ACTB	B2M	GAPDH	HPRT1	RPLP1	FGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description	Assay
A01	N/A	XM_014121013	AHNAK	AHNAK nucleoprotein	PPF01819A
A02	N/A	XM_005623876	AKT1	V-akt murine thymoma viral oncogene homolog 1	PPF10547A
A03	N/A	XM_846269	BMP1	Bone morphogenetic protein 1	PPF07842A
A04	N/A	XM_534351	BMP2	Bone morphogenetic protein 2	PPF02535A
A05	Cfa.8	NM_001197052	BMP7	Bone morphogenetic protein 7	PPF02615A
A06	N/A	XM_005629597	CALD1	Caldesmon 1	PPF16471A
A07	Cfa.3488	NM_001287125	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)	PPF00589A
A08	N/A	NM_001287156	CDH2	Cadherin 2, type 1, N-cadherin (neuronal)	PPF04494A
A09	Cfa.1262	NM_001003187	COL1A2	Collagen, type I, alpha 2	PPF00391A
A10	Cfa.3093	XM_845916	COL3A1	Collagen, type III, alpha 1	PPF03607A
A11	N/A	XM_005640393	COL5A2	Collagen, type V, alpha 2	PPF03608A
A12	N/A	XM_003638769	CTGF	Connective tissue growth factor-like	PPF14181A
B01	Cfa.415	NM_001137652	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa	PPF02450A
B02	Cfa.3718	XM_861837	DSC2	Desmocollin 2	PPF00423A
B03	N/A	XM_545329	DSP	Desmoplakin	PPF15570A
B04	Cfa.3903	XM_014120756	EGFR	Epidermal growth factor receptor	PPF00572A
B05	N/A	XM_538226	ERBB3	V-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian)	PPF05042A
B06	Cfa.3504	NM_001286958	ESR1	Estrogen receptor 1	PPF00219B
B07	N/A	XM_005640879	F11R	F11 receptor	PPF03703A
B08	Cfa.47867	XM_014110981	FN1	Fibronectin 1	PPF00409A
B09	N/A	XM_014113959	FOXC2	Forkhead box C2 (MFH-1, mesenchyme forkhead 1)	PPF09841A
B10	N/A	XM_545599	FZD7	Frizzled family receptor 7	PPF09117A
B11	N/A	XM_005623351	GEMIN2	Gem (nuclear organelle) associated protein 2	PPF12591A
B12	N/A	XM_847378	GNG11	Guanine nucleotide binding protein (G protein), gamma 11	PPF12562A
C01	N/A	XM_005623927	GSC	Gooseoid homeobox	PPF18203A
C02	N/A	XM_535751	GSK3B	Glycogen synthase kinase 3 beta	PPF03443A
C03	N/A	XM_845091	IGFBP4	Insulin-like growth factor binding protein 4	PPF11770B
C04	Cfa.3496	NM_001003096	IL1RN	Interleukin 1 receptor antagonist	PPF00239A
C05	N/A	XM_534040	ILK	Integrin-linked kinase	PPF02329A
C06	N/A	XM_005636739	ITGA5	Integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	PPF08036A
C07	N/A	XM_014110784	ITGAV	Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	PPF09096B
C08	N/A	XM_005616948	ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)	PPF03043A
C09	N/A	XM_005634783	JAG1	Jagged 1	PPF07621A
C10	Cfa.46653	NM_001253741	KRT14	Keratin 14	PPF18205A
C11	Cfa.21760	NM_001253742	KRT19	Keratin 19, type I	PPF18204A
C12	N/A	XM_005636798	KRT7	Keratin 7	PPF02818A
D01	N/A	XM_005618560	LOC488818	Fibroblast growth factor-binding protein 1-like	PPF09320A
D02	N/A	XM_532014	LOC612942	Transmembrane protein with EGF-like and two follistatin-like domains 1	PPF13846A
D03	N/A	XM_535269	MAP1B	Microtubule-associated protein 1B	PPF03127A
D04	Cfa.2682	NM_001003337	MITF	Microphthalmia-associated transcription factor	PPF00582A
D05	Cfa.3597	XM_014109407	MMP2	Matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)	PPF00308A

Position	UniGene	GenBank	Symbol	Description	Assay
D06	Cfa.3447	NM_001002967	MMP3	Matrix metalloproteinase 3 (stromelysin 1, progelatinase)	PPF00049A
D07	Cfa.3470	NM_001003219	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	PPF00446A
D08	N/A	XM_005641418	MSN	Moesin	PPF11040A
D09	Cfa.10759	XM_533823	MST1R	Macrophage stimulating 1 receptor (c-met-related tyrosine kinase)	PPF00649A
D10	N/A	XM_546146	NODAL	Nodal homolog (mouse)	PPF09431A
D11	N/A	XM_005625433	NOTCH1	Notch 1	PPF04820A
D12	N/A	XM_005619008	NUDT13	Nudix (nucleoside diphosphate linked moiety X)-type motif 13	PPF03878A
E01	Cfa.3606	NM_001003195	OCLN	Occludin	PPF00408A
E02	Cfa.3909	NM_001003382	PDGFRB	Platelet-derived growth factor receptor, beta polypeptide	PPF00638A
E03	N/A	XM_014115694	PLEK2	Pleckstrin 2	PPF04613A
E04	N/A	XM_005627993	PTK2	Protein tyrosine kinase 2	PPF01180A
E05	N/A	XM_538984	PTP4A1	Protein tyrosine phosphatase type IVA, member 1	PPF05489A
E06	Cfa.40290	NM_001003274	RAC1	Ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)	PPF00507A
E07	N/A	XM_014111292	RGS2	Regulator of G-protein signaling 2, 24kDa	PPF09186A
E08	Cfa.109	NM_001197095	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	PPF00076A
E09	N/A	XM_005622830	SMAD2	SMAD family member 2	PPF04481A
E10	N/A	XM_005635167	SNAI1	Snail family zinc finger 1	PPF07725A
E11	Cfa.46828	NM_001097981	SNAI2	Snail homolog 2 (Drosophila)	PPF08302A
E12	N/A	XM_846102	SNAI3	Snail homolog 3 (Drosophila)	PPF12099A
F01	N/A	XM_538379	SOX10	SRY (sex determining region Y)-box 10	PPF05140A
F02	N/A	XM_849889	SPARC	Secreted protein, acidic, cysteine-rich (osteonectin)	PPF13486A
F03	Cfa.9240	XM_003434023	SPP1	Secreted phosphoprotein 1	PPF03376A
F04	N/A	XM_548090	STAT3	Signal transducer and activator of transcription 3 (acute-phase response factor)	PPF10603A
F05	N/A	XM_005628485	STEAP1	Six transmembrane epithelial antigen of the prostate 1	PPF01253A
F06	N/A	XM_014122282	TCF3	Transcription factor 3 (E2A immunoglobulin enhancer binding factors E12/E47)	PPF07267A
F07	Cfa.3808	NM_001003268	TCF4	Transcription factor 4	PPF00501A
F08	N/A	XM_849796	TCF7L1	Transcription factor 7-like 1 (T-cell specific, HMG-box)	PPF13445A
F09	N/A	XM_532462	TFPI2	Tissue factor pathway inhibitor 2	PPF01259A
F10	Cfa.3509	NM_001003309	TGFB1	Transforming growth factor, beta 1	PPF00546A
F11	Cfa.3367	XM_545713	TGFB2	Transforming growth factor, beta 2	PPF09191A
F12	Cfa.24656	XM_849026	TGFB3	Transforming growth factor, beta 3	PPF10506A
G01	Cfa.3680	NM_001003182	TIMP1	TIMP metalloproteinase inhibitor 1	PPF00383A
G02	N/A	XM_850086	TMEM132A	Transmembrane protein 132A	PPF13579A
G03	N/A	XM_539449	TSPAN13	Tetraspanin 13	PPF05730A
G04	N/A	XM_845879	TWIST1	Twist homolog 1 (Drosophila)	PPF12198A
G05	N/A	XM_003434417	VCAN	Versican	PPF09376A
G06	Cfa.25093	NM_001287023	VIM	Vimentin	PPF03062A
G07	N/A	XM_014117463	VPS13A	Vacuolar protein sorting 13 homolog A (S. cerevisiae)	PPF01975A
G08	N/A	XM_542301	WNT11	Wingless-type MMTV integration site family, member 11	PPF07319A
G09	Cfa.47426	NM_001287075	WNT5A	Wingless-type MMTV integration site family, member 5A	PPF07032A
G10	N/A	XM_543883	WNT5B	Wingless-type MMTV integration site family, member 5B	PPF08193B
G11	N/A	XM_003638879	ZEB1	Zinc finger E-box binding homeobox 1	PPF03049A
G12	N/A	XM_005631964	ZEB2	Zinc finger E-box binding homeobox 2	PPF06596A
H01	Cfa.17735	NM_001195845	ACTB	Actin, beta	PPF12880A
H02	N/A	XM_535458	B2M	Beta-2-microglobulin	PPF03253A
H03	Cfa.36213	NM_001003142	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	PPF00328A
H04	Cfa.4551	NM_001003357	HPRT1	Hypoxanthine phosphoribosyltransferase 1	PPF00602A
H05	N/A	XM_014109387	RPLP1	Ribosomal protein, large, P1	PPF03305A
H06	N/A	SA_00130	FGDC	Dog Genomic DNA Contamination	PPF68934A
H07	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H08	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H09	N/A	SA_00104	RTC	Reverse Transcription Control	PPX63340A
H10	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H11	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A
H12	N/A	SA_00103	PPC	Positive PCR Control	PPX63339A

## 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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