

RT² Profiler PCR Array (Rotor-Gene® Format)

Human MYC Targets

Cat. no. 330231 PAHS-177ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Human MYC Targets RT² 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 *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

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

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

Gene table: RT² 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
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, methylenetetrahydrofolate 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

Position	UniGene	GenBank	Symbol	Description
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	PDK1	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	Pyrroline-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, 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 ROX [™] FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

* 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.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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