

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

## Human Cancer PathwayFinder

Cat. no. 330721 LAHS-002Z

For IncRNA expression analysis by pathway and disease using laboratory-verified SYBR<sup>®</sup> Green qPCR assays

Format	For use with the following real-time cyclers
RT <sup>2</sup> IncRNA PCR Array, Format A	Applied Biosystems <sup>®</sup> models 5700, 7000, 7300, 7500, 7700, 7900HT, QuantStudio <sup>®</sup> 6K Flex and QuantStudio 12K Flex (96-well standard block), ViiA <sup>™</sup> 7 (96-well block); Bio-Rad <sup>®</sup> models iCycler <sup>®</sup> , iQ <sup>™</sup> 5, MyiQ <sup>™</sup> , MyiQ2; Bio-Rad/MJ Research Chromo4 <sup>™</sup> ; 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, TP-900 (Dice <sup>®</sup> )
RT <sup>2</sup> IncRNA PCR Array, Format C	Applied Biosystems models 7500 (Fast block), 7900HT (fast block), QuantStudio 6K/12K Flex (96-well fast block), StepOnePlus <sup>™</sup> , ViiA7 (fast block)
RT <sup>2</sup> IncRNA PCR Array, Format D	Bio-Rad CFX96 <sup>™</sup> , CFX Connect <sup>™</sup> , CFX96 Touch <sup>™</sup> Deep Well; Bio-Rad/MJ Research models DNA Engine Opticon <sup>®</sup> , DNA Engine Opticon 2; Stratagene
RT <sup>2</sup> IncRNA PCR Array, Format E	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384 <sup>™</sup>
RT <sup>2</sup> IncRNA PCR Array, Format F	Roche <sup>®</sup> LightCycler <sup>®</sup> 480 (96-well block)
RT <sup>2</sup> IncRNA PCR Array, Format G	Roche LightCycler 480 (384-well block)
RT <sup>2</sup> IncRNA PCR Array, Format H	Fluidigm <sup>®</sup> BioMark <sup>™</sup>
RT <sup>2</sup> IncRNA PCR Array, Format R	Rotor-Gene <sup>®</sup> Q

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## Description

The Human Cancer PathwayFinder RT<sup>2</sup> lncRNA PCR Array profiles the expression of 84 long noncoding RNAs (lncRNAs) differentially expressed in tumors versus normal tissue. This array provides cancer researchers with a convenient and accurate way to quickly analyze the lncRNAs most relevant to tumorigenesis discovered to date. These lncRNAs have been carefully selected based on results published in peer-reviewed journals that suggest a correlation with the diagnosis, staging, progression, or prognosis of various cancers or tumors. In some cases, lncRNAs were also chosen based either on their association with cancer-related miRNA predicted with bioinformatics or on their proximity in the genome to key oncogenes and tumor suppressor genes. The profiling results from this array may yield insights into the molecular mechanisms behind the pathogenesis of many cancers or tumor types. A set of controls present on this array enables data analysis using the delta-delta CT method of relative quantification, assessment of reverse transcription performance, and assessment of PCR performance. Using SYBR Green real-time PCR, the expression of a focused panel of lncRNAs related to cancer research can be easily and reliably analyzed with this RT<sup>2</sup> lncRNA PCR Array.

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

## Shipping and storage

RT<sup>2</sup> lncRNA PCR Arrays in formats A, C, D, E, F, G, and R are shipped at ambient temperature, on dry ice, or on blue ice packs, depending on destination and accompanying products. RT<sup>2</sup> lncRNA 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> lncRNA PCR Array format for your real-time cyclers (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 *RT<sup>2</sup> lncRNA PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACTA2-AS1	ADAMTS9-AS2	AFAP1-AS1	AIRN	BANCR	BCAR4	BLACAT1	CAHM	CBR3-AS1	CCAT1	CCAT2	CDKN2B-AS1
B	CRNDE	DGCR5	DLEU2	DLX6-AS1	EMX2OS	FTX	GACAT1	GAS5	GAS6-AS1	GNAS-AS1	H19	HAND2-AS1
C	HEIH	HIF1A-AS1	HIF1A-AS2	HNFI1A-AS1	HOTAIR	HOTAIRM1	HOTTIP	HOXA11-AS	HOXA-AS2	HULC	IPW	JADRR
D	KCNQ1OT1	KRASP1	LINC00152	LINC00261	LINC00312	LINC00538	LINC00887	LINC00963	LINC01233	LINC01234	LSINCT5	LUCAT1
E	MALAT1	MEG3	MIR155HG	MIR17HG	MIR31HG	MIR7-3HG	MIRPL23-AS1	NAMA	NBR2	NEAT1	NRON	PANDAR
F	PCA3	PCAT1	PCGEM1	POU5F1P5	PRNCR1	PTCSC1	PTCSC3	PTENP1	PVT1	RMRP	RMST	RP56KA2-AS1
G	SNHG16	SPRY4-IT1	SUMO1P3	TERC	TRERNA1	TSIX	TUG1	TUSC7	UCA1	WT1-AS	XIST	ZFAS1
H	ACTB	B2M	RPLP0	RN7SK	SNORA73A	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

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

Position	UniGene	GenBank	Symbol	Description
A01	N/A	ENST00000437930	ACTA2-AS1	ACTA2 antisense RNA 1
A02	N/A	ENST00000460833	ADAMTS9-AS2	ADAMTS9 antisense RNA 2
A03	N/A	ENST00000608442	AFAP1-AS1	AFAP1 antisense RNA 1
A04	N/A	ENST00000601203	AIRN	Antisense of IGF2R non-protein coding RNA
A05	N/A	NR_047671	BANCR	BRAF-activated non-protein coding RNA
A06	Hs.24611	NR_024049	BCAR4	Breast cancer anti-estrogen resistance 4
A07	N/A	NR_103783	BLACAT1	Bladder cancer associated transcript 1 (non-protein coding)
A08	N/A	ENST00000604200	CAHM	Colon adenocarcinoma hypermethylated (non-protein coding)
A09	N/A	ENST00000413862	CBR3-AS1	CBR3 antisense RNA 1
A10	N/A	ENST00000500112	CCAT1	Colon cancer associated transcript 1 (non-protein coding)
A11	N/A	NR_109834	CCAT2	Colon cancer associated transcript 2 (non-protein coding)
A12	N/A	ENST00000421632	CDKN2B-AS1	CDKN2B antisense RNA 1
B01	N/A	ENST00000501177	CRNDE	Colorectal neoplasia differentially expressed (non-protein coding)
B02	N/A	NR_002733	DGCR5	DiGeorge syndrome critical region gene 5 (non-protein coding)
B03	Hs.547964	NR_002612	DLEU2	Deleted in lymphocytic leukemia 2 (non-protein coding)
B04	Hs.34969	NR_015448	DLX6-AS1	DLX6 antisense RNA 1
B05	Hs.312592	NR_002791	EMX2OS	EMX2 opposite strand (non-protein coding)
B06	N/A	ENST00000418855	FTX	FTX transcript, XIST regulator (non-protein coding)
B07	N/A	ENST00000419650	GACAT1	Gastric cancer associated transcript 1 (non-protein coding) [Source:HGNC Symbol;Acc:48336]
B08	Hs.736055	NR_002578	GAS5	Growth arrest-specific 5 (non-protein coding)
B09	N/A	NR_044995	GAS6-AS1	GAS6 antisense RNA 1
B10	Hs.122718	NR_002785	GNAS-AS1	GNAS antisense RNA 1
B11	Hs.533566	NR_002196	H19	H19, imprinted maternally expressed transcript (non-protein coding)
B12	Hs.61435	NR_003679	HAND2-AS1	Nbla00301
C01	N/A	NR_045680	HEIH	Hepatocellular carcinoma up-regulated EZH2-associated long non-coding RNA
C02	N/A	ENST00000557544	HIF1A-AS1	HIF1A antisense RNA 1 [Source:HGNC Symbol;Acc:43014]
C03	N/A	NR_045406	HIF1A-AS2	HIF1A antisense RNA 2
C04	Hs.612351	ENST00000433033	HNFI1A-AS1	HNFI1A antisense RNA 1 (non-protein coding)
C05	Hs.197076	NR_003716	HOTAIR	Hox transcript antisense RNA (non-protein coding)
C06	N/A	ENST00000425358	HOTAIRM1	HOXA transcript antisense RNA, myeloid-specific 1
		ENST00000421		

Position	UniGene	GenBank	Symbol	Description
C07	N/A	733	HOTTIP	HOXA distal transcript antisense RNA
C08	Hs.587427	NR_002795	HOXA11-AS	HOXA11 antisense RNA 1 (non-protein coding)
C09	N/A	ENST00000517550	HOXA-AS2	HOXA cluster antisense RNA 2
C10	N/A	ENST00000503668	HULC	Hepatocellular carcinoma up-regulated long non-coding RNA
C11	N/A	NR_023915	IPW	Imprinted in Prader-Willi syndrome (non-protein coding)
C12	N/A	KC469579	JADRR	JADE1 adjacent regulatory RNA
D01	Hs.741312	NR_002728	KCNQ1OT1	KCNQ1 overlapping transcript 1 (non-protein coding)
D02	N/A	ENST00000407852	KRAS1	Kirsten rat sarcoma viral oncogene homolog pseudogene 1 [Source:HGNC Symbol;Acc:6406]
D03	Hs.652166	NR_024204	LINC00152	Non-protein coding RNA 152
D04	N/A	NR_001558	LINC00261	Long intergenic non-protein coding RNA 261
D05	Hs.433151	NR_024065	LINC00312	Non-protein coding RNA 312
D06	N/A	NR_046189	LINC00538	Long intergenic non-protein coding RNA 538
D07	Hs.606465	NR_024480	LINC00887	Hypothetical LOC100131551
D08	N/A	ENST00000412141	LINC00963	Long intergenic non-protein coding RNA 963
D09	N/A	ENST00000594200	LINC01233	Long intergenic non-protein coding RNA 1233
D10	N/A	ENST00000510694	LINC01234	Long intergenic non-protein coding RNA 1234
D11	N/A	GU228577	LSINCT5	Long stress-induced non-coding transcript 5
D12	N/A	ENST00000511918	LUCAT1	Lung cancer associated transcript 1 (non-protein coding)
E01	Hs.642877	NR_002819	MALAT1	Metastasis associated lung adenocarcinoma transcript 1 (non-protein coding)
E02	Hs.654863	NR_002766	MEG3	Maternally expressed 3 (non-protein coding)
E03	Hs.697120	NR_001458	MIR155HG	MIR155 host gene (non-protein coding)
E04	Hs.652877	NR_027349	MIR17HG	MiR-17-92 cluster host gene (non-protein coding)
E05	N/A	ENST00000304425	MIR31HG	MIR31 host gene (non-protein coding)
E06	Hs.326728	NR_027148	MIR7-3HG	Non-protein coding RNA 306
E07	N/A	ENST00000419080	MRPL23-AS1	MRPL23 antisense RNA 1
E08	N/A	NR_102270	NAMA	Non-protein coding RNA, associated with MAP kinase pathway and growth arrest
E09	Hs.559259	NR_003108	NBR2	Neighbor of BRCA1 gene 2 (non-protein coding)
E10	N/A	NR_028272	NEAT1	Nuclear paraspeckle assembly transcript 1 (non-protein coding)
E11	N/A	ENST00000517270	NRON	Non-protein coding RNA, repressor of NFAT
E12	N/A	NR_109836	PANDAR	Promoter of CDKN1A antisense DNA damage activated RNA
F01	Hs.663766	NR_015342	PCA3	Prostate cancer antigen 3 (non-protein coding)
F02	N/A	ENST00000519319	PCAT1	Prostate cancer associated transcript 1 (non-protein coding)
F03	Hs.546994	NR_002769	PCGEM1	Prostate-specific transcript 1 (non-protein coding)
F04	N/A	ENST00000445059	POU5F1P5	POU class 5 homeobox 1 pseudogene 5 [Source:HGNC Symbol;Acc:33311]
F05	N/A	ENST00000519282	PRNCR1	Prostate cancer associated non-coding RNA 1 [Source:HGNC Symbol;Acc:48942]
F06	N/A	AK023948	PTCSC1	Papillary thyroid carcinoma susceptibility candidate 1 (non-protein coding)
F07	N/A	ENST00000556013	PTCSC3	Papillary thyroid carcinoma susceptibility candidate 3 (non-protein coding)
F08	Hs.493716	NR_023917	PTENP1	Phosphatase and tensin homolog pseudogene 1
F09	Hs.675281	NR_003367	PVT1	Pvt1 oncogene (non-protein coding)
F10	N/A	ENST00000363046	RMRP	RNA component of mitochondrial RNA processing endoribonuclease
F11	N/A	NR_024037	RMST	Rhabdomyosarcoma 2 associated transcript (non-protein coding)
F12	N/A	ENST00000455390	RPS6KA2-AS1	RPS6KA2 antisense RNA 1 [Source:HGNC Symbol;Acc:40511]
G01	N/A	NR_038108	SNHG16	Small nucleolar RNA host gene 16 (non-protein coding)
G02	N/A	AK024556	SPRY4-IT1	SPRY4 intronic transcript 1 (non-protein coding)
G03	N/A	NR_002190	SUMO1P3	SUMO1 pseudogene 3
G04	N/A	ENST00000363312	TERC	Telomerase RNA component
G05	N/A	ENST00000431460	TRERNA1	Translation regulatory long non-coding RNA 1
G06	Hs.529901	NR_003255	TSIX	TSIX transcript, XIST antisense RNA (non-protein coding)
G07	Hs.554829	NR_002323	TUG1	Taurine upregulated 1 (non-protein coding)
G08	N/A	ENST00000466156	TUSC7	Tumor suppressor candidate 7 (non-protein coding)
G09	Hs.644234	NR_015379	UCA1	Urothelial cancer associated 1 (non-protein coding)
G10	Hs.567499	NR_023920	WT1-AS	WT1 antisense RNA (non-protein coding)

Position	UniGene	GenBank	Symbol	Description
G11	Hs.529901	NR_001564	XIST	X (inactive)-specific transcript (non-protein coding)
G12	Hs.356766	NR_003604	ZFAS1	ZNF1 antisense RNA 1
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H04	N/A	NR_001445	RN7SK	RNA, 7SK small nuclear
H05	N/A	NR_002907	SNORA73A	Small nucleolar RNA, H/ACA box 73A
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

### Functional Gene Grouping:

**Oncogenes:** ACTA2-AS1, AFAP1-AS1, BANCER, BCAR4, BLACAT1, CBR3-AS1, CCAT1, CCAT2, CRNDE, H19, HAND2-AS1, HEIH, HIF1A-AS2, HNF1A-AS1, HOTAIR, HOTTIP, HOXA-AS2, HULC, JADRR, KCNQ1OT1, LINC00152, LINC00963, LSINCT5, LUCAT1, MALAT1, MIR155HG, MIR17HG, PCA3, PCAT1, PCGEM1, POU5F1P5, PRNCR1, PVT1, SNHG16, SPRY4-IT1, SUMO1P3, TERC, TRERNA1, TUG1, UCA1, XIST.

**Tumor Suppressor Genes:** ADAMTS9-AS2, CAHM, DLEU2, DLX6-AS1, GACAT1, GAS5, GAS6-AS1, GNAS-AS1, LINC00261, LINC00312, MEG3, MIR31HG, MIR7-3HG, NAMA, NEAT1, PTCSC1, PTCSC3, PTENP1, TERC, TUSC7, WT1-AS, ZFAS1.

#### Cancers:

**Bladder Cancer:** BLACAT1, H19, MALAT1, MEG3, SNHG16, TERC, TUG1, UCA1.

**Breast Cancer:** BCAR4, GAS5, H19, HIF1A-AS2, HOTAIR, JADRR, LSINCT5, MIR31HG, MRPL23-AS1, TRERNA1, UCA1, XIST, ZFAS1.

**Cervical Cancer:** MEG3.

**Colorectal Cancer:** CCAT1, CCAT2, CRNDE, H19, HOTAIR, MALAT1, PCAT1, PVT1, SNHG16, TUSC7.

**Endometrial Cancer:** H19, HOTAIR.

**Esophageal Squamous Cell Carcinoma:** CBR3-AS1, HOTAIR.

**Gallbladder Cancer:** MALAT1.

**Gastric Cancer:** CCAT1, CDKN2B-AS1, GACAT1, H19, HOTAIR, HULC, LINC00152, LINC00261, LINC00312, MEG3, PVT1, SUMO1P3, TERC.

**Glioma:** H19, HOTAIR, MEG3.

**Kidney Cancer:** AFAP1-AS1, DGCR5, HIF1A-AS2, WT1-AS.

**Laryngeal Squamous Cell Carcinoma:** HOTAIR, MALAT1.

**Leukemia:** DLEU2, GAS5, H19, HOTAIR, HOXA-AS2, MALAT1, MEG3, TERC, TUG1, XIST.

**Liver Cancer:** H19, HEIH, HOTAIR, HOTTIP, HULC, KCNQ1OT1, MALAT1, MEG3, MIR7-3HG, PANDAR.

**Non-Small Cell Lung Cancer:** BANCER, CCAT2, GAS6-AS1, HOTAIR, MALAT1, MEG3.

**Other Lung Cancers:** ACTA2-AS1, LUCAT1.

**Melanoma:** BANCER, HOTAIR, PTENP1.

**Multiple Myeloma:** MEG3, PVT1

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Nasopharyngeal Carcinoma: HOTAIR, LINC00312.

Neuroblastoma: HAND2-AS1, SNHG16.

Oesophageal Squamous Cell Carcinoma: LINC01234.

Osteosarcoma: TUG1.

Ovarian Cancer: H19, HOTAIR, LSINCT5, WT1-AS, XIST.

Pancreatic Cancer: GAS5, HOTAIR, PVT1.

Pituitary Cancer: MEG3.

Prostate Cancer: CBR3-AS1, GAS5, HOTAIR, LINC00963, MALAT1, PCA3, PCAT1, PCGEM1, PRNCR1, PVT1, TERC, XIST.

Rhabdomyosarcoma: RMST.

Sporadic Pediatric Adrenocortical Tumors: KCNQ1OT1.

Testicular Cancer: XIST.

Thyroid Cancer: NAMA, PTCSC3.

Other Cancer-Related lncRNAs: AIRN, EMX2OS, FTX, HIF1A-AS1, HOTAIRM1, HOXA11-AS, IPW, KRASP1, LINC00538, LINC00887, LINC01233, NBR2, NRON, RMRP, RPS6KA2-AS1, TSIX.

## Related products

For optimal performance, RT<sup>2</sup> lncRNA 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> First Strand Kit (50)	Enzymes and reagents for cDNA synthesis	330404
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> lncRNA qPCR Assays	Laboratory-verified qPCR assays for lncRNA expression	Varies
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> lncRNA 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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