

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

Mouse Retinoic Acid Signaling

Cat. no. 330231 PAMM-180Z

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² 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 ² Profiler PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)
RT ² Profiler PCR Array, Format D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon [®] , DNA Engine Opticon 2; Stratagene Mx4000 [®]
RT ² Profiler PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format F	Roche [®] LightCycler [®] 480 (96-well block)
RT ² Profiler PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT ² Profiler PCR Array, Format H	Fluidigm [®] BioMark™



Description

The Mouse Retinoic Acid Pathway RT² Profiler PCR Array profiles the expression of 84 key genes involved in retinoic acid signaling. Retinoic acid (RA) is the primary functional derivative of vitamin A (retinol) and its activity is implicated in many aspects of vertebrate development and homeostasis, while disruptions in this pathway cause developmental abnormalities and disrupt function in adipose, cardiac, nervous, reproductive, and integumentary tissues, among others. RA acts primarily by binding a family of nuclear receptors (the retinoic acid receptors alpha, beta, and gamma) that then heterodimerize with their partners (the retinoid X receptors alpha, beta, and gamma) and alter transcription. Additionally, recent evidence suggests that an alternative receptor (PPAR delta) also responds to RA signaling in some tissues and that retinol, and RA may also induce non-genomic cellular effects. Thus, the effect of RA depends on the expression of its cognate receptors, enzymes responsible for converting retinol to RA, metabolic enzymes that reduce RA levels, and transport proteins, some of which act as signal transducers that appear to influence the distribution of RA and its metabolic precursors. This array includes genes encoding the known receptors and proteins responsible for synthesis, transport and metabolism of RA and its precursors, as well as downstream targets of RA signaling. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes involved in retinoic acid signaling 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	Adh1	Aldh1a1	Aldh1a2	Aldh1a3	Apoa2	Ascl1	Bhlhe40	Bmp2	Cd38	Cdx1	Chd7	Crabp1
B	Crabp2	Cyp1b1	Cyp26a1	Cyp26b1	Cyp26c1	Dcx	Dhrs3	Dhrs9	Dlx5	Efnb1	Egr1	Epo
C	Fabp5	Fgf8	Foxa1	Foxg1	Foxo3	Gata4	Gbx2	Gli1	Hnf1b	Hoxa1	Hoxa5	Hoxb1
D	Hoxb4	Hsd17b2	Isl1	Jag1	Klf4	Lefty1	Lhx1	Lrat	Mafb	Meis2	Max2	Myc
E	Nanog	Neurod1	Nrip1	Olig2	Otx2	Pax6	Pitx2	Plat	Ppara	Ppard	Pparg	Rara
F	Rarb	Rarg	Rbp1	Rbp2	Rbp4	Rdh10	Ret	Rrra	Rrb	Rrg	Shh	Sox2
G	Sox9	Srebf1	Stro6	Stro8	Tbx1	Tfap2c	Tgfb2	Tgm2	Tubb3	Ucp1	Wnt5a	Wnt8a
H	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mm.412004	NM_007409	Adh1	Alcohol dehydrogenase 1 (class I)
A02	Mm.250866	NM_013467	Aldh1a1	Aldehyde dehydrogenase family 1, subfamily A1
A03	Mm.42016	NM_009022	Aldh1a2	Aldehyde dehydrogenase family 1, subfamily A2
A04	Mm.140988	NM_053080	Aldh1a3	Aldehyde dehydrogenase family 1, subfamily A3
A05	Mm.389209	NM_013474	Apoa2	Apolipoprotein A-II
A06	Mm.136217	NM_008553	Ascl1	Achaete-scute complex homolog 1 (Drosophila)
A07	Mm.2436	NM_011498	Bhlhe40	Basic helix-loop-helix family, member e40
A08	Mm.103205	NM_007553	Bmp2	Bone morphogenetic protein 2
A09	Mm.249873	NM_007646	Cd38	CD38 antigen
A10	Mm.144448	NM_009880	Cdx1	Caudal type homeobox 1
A11	Mm.138792	NM_001081417	Chd7	Chromodomain helicase DNA binding protein 7
A12	Mm.34797	NM_013496	Crabp1	Cellular retinoic acid binding protein I
B01	Mm.4757	NM_007759	Crabp2	Cellular retinoic acid binding protein II
B02	Mm.214016	NM_009994	Cyp1b1	Cytochrome P450, family 1, subfamily b, polypeptide 1
B03	Mm.42230	NM_007811	Cyp26a1	Cytochrome P450, family 26, subfamily a, polypeptide 1
B04	Mm.255246	NM_175475	Cyp26b1	Cytochrome P450, family 26, subfamily b, polypeptide 1
B05	Mm.457750	NM_001105201	Cyp26c1	Cytochrome P450, family 26, subfamily c, polypeptide 1
B06	Mm.12871	NM_010025	Dcx	Doublecortin
B07	Mm.14063	NM_011303	Dhrs3	Dehydrogenase/reductase (SDR family) member 3
B08	Mm.211655	NM_175512	Dhrs9	Dehydrogenase/reductase (SDR family) member 9
B09	Mm.4873	NM_198854	Dlx5	Distal-less homeobox 5
B10	Mm.3374	NM_010110	Efnb1	Ephrin B1
B11	Mm.181959	NM_007913	Egr1	Early growth response 1
B12	Mm.349116	NM_007942	Epo	Erythropoietin
C01	Mm.741	NM_010634	Fabp5	Fatty acid binding protein 5, epidermal
C02	Mm.4012	NM_010205	Fgf8	Fibroblast growth factor 8
C03	Mm.4578	NM_008259	Foxa1	Forkhead box A1
C04	Mm.4704	NM_008241	Foxg1	Forkhead box G1
C05	Mm.391700	NM_019740	Foxo3	Forkhead box O3
C06	Mm.247669	NM_008092	Gata4	GATA binding protein 4
C07	Mm.204730	NM_010262	Gbx2	Gastrulation brain homeobox 2
C08	Mm.391450	NM_010296	Gli1	GLI-Kruppel family member GLI1
C09	Mm.7226	NM_009330	Hnf1b	HNF1 homeobox B
C10	Mm.197	NM_010449	Hoxa1	Homeobox A1
C11	Mm.173	NM_010453	Hoxa5	Homeobox A5
C12	Mm.890	NM_008266	Hoxb1	Homeobox B1
D01	Mm.3546	NM_010459	Hoxb4	Homeobox B4
D02	Mm.276466	NM_008290	Hsd17b2	Hydroxysteroid (17-beta) dehydrogenase 2
D03	Mm.42242	NM_021459	Isl1	ISL1 transcription factor, LIM/homeodomain
D04	Mm.22398	NM_013822	Jag1	Jagged 1
D05	Mm.4325	NM_010637	Klf4	Kruppel-like factor 4 (gut)
D06	Mm.378911	NM_010094	Lefty1	Left right determination factor 1
D07	Mm.4965	NM_008498	Lhx1	LIM homeobox protein 1
D08	Mm.33921	NM_023624	Lrat	Lecithin-retinol acyltransferase (phosphatidylcholine-retinol-O-acyltransferase)
D09	Mm.330745	NM_010658	Mafb	V-maf musculoaponeurotic fibrosarcoma oncogene family, protein B (avian)

Position	UniGene	GenBank	Symbol	Description
D10	Mm.471935	NM_010825	Meis2	Meis homeobox 2
D11	Mm.1763	NM_013601	Msx2	Homeobox, msh-like 2
D12	Mm.2444	NM_010849	Myc	Myelocytomatosis oncogene
E01	Mm.6047	NM_028016	Nanog	Nanog homeobox
E02	Mm.4636	NM_010894	Neurod1	Neurogenic differentiation 1
E03	Mm.455873	NM_173440	Nrip1	Nuclear receptor interacting protein 1
E04	Mm.37289	NM_016967	Olig2	Oligodendrocyte transcription factor 2
E05	Mm.487292	NM_144841	Otx2	Orthodenticle homolog 2 (Drosophila)
E06	Mm.33870	NM_013627	Pax6	Paired box gene 6
E07	Mm.246804	NM_011098	Pitx2	Paired-like homeodomain transcription factor 2
E08	Mm.154660	NM_008872	Plat	Plasminogen activator, tissue
E09	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
E10	Mm.328914	NM_011145	Ppard	Peroxisome proliferator activator receptor delta
E11	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
E12	Mm.439744	NM_009024	Rara	Retinoic acid receptor, alpha
F01	Mm.259318	NM_011243	Rarb	Retinoic acid receptor, beta
F02	Mm.1273	NM_011244	Rarg	Retinoic acid receptor, gamma
F03	Mm.279741	NM_011254	Rbp1	Retinol binding protein 1, cellular
F04	Mm.12825	NM_009034	Rbp2	Retinol binding protein 2, cellular
F05	Mm.2605	NM_011255	Rbp4	Retinol binding protein 4, plasma
F06	Mm.274376	NM_133832	Rdh10	Retinol dehydrogenase 10 (all-trans)
F07	Mm.57199	NM_009050	Ret	Ret proto-oncogene
F08	Mm.24624	NM_011305	Rxra	Retinoid X receptor alpha
F09	Mm.1243	NM_011306	Rxrb	Retinoid X receptor beta
F10	Mm.3475	NM_009107	Rxrg	Retinoid X receptor gamma
F11	Mm.57202	NM_009170	Shh	Sonic hedgehog
F12	Mm.65396	NM_011443	Sox2	SRY-box containing gene 2
G01	Mm.286407	NM_011448	Sox9	SRY-box containing gene 9
G02	Mm.278701	NM_011480	Srebf1	Sterol regulatory element binding transcription factor 1
G03	Mm.10801	NM_009291	Stra6	Stimulated by retinoic acid gene 6
G04	Mm.5171	NM_009292	Stra8	Stimulated by retinoic acid gene 8
G05	Mm.295194	NM_011532	Tbx1	T-box 1
G06	Mm.3629	NM_009335	Tfap2c	Transcription factor AP-2, gamma
G07	Mm.18213	NM_009367	Tgfb2	Transforming growth factor, beta 2
G08	Mm.330731	NM_009373	Tgm2	Transglutaminase 2, C polypeptide
G09	Mm.40068	NM_023279	Tubb3	Tubulin, beta 3
G10	Mm.4177	NM_009463	Ucp1	Uncoupling protein 1 (mitochondrial, proton carrier)
G11	Mm.287544	NM_009524	Wnt5a	Wingless-related MMTV integration site 5A
G12	Mm.558	NM_009290	Wnt8a	Wingless-related MMTV integration site 8A
H01	Mm.391967	NM_007393	Actb	Actin, beta
H02	Mm.163	NM_009735	B2m	Beta-2 microglobulin
H03	Mm.304088	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H05	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90 alpha (cytosolic), class B member 1
H06	N/A	SA_00106	MGDC	Mouse 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.
RT ² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT ² 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 ² 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 ² 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.

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