

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

## Human Osteogenesis

Cat. no. 330231 PAHS-026ZA

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> 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
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®, DNA Engine Opticon 2; Stratagene Mx4000®
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® LightCycler® 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® BioMark™



Sample & Assay Technologies

## Description

The Human Osteogenesis RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes related to osteogenic differentiation. This array contains genes functioning in the development of the skeletal system as well as bone mineral metabolism. Growth factors and genes mediating osteogenesis and related cell growth, proliferation, and differentiation processes are included. Also represented are the extracellular matrix molecules and cell adhesion molecules involved in bone development. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to osteogenic differentiation 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>	ACVR1	AHSG	ALPL	ANXA5	BGLAP	BGN	BMP1	BMP2	BMP3	BMP4	BMP5	BMP6
<b>B</b>	BMP7	BMPR1A	BMPR1B	BMPR2	CALCR	CD36	CDH11	CHRD	COL10A1	COL14A1	COL15A1	COL1A1
<b>C</b>	COL1A2	COL2A1	COL3A1	COL5A1	COMP	CSF1	CSF2	CSF3	CTSK	DLX5	EGF	EGFR
<b>D</b>	FGF1	FGF2	FGFR1	FGFR2	FLT1	FN1	GDF10	GLI1	ICAM1	IGF1	IGF1R	IGF2
<b>E</b>	IHH	ITGA1	ITGA2	ITGA3	ITGAM	ITGB1	MMP10	MMP2	MMP8	MMP9	NFKB1	NOG
<b>F</b>	PDGFA	PHEX	RUNX2	SERPINH1	SMAD1	SMAD2	SMAD3	SMAD4	SMAD5	SOX9	SP7	SPP1
<b>G</b>	TGFB1	TGFB2	TGFB3	TGFBR1	TGFBR2	TNF	TNFSF11	TWIST1	VCAM1	VDR	VEGFA	VEGFB
<b>H</b>	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description
A01	Hs.470316	NM_001105	ACVR1	Activin A receptor, type I
A02	Hs.324746	NM_001622	AHSG	Alpha-2-HS-glycoprotein
A03	Hs.75431	NM_000478	ALPL	Alkaline phosphatase, liver/bone/kidney
A04	Hs.480653	NM_001154	ANXA5	Annexin A5
A05	Hs.654541	NM_199173	BGLAP	Bone gamma-carboxyglutamate (gla) protein
A06	Hs.821	NM_001711	BGN	Biglycan
A07	Hs.1274	NM_006129	BMP1	Bone morphogenetic protein 1
A08	Hs.73853	NM_001200	BMP2	Bone morphogenetic protein 2
A09	Hs.387411	NM_001201	BMP3	Bone morphogenetic protein 3
A10	Hs.68879	NM_130851	BMP4	Bone morphogenetic protein 4
A11	Hs.296648	NM_021073	BMP5	Bone morphogenetic protein 5
A12	Hs.285671	NM_001718	BMP6	Bone morphogenetic protein 6
B01	Hs.473163	NM_001719	BMP7	Bone morphogenetic protein 7
B02	Hs.524477	NM_004329	BMPR1A	Bone morphogenetic protein receptor, type IA
B03	Hs.598475	NM_001203	BMPR1B	Bone morphogenetic protein receptor, type IB
B04	Hs.471119	NM_001204	BMPR2	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
B05	Hs.489127	NM_001742	CALCR	CALCITONIN RECEPTOR
B06	Hs.120949	NM_000072	CD36	CD36 molecule (thrombospondin receptor)
B07	Hs.116471	NM_001797	CDH11	Cadherin 11, type 2, OB-cadherin (osteoblast)
B08	Hs.166186	NM_003741	CHRD	Chordin
B09	Hs.520339	NM_000493	COL10A1	Collagen, type X, alpha 1
B10	Hs.409662	NM_021110	COL14A1	Collagen, type XIV, alpha 1
B11	Hs.409034	NM_001855	COL15A1	Collagen, type XV, alpha 1
B12	Hs.172928	NM_000088	COL1A1	Collagen, type I, alpha 1
C01	Hs.489142	NM_000089	COL1A2	Collagen, type I, alpha 2
C02	Hs.408182	NM_001844	COL2A1	Collagen, type II, alpha 1
C03	Hs.443625	NM_000090	COL3A1	Collagen, type III, alpha 1
C04	Hs.210283	NM_000093	COL5A1	Collagen, type V, alpha 1
C05	Hs.1584	NM_000095	COMP	Cartilage oligomeric matrix protein
C06	Hs.591402	NM_000757	CSF1	Colony stimulating factor 1 (macrophage)
C07	Hs.1349	NM_000758	CSF2	Colony stimulating factor 2 (granulocyte-macrophage)
C08	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)
C09	Hs.632466	NM_000396	CTSK	Cathepsin K
C10	Hs.99348	NM_005221	DLX5	Distal-less homeobox 5
C11	Hs.419815	NM_001963	EGF	Epidermal growth factor
C12	Hs.488293	NM_005228	EGFR	Epidermal growth factor receptor
D01	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)
D02	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)
D03	Hs.264887	NM_015850	FGFR1	Fibroblast growth factor receptor 1
D04	Hs.533683	NM_000141	FGFR2	Fibroblast growth factor receptor 2
D05	Hs.654360	NM_002019	FLT1	Fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)
D06	Hs.203717	NM_002026	FN1	Fibronectin 1
D07	Hs.2171	NM_004962	GDF10	Growth differentiation factor 10
D08	Hs.632702	NM_005269	GLI1	GLI family zinc finger 1

Position	UniGene	GenBank	Symbol	Description
D09	Hs.643447	NM_000201	ICAM1	Intercellular adhesion molecule 1
D10	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
D11	Hs.643120	NM_000875	IGF1R	Insulin-like growth factor 1 receptor
D12	Hs.523414	NM_000612	IGF2	Insulin-like growth factor 2 (somatomedin A)
E01	Hs.654504	NM_002181	IHH	Indian hedgehog
E02	Hs.644352	NM_181501	ITGA1	Integrin, alpha 1
E03	Hs.482077	NM_002203	ITGA2	Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
E04	Hs.265829	NM_002204	ITGA3	Integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor)
E05	Hs.172631	NM_000632	ITGAM	Integrin, alpha M (complement component 3 receptor 3 subunit)
E06	Hs.643813	NM_002211	ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)
E07	Hs.2258	NM_002425	MMP10	Matrix metalloproteinase 10 (stromelysin 2)
E08	Hs.513617	NM_004530	MMP2	Matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)
E09	Hs.161839	NM_002424	MMP8	Matrix metalloproteinase 8 (neutrophil collagenase)
E10	Hs.297413	NM_004994	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
E11	Hs.654408	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E12	Hs.248201	NM_005450	NOG	Noggin
F01	Hs.535898	NM_002607	PDGFA	Platelet-derived growth factor alpha polypeptide
F02	Hs.495834	NM_000444	PHEX	Phosphate regulating endopeptidase homolog, X-linked
F03	Hs.535845	NM_004348	RUNX2	Runt-related transcription factor 2
F04	Hs.596449	NM_001235	SERPINH1	Serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1)
F05	Hs.604588	NM_005900	SMAD1	SMAD family member 1
F06	Hs.12253	NM_005901	SMAD2	SMAD family member 2
F07	Hs.714621	NM_005902	SMAD3	SMAD family member 3
F08	Hs.75862	NM_005359	SMAD4	SMAD family member 4
F09	Hs.167700	NM_005903	SMAD5	SMAD family member 5
F10	Hs.647409	NM_000346	SOX9	SRY (sex determining region Y)-box 9
F11	Hs.209402	NM_152860	SP7	Sp7 transcription factor
F12	Hs.313	NM_000582	SPP1	Secreted phosphoprotein 1
G01	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G02	Hs.133379	NM_003238	TGFB2	Transforming growth factor, beta 2
G03	Hs.592317	NM_003239	TGFB3	Transforming growth factor, beta 3
G04	Hs.494622	NM_004612	TGFBRI	Transforming growth factor, beta receptor 1
G05	Hs.604277	NM_003242	TGFBRII	Transforming growth factor, beta receptor II (70/80kDa)
G06	Hs.241570	NM_000594	TNF	Tumor necrosis factor
G07	Hs.333791	NM_003701	TNFSF11	Tumor necrosis factor (ligand) superfamily, member 11
G08	Hs.66744	NM_000474	TWIST1	Twist homolog 1 (Drosophila)
G09	Hs.109225	NM_001078	VCAM1	Vascular cell adhesion molecule 1
G10	Hs.524368	NM_000376	VDR	Vitamin D (1,25-dihydroxyvitamin D3) receptor
G11	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
G12	Hs.78781	NM_003377	VEGFB	Vascular endothelial growth factor B
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, 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 <sup>™</sup> 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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