

## ExProfile™ Human Cell Cycle Toxicity and Cancer Related Gene qPCR Array

For focused group profiling of human cell cycle toxicity and cancer related gene expression

Cat. No. QG053-A (1 x 96-well plate, Format A)

Cat. No. QG053-B (1 x 96-well plate, Format B)

Cat. No. QG053-C (1 x 96-well plate, Format C)

Cat. No. QG053-D (1 x 96-well plate, Format D)

Cat. No. QG053-E (1 x 96-well plate, Format E)

Plates available individually or as a set of 6. Each set contains 84 unique gene primer pairs deposited in one 96-well plate.

### Introduction

The ExProfile human cell cycle toxicity and cancer related gene qPCR array profiles the expression of 84 cell cycle genes important in both toxicology and cancer research. These genes are carefully chosen for their close cell cycle correlation based on a thorough literature search of peer-reviewed publications, and include genes that encode cyclins, cyclin-dependent kinases and phosphatases, cell cycle inhibitors, and genes important for DNA replication, cycle checkpoints, and cell cycle arrest. This array allows researchers to study pathway-related genes to gain understanding of their roles during cancer or drug treatment.

- QG053 plate 01: 84 unique gene PCR primer pairs

### Shipping and storage conditions

Shipped at room temperature

Stable for at least 6 months when stored at -20 °C

### Array format

GeneCopeia provides five qPCR array formats (A, B, C, D, and E) suitable for use with the following real-time cyclers.

**Important note:** Upon receipt, please check to make sure that the correct array format was ordered to ensure compatibility with your qPCR instrument.

Plate format	Instrument provider	qPCR instrument model
<b>A</b> (96-well)	Applied Biosystems	5700, 7000, 7300, 7500, 7700, 7900HT (Standard 96-well block), ViiA™7 (Standard 96-well block)
<b>B</b> (96-well)	Applied Biosystems	7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA™7 (Fast block)
<b>C</b> (96-well)	Bio-Rad Laboratories	iCycler iQ®, MyiQ™, iQ™5
<b>D</b> (96-well)	Bio-Rad Laboratories	CFX96™, DNA Engine Opticon™, DNA Engine Opticon 2™, Chromo4™
<b>E</b> (96-well)	Roche Applied Science	LightCycler® 480 (96-well block)

### Quality control

1. Each pair of primers in the ExProfile gene qPCR array has been experimentally validated to yield a single dissociation curve peak and to generate a single amplicon of the correct size for the targeted gene.
2. The positive PCR controls (PCR) have been verified to amplify a single amplicon of the correct size with Ct values around **20±2**.
3. The Spike-in reverse transcription controls (RT) have been verified to amplify a single amplicon of the correct size with Ct values around **20±3**.
4.  $R^2 > 0.99$  was observed for high inter/ intra-array reproducibility.

### Materials required but not provided

All-in-One™ First-Strand cDNA Synthesis Kit

All-in-One™ qPCR Mix

Total RNA extraction kit (RNAzol® RT RNA extraction reagent is recommended)

DNase/RNase free tips, PCR reaction tubes, 1.5 ml microcentrifuge tubes

5 ml and 10 ml graduated pipettes, beakers, flasks, and cylinders

10 µl to 1,000 µl adjustable single channel micropipettes with disposable tips

5 µl to 20 µl adjustable multichannel micropipette, disposable tips, and reservoir

qPCR instrument, compatible with gene qPCR arrays ordered

### Array layout

	1	2	3	4	5	6	7	8	9	10	11	12
A	ABL1	AHR	AKT2	ANAPC10	ATM	BRCA1	CCNA2	CCNB1	CCNB2	CCND1	CCND2	CCND3
B	CCNE1	CCNG1	CCNG2	CCNH	CCNI	CCNK	CDC14A	CDC16	CDC2	CDC20	CDC23	CDC25A
C	CDC25B	CDC25C	CDC27	CDC2L5	CDC37	CDC45L	CDC6	CDK2	CDK4	CDK6	CDK7	CDK9
D	CDKL1	CDKN1A	CDKN1B	CDKN2A	CDKN2C	CDKN2D	CDKN3	CETN2	CHEK1	CHEK2	CUL1	DDIT3
E	DMC1	DUSP1	E2F1	E2F2	E2F3	E2F4	GADD45A	HDAC1	HRAS	JUN	JUNB	MAD2L2
F	MAPK1	MCM2	MCM3	MCM6	MDM2	MPHOSPH1	MYC	NRAS	POLS	PTEN	RAD17	RAD21
G	RAF1	RB1	TAF10	TFDP1	TFDP2	TP53	UHRF1	WEE1	WT1	FOSB	ORC1L	PKMYT1
H	HGDC	HGDC	GAPDH	ACTB	B2M	RPL13A	HPRT1	RN18S1	RT	RT	PCR	PCR

Figure1. Illustration of QG053 plate 01

- **Gene primer pairs:** 84 wells (A row to G row) are designated for a real-time PCR assay for genes (see the primer list).
- **HK1-6:** Six pre-deposited housekeeping gene (HK1-6) primer pairs, which can be used as endogenous positive controls as well as for array normalization.
- **GDC:** Genomic DNA controls, which can be used to specifically detect genomic DNA contamination with a high level of sensitivity.
- **RT:** Spike-in reverse transcription controls, which can be used to monitor the efficiency of the RT reactions. These pre-deposited primer pairs specifically amplify the cDNA template reverse transcribed from the spike-in control RNA in the sample.
- **PCR:** Positive PCR controls, which are used to verify the PCR efficiency by amplifying the pre-deposited DNA template with its specific pre-deposited primer pairs.

## Gene primer list

Plate	Position	Catalog No. of Primer	Accession No. of Gene	Symbol
QG053-01	A01	HQP006954	NM_005157	ABL1
QG053-01	A02	HQP004658	NM_001621	AHR
QG053-01	A03	HQP004995	NM_001626	AKT2
QG053-01	A04	HQP000460	NM_014885	ANAPC10
QG053-01	A05	HQP011736	NM_000051	ATM
QG053-01	A06	HQP017713	NM_007294	BRCA1
QG053-01	A07	HQP021701	NM_001237	CCNA2
QG053-01	A08	HQP021727	NM_031966	CCNB1
QG053-01	A09	HQP022141	NM_004701	CCNB2
QG053-01	A10	HQP016204	NM_053056	CCND1
QG053-01	A11	HQP021754	NM_001759	CCND2
QG053-01	A12	HQP021757	NM_001760	CCND3
QG053-01	B01	HQP021819	NM_001238	CCNE1
QG053-01	B02	HQP021857	NM_004060	CCNG1
QG053-01	B03	HQP021882	NM_004354	CCNG2
QG053-01	B04	HQP021906	NM_001239	CCNH
QG053-01	B05	HQP001120	NM_006835	CCNI
QG053-01	B06	HQP021572	NM_003858	CCNK
QG053-01	B07	HQP021276	NM_003672	CDC14A
QG053-01	B08	HQP021664	NM_001078645	CDC16
QG053-01	B09	HQP023261	NM_001786	CDC2
QG053-01	B10	HQP023365	NM_001255	CDC20
QG053-01	B11	HQP021443	NM_004661	CDC23
QG053-01	B12	HQP023385	NM_001789	CDC25A
QG053-01	C01	HQP023399	NM_004358	CDC25B
QG053-01	C02	HQP023409	NM_001790	CDC25C
QG053-01	C03	HQP023421	NM_001256	CDC27
QG053-01	C04	HQP021349	NM_003718	CDC2L5
QG053-01	C05	HQP001310	NM_007065	CDC37
QG053-01	C06	HQP020120	NM_003504	CDC45L
QG053-01	C07	HQP023354	NM_001254	CDC6
QG053-01	C08	HQP000225	NM_001798	CDK2
QG053-01	C09	HQP000245	NM_000075	CDK4
QG053-01	C10	HQP000274	NM_001259	CDK6
QG053-01	C11	HQP000285	NM_001799	CDK7
QG053-01	C12	HQP000321	NM_001261	CDK9
QG053-01	D01	HQP021574	NM_004196	CDKL1
QG053-01	D02	HQP000331	NM_000389	CDKN1A
QG053-01	D03	HQP000342	NM_004064	CDKN1B
QG053-01	D04	HQP000369	NM_000077	CDKN2A
QG053-01	D05	HQP000396	NM_001262	CDKN2C

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QG053-01	D06	HQP000408	NM_001800	CDKN2D
QG053-01	D07	HQP000418	NM_005192	CDKN3
QG053-01	D08	HQP000842	NM_004344	CETN2
QG053-01	D09	HQP001282	NM_001274	CHEK1
QG053-01	D10	HQP001396	NM_001005735	CHEK2
QG053-01	D11	HQP020798	NM_003592	CUL1
QG053-01	D12	HQP004127	NM_004083	DDIT3
QG053-01	E01	HQP001314	NM_007068	DMC1
QG053-01	E02	HQP004498	NM_004417	DUSP1
QG053-01	E03	HQP004524	NM_005225	E2F1
QG053-01	E04	HQP004526	NM_004091	E2F2
QG053-01	E05	HQP004527	NM_001949	E2F3
QG053-01	E06	HQP004528	NM_001950	E2F4
QG053-01	E07	HQP004125	NM_001924	GADD45A
QG053-01	E08	HQP008745	NM_004964	HDAC1
QG053-01	E09	HQP009036	NM_005343	HRAS
QG053-01	E10	HQP009853	NM_002228	JUN
QG053-01	E11	HQP009854	NM_002229	JUNB
QG053-01	E12	HQP000552	NM_006341	MAD2L2
QG053-01	F01	HQP014848	NM_002745	MAPK1
QG053-01	F02	HQP011106	NM_004526	MCM2
QG053-01	F03	HQP011107	NM_002388	MCM3
QG053-01	F04	HQP011110	NM_005915	MCM6
QG053-01	F05	HQP011135	NM_002392	MDM2
QG053-01	F06	HQP022945	NM_016195	MPHOSPH1
QG053-01	F07	HQP011597	NM_002467	MYC
QG053-01	F08	HQP011914	NM_002524	NRAS
QG053-01	F09	HQP001189	NM_006999	POLS
QG053-01	F10	HQP015535	NM_000314	PTEN
QG053-01	F11	HQP016070	NM_002873	RAD17
QG053-01	F12	HQP016074	NM_006265	RAD21
QG053-01	G01	HQP016088	NM_002880	RAF1
QG053-01	G02	HQP016131	NM_000321	RB1
QG053-01	G03	HQP017887	NM_006284	TAF10
QG053-01	G04	HQP018032	NM_007111	TFDP1
QG053-01	G05	HQP018033	NM_006286	TFDP2
QG053-01	G06	HQP018175	NM_000546	TP53
QG053-01	G07	HQP008445	NM_001048201	UHRF1
QG053-01	G08	HQP018519	NM_003390	WEE1
QG053-01	G09	HQP018546	NM_000378	WT1
QG053-01	G10	HQP006205	NM_006732	FOSB
QG053-01	G11	HQP012070	NM_004153	ORC1L
QG053-01	G12	HQP022046	NM_004203	PKMYT1
QG053-01	H01	HGDC		
QG053-01	H02	HGDC		
QG053-01	H03	HQP006940	NM_002046	GAPDH
QG053-01	H04	HQP016381	NM_001101	ACTB

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QG053-01	H05	HQP015171	NM_004048	B2M
QG053-01	H06	HQP006171	NM_012423	RPL13A
QG053-01	H07	HQP009026	NM_000194	HPRT1
QG053-01	H08	HQP054253	NR_003286	RN18S1
QG053-01	H09	RT		
QG053-01	H10	RT		
QG053-01	H11	PCR		
QG053-01	H12	PCR		

### Limited Use License

Following terms and conditions apply to use of ExProfile™ Human Cell Cycle Toxicity and Cancer Related Gene qPCR Array (the Product). If the terms and conditions are not acceptable, the Product in its entirety must be returned to GeneCopoeia within 5 calendar days. A limited End-User license is granted to the purchaser of the Product. The Product shall be used by the purchaser for internal research purposes only. The Product is expressly not designed, intended, or warranted for use in humans or for therapeutic or diagnostic use. The Product must not be resold, repackaged or modified for resale, or used to manufacture commercial products or deliver information obtained in service without prior written consent from GeneCopoeia. This Product should be used in accordance with the NIH guidelines developed for recombinant DNA and genetic research. Use of any part of the Product constitutes acceptance of the above terms.

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GeneCopoeia warrants that the Product meets the specifications described in the accompanying Product Datasheet. If it is proven to the satisfaction of GeneCopoeia that the Product fails to meet these specifications, GeneCopoeia will replace the Product. In the event a replacement cannot be provided, GeneCopoeia will provide the purchaser with a refund. This limited warranty shall not extend to anyone other than the original purchaser of the Product. Notice of nonconforming products must be made to GeneCopoeia within 30 days of receipt of the Product. GeneCopoeia's liability is expressly limited to replacement of Product or a refund limited to the actual purchase price.

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