

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

## Human MYC Targets

Cat. no. 330231 PAHS-177ZA

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 Human MYC Targets RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key cancer-related genes controlled by a major oncogenic transcription factor. MYC contains a basic helix-loop-helix DNA-binding domain and a leucine zipper domain for dimerization with its partner MAX, another basic helix-loop-helix transcription factor. The heterodimer binds enhancer box sequences (E-boxes) in promoters and recruits histone acetyltransferases to mostly upregulate the expression of as many as 15% of the genes in the mammalian genome. MYC signaling is primarily responsible for promoting cell growth and proliferation, and its overexpression drives the formation of what is estimated to be 20% of all human cancers, causing about 100,000 US cancer deaths per year. Therefore, disruption of MYC function has recently been identified as an important target for anti-cancer drug development. Analyzing the expression of MYC-responsive genes can help researchers to better understand its normal functions, its role in oncogenesis, and the mechanism of action of anti-MYC agents at the molecular level. Most of the targets of MYC included on this array have been discovered using genome-wide analysis of both gene expression and MYC promoter binding sites via chromatin immunoprecipitation in various cancer cell lines either normally or artificially over-expressing MYC. These MYC targets regulate essential processes such as apoptosis; cell cycle; cell growth, proliferation, and differentiation; DNA repair; epigenetics; metabolism; protein synthesis, degradation and turnover; RNA processing; and signal transduction. MYC, MAX, and other related transcription factors are also represented by the array. A set of controls present on each array enables data analysis using the  $\Delta\Delta\text{CT}$  method of relative quantification and assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes responsive to MYC 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	AIMP2	APEX1	ATF4	BAX	BCAT1	CAD	CBX3	CCNB1	CCND2	CCT5	CDC25A	CDK4
B	CDKN1B	CDKN2B	CHEK1	CKS2	YBX3	CSDE1	CSTB	CTSC	DDX10	DDX39B	DKC1	E2F1
C	EIF4A1	EIF4B	EIF4E	ENO1	EXOSC8	FASN	GCLC	GNL3	HK2	HNRNPA1	HNRNPA2B1	ID3
D	ILK	ITGB1	LTA4H	MAT2A	MAX	MAZ	MGST1	MSH2	MTHFD1	MYC	MYCL	MYCN
E	NAP1L1	NBN	NCL	NME1	NOLC1	NPM1	ODC1	PA2G4	PAICS	PCNA	PDK1	PHB
F	PIAS2	POLD2	PPAT	PPP2R4	PSMG1	PTEN	PYCR1	RPL13	RPL19	RPL23	RPL27A	RPL5
G	RPS5	SHMT1	SNRPB	SRM	SRSF1	TERT	TOP1	TP53	TPH1	TYMS	UBE2C	ZFP36L1
H	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.520205	NM_006303	AIMP2	Aminoacyl tRNA synthetase complex-interacting multifunctional protein 2
A02	Hs.73722	NM_080649	APEX1	APEX nuclease (multifunctional DNA repair enzyme) 1
A03	Hs.496487	NM_001675	ATF4	Activating transcription factor 4 (tax-responsive enhancer element B67)
A04	Hs.624291	NM_004324	BAX	BCL2-associated X protein
A05	Hs.438993	NM_005504	BCAT1	Branched chain amino-acid transaminase 1, cytosolic
A06	Hs.377010	NM_004341	CAD	Carbamoyl-phosphate synthetase 2, aspartate transcarbamylase, and dihydroorotase
A07	Hs.381189	NM_007276	CBX3	Chromobox homolog 3
A08	Hs.23960	NM_031966	CCNB1	Cyclin B1
A09	Hs.376071	NM_001759	CCND2	Cyclin D2
A10	Hs.740762	NM_012073	CCT5	Chaperonin containing TCP1, subunit 5 (epsilon)
A11	Hs.437705	NM_001789	CDC25A	Cell division cycle 25 homolog A (S. pombe)
A12	Hs.95577	NM_000075	CDK4	Cyclin-dependent kinase 4
B01	Hs.238990	NM_004064	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)
B02	Hs.72901	NM_004936	CDKN2B	Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)
B03	Hs.24529	NM_001274	CHEK1	CHK1 checkpoint homolog (S. pombe)
B04	Hs.83758	NM_001827	CKS2	CDC28 protein kinase regulatory subunit 2
B05	Hs.221889	NM_003651	YBX3	Cold shock domain protein A
B06	Hs.69855	NM_007158	CSDE1	Cold shock domain containing E1, RNA-binding
B07	Hs.695	NM_000100	CSTB	Cystatin B (stefin B)
B08	Hs.128065	NM_001814	CTSC	Cathepsin C
B09	Hs.591931	NM_004398	DDX10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10
B10	Hs.254042	NM_004640	DDX39B	DEAD (Asp-Glu-Ala-Asp) box polypeptide 39B
B11	Hs.4747	NM_001363	DKC1	Dyskeratosis congenita 1, dyskerin
B12	Hs.654393	NM_005225	E2F1	E2F transcription factor 1
C01	Hs.129673	NM_001416	EIF4A1	Eukaryotic translation initiation factor 4A1
C02	Hs.648394	NM_001417	EIF4B	Eukaryotic translation initiation factor 4B
C03	Hs.249718	NM_001968	EIF4E	Eukaryotic translation initiation factor 4E
C04	Hs.517145	NM_001428	ENO1	Enolase 1, (alpha)
C05	Hs.294041	NM_181503	EXOSC8	Exosome component 8
C06	Hs.83190	NM_004104	FASN	Fatty acid synthase
C07	Hs.654465	NM_001498	GCLC	Glutamate-cysteine ligase, catalytic subunit
C08	Hs.313544	NM_014366	GNL3	Guanine nucleotide binding protein-like 3 (nucleolar)
C09	Hs.406266	NM_000189	HK2	Hexokinase 2
C10	Hs.655424	NM_002136	HNRNPA1	Heterogeneous nuclear ribonucleoprotein A1
C11	Hs.487774	NM_002137	HNRNPA2B1	Heterogeneous nuclear ribonucleoprotein A2/B1
C12	Hs.76884	NM_002167	ID3	Inhibitor of DNA binding 3, dominant negative helix-loop-helix protein
D01	Hs.706355	NM_004517	ILK	Integrin-linked kinase
D02	Hs.643813	NM_002211	ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)
D03	Hs.524648	NM_000895	LTA4H	Leukotriene A4 hydrolase
D04	Hs.516157	NM_005911	MAT2A	Methionine adenosyltransferase II, alpha
D05	Hs.285354	NM_002382	MAX	MYC associated factor X
D06	Hs.23650	NM_002383	MAZ	MYC-associated zinc finger protein (purine-binding transcription factor)
D07	Hs.389700	NM_020300	MGST1	Microsomal glutathione S-transferase 1

Position	UniGene	GenBank	Symbol	Description
D08	Hs.597656	NM_000251	MSH2	MutS homolog 2, colon cancer, nonpolyposis type 1 (E. coli)
D09	Hs.652308	NM_005956	MTHFD1	Methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1, methenyltetrahydrofolate cyclohydrolase, formyltetrahydrofolate synthetase
D10	Hs.202453	NM_002467	MYC	V-myc myelocytomatosis viral oncogene homolog (avian)
D11	Hs.437922	NM_005376	MYCL	V-myc myelocytomatosis viral oncogene homolog 1, lung carcinoma derived (avian)
D12	Hs.25960	NM_005378	MYCN	V-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)
E01	Hs.524599	NM_004537	NAP1L1	Nucleosome assembly protein 1-like 1
E02	Hs.492208	NM_002485	NBN	Nibrin
E03	Hs.79110	NM_005381	NCL	Nucleolin
E04	Hs.463456	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed in
E05	Hs.523238	NM_004741	NOLC1	Nucleolar and coiled-body phosphoprotein 1
E06	Hs.557550	NM_199185	NPM1	Nucleophosmin (nucleolar phosphoprotein B23, numatrin)
E07	Hs.467701	NM_002539	ODC1	Ornithine decarboxylase 1
E08	Hs.524498	NM_006191	PA2G4	Proliferation-associated 2G4, 38kDa
E09	Hs.518774	NM_006452	PAICS	Phosphoribosylaminoimidazole carboxylase, phosphoribosylaminoimidazole succinocarboxamide synthetase
E10	Hs.147433	NM_182649	PCNA	Proliferating cell nuclear antigen
E11	Hs.470633	NM_002610	PKD1	Pyruvate dehydrogenase kinase, isozyme 1
E12	Hs.514303	NM_002634	PHB	Prohibitin
F01	Hs.657844	NM_004671	PIAS2	Protein inhibitor of activated STAT, 2
F02	Hs.306791	NM_006230	POLD2	Polymerase (DNA directed), delta 2, regulatory subunit 50kDa
F03	Hs.331420	NM_002703	PPAT	Phosphoribosyl pyrophosphate amidotransferase
F04	Hs.400740	NM_021131	PPP2R4	Protein phosphatase 2A activator, regulatory subunit 4
F05	Hs.473838	NM_003720	PSMG1	Proteasome (prosome, macropain) assembly chaperone 1
F06	Hs.729457	NM_000314	PTEN	Phosphatase and tensin homolog
F07	Hs.163451	NM_006907	PYCR1	Pyrraline-5-carboxylate reductase 1
F08	Hs.410817	NM_000977	RPL13	Ribosomal protein L13
F09	Hs.655411	NM_000981	RPL19	Ribosomal protein L19
F10	Hs.406300	NM_000978	RPL23	Ribosomal protein L23
F11	Hs.523463	NM_000990	RPL27A	Ribosomal protein L27a
F12	Hs.532359	NM_000969	RPL5	Ribosomal protein L5
G01	Hs.378103	NM_001009	RPS5	Ribosomal protein S5
G02	Hs.707728	NM_004169	SHMT1	Serine hydroxymethyltransferase 1 (soluble)
G03	Hs.83753	NM_003091	SNRPB	Small nuclear ribonucleoprotein polypeptides B and B1
G04	Hs.76244	NM_003132	SRM	Spermidine synthase
G05	Hs.710026	NM_006924	SRSF1	Serine/arginine-rich splicing factor 1
G06	Hs.492203	NM_198253	TERT	Telomerase reverse transcriptase
G07	Hs.472737	NM_003286	TOP1	Topoisomerase (DNA) I
G08	Hs.437460	NM_000546	TP53	Tumor protein p53
G09	Hs.524219	NM_000365	TPI1	Triosephosphate isomerase 1
G10	Hs.732707	NM_001071	TYMS	Thymidylate synthetase
G11	Hs.93002	NM_181803	UBE2C	Ubiquitin-conjugating enzyme E2C
G12	Hs.85155	NM_004926	ZFP36L1	Zinc finger protein 36, C3H type-like 1
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™ 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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