

QIAseq Targeted RNA Panels

Human Molecular Toxicology Transcriptome

Cat. no. 333002 RHS-006Z-12

For gene expression profiling by RNA sequencing with laboratory-verified primer sets

The Human Molecular Toxicology Transcriptome QIAseq targeted RNA panel profiles the expression of 370 key genes in at least 13 different biological pathways activated in response to toxic drugs. Profiling the expression of these genes in human cell lines (such as hepatocytes) or organs (especially livers) of mice or rats treated with candidate drugs can help indicate which toxicological responses have been induced. Understanding these mechanisms can then guide chemical modifications to avoid the observed toxic responses rather than completely dismissing a drug class otherwise effective at preventing or treating the target disease phenotype. The toxic response pathways represented in this panel can be independent or interrelated. For example, inhibition of β -oxidation leads to steatosis, and uncoupling mitochondrial energy metabolism leads to apoptosis and necrosis. Drugs affecting reactive oxygen species metabolism or cellular redox status cause oxidative stress and induce antioxidant responses. These and other reactive drugs also directly damage DNA or inhibit its repair, thereby activating DNA damage signaling and DNA repair pathways. More extreme conditions of prolonged exposure or excess damage to DNA, cells or tissues may induce apoptosis and necrosis. Interference with protein synthesis causes endoplasmic reticulum stress and activates the unfolded protein response, resulting in up-regulation of heat shock protein and chaperone gene expression. Increased expression of the cytochrome P450 and other phase I drug metabolism enzymes occurs when drugs inhibit or overwhelm their chemical modification activities. More severe and complex phenomena result when drugs inhibit fatty acid and lipid metabolism (β -oxidation) including the lipid storage disorders of steatosis, cholestasis, and phospholipidosis. Toxic responses to drugs in immune system cells bring about immunotoxicity and immunosuppression. Using digital RNA sequencing, the expression of 370 genes with established roles in molecular toxicology response pathways can be analyzed with this primer pool.

For further details, consult the *QIAseq Targeted RNA Panel Handbook*.

Panel is enough for 12 samples.

Shipping and storage

QIAseq Targeted RNA Panels are shipped in two boxes: box 1 of 2 is shipped on dry ice and box 2

of 2 is shipped on blue ice. For long-term storage, keep the contents of box 1 at -20°C and the contents of box 2 at 4°C . If stored under these conditions, the panels are stable for 8 months after receipt.

Note: Open the package and store the products appropriately immediately upon receipt.



Sample to Insight

Panel Contents

Contents	Volume
RNase-free water	1000 μ l
Control P2	12 μ l
Buffer GE	24 μ l
RE3 Reverse Transcriptase Mix	24 μ l
5x Buffer BC3	48 μ l
QIAseq RNA 5x Buffer	300 μ l
HotStarTaq DNA Polymerase (6U / μ l)	60 μ l
RS2 Primer (10 μ M)	20 μ l
BC Primer Mix	80 μ l
LA Primer Mix	80 μ l
QIAseq Beads	4 ml

Gene table: QIAseq Targeted RNA Panels

Gene symbol	Gene symbol	Gene symbol	Gene symbol
ABCB1	ABCB4	ABCC1	ABCC2
ABCC3	ABL1	ACAA1	ACAA2
ACACA	ACAD11	ACAD9	ACADL
ACADM	ACADS	ACADSB	ACADVL
ACAT1	ACAT2	ACLY	ACO1
ACO2	ACOT1	ACOT12	ACOT6
ACOT7	ACOT8	ACOT9	ACOX1
ACOX2	ACOX3	ADH1C	ADK
AHR	AHSG	AKT1	ALB
ALDH1A1	ALDH2	AMFR	APAF1
APEX1	APOA5	APOE	APOF
AQP4	ASAH1	ASNS	ATF4
ATF6	ATM	ATP6V1G2	ATP8B1
ATR	BAD	BAK1	BAX
BCL2	BCL2L1	BCL2L11	BDH2
BID	BIRC3	BMF	BRCA1
BRCA2	C16orf13	C3	C9
CASP1	CASP3	CASP7	CASP8
CASP9	CAT	CCDC103	CD19
CD300LD	CD36	CD4	CD40
CD40LG	CD44	CD80	CD86
CD8A	CDKN1A	CES2	CFLAR
CHEK1	CHEK2	CLEC18A	COMMD4
COMT	COX6B1	COX8A	CPT1A
CPT1B	CPT2	CRAT	CROT
CRYAA	CRYAB	CS	CTSB

Gene symbol	Gene symbol	Gene symbol	Gene symbol
CTSE	CYC1	CYLD	CYP1A1
CYP1A2	CYP2B6	CYP2C19	CYP2C9
CYP2D6	CYP2E1	CYP3A4	CYP7A1
CYP7B1	DDIT3	DECR1	DEFB1
DERL1	DHCR24	DLAT	DLD
DLST	DNAJA1	DNAJA2	DNAJA3
DNAJB1	DNAJB6	DNAJC3	DNAJC5
DNAJC6	DNM1	DPYSL4	DUOX1
DUOX2	ECHS1	EDEM1	EDEM3
EHHADH	EIF2AK3	EIF5B	ENO1
EP300	EPHX1	EPX	ERCC1
ERCC2	ERCC3	ERCC5	ERCC6
ERN2	ERO1L	ERO1LB	ESD
ESR1	F2	FABP1	FADD
FAM47E-STBD1	FAS	FASLG	FASN
FBRSL1	FBXO6	FH	FMO2
FMO3	FMO4	FMO5	FOXI1
GADD45A	GALNT5	GCDH	GPD1
GPT	GPX1	GPX2	GPX3
GPX4	GPX5	GPX6	GPX7
GRB2	GSTA3	GSTM4	HAAO
HADHA	HADHB	HERPUD1	HLA-DRB1
HOXA3	HPN	HPX	HRG
HSF1	HSF2	HSP90AA1	HSP90AB1
HSP90B1	HSPA1A	HSPA1B	HSPA1L
HSPA2	HSPA4	HSPA5	HSPA8
HSPA9	HSPB1	HSPB2	HSPB6
HSPB8	HSPBAP1	HSPD1	HSPE1
HSPH1	HTRA2	HTRA4	ICAM1
IDH1	IDH2	IDH3A	IDH3B
IDH3G	IFNA1	IFNG	IL10
IL13	IL1A	IL1B	IL2
IL4	IL5	IL6	INHBE
ITGAX	JAG1	JPH3	KCNIP1
KHK	KIAA0586	KLF1	LIG4
LMNA	LPL	LSS	LY6D
LYZ	MAG	MANBA	MAOA
MAOB	MAP3K2	MAPK8	MBTPS1
MBTPS2	MCL1	MDH1	MDH1B
MDH2	MDM2	METAP2	MGMT
MKI67	MLH1	MLX	MPO
MRPS18B	MSH2	MSMO1	MTTP
NFKB1	NPLOC4	NQO1	NROB2
NR1H4	NR5A2	NUCB1	NUDT1

Gene symbol	Gene symbol	Gene symbol	Gene symbol
NUDT13	NUDT15	NUP210	OGDH
OGG1	OR10J3	OS9	PARP1
PARP2	PCCA	PCNA	PDYN
PFDN5	PNPLA3	PON1	POR
POU3F3	PPARA	PPIE	PPIL2
PPP1R15B	PRDX1	PRDX2	PRDX6
PRKDC	PTGS2	PTPRC	PVR
RAB25	RAD51	RDX	RETN
RFX1	S100A7A	S100A8	SCD
SDHA	SDHB	SDHC	SDHD
SEC62	SEL1L	SERP1	SERPINA3
SLC10A1	SLC2A3	SLC51A	SLC51B
SLCO1A2	SMPD1	SOD1	SPATA2
SREBF1	SUCLA2	SUCLG1	SUCLG2
SYCP2	SYT1	SYVN1	TAGLN
TCP1	TFF3	TGFB1	THAP3
TIMM10B	TMEM57	TNF	TNFAIP8L1
TNFRSF10A	TNFRSF10B	TNFRSF1A	TNFSF10
TP53	TPO	TRIM10	TXNIP
TXNL4B	TXNRD2	UBE2G2	UBE2J2
UBQLN2	UBXN4	UCP1	UCP2
UCP3	UGT1A1	UGT2A1	UGT2B4
VCP	VIMP	WIP1	XBP1
XIAP	XPA	XPC	XRCC1
XRCC5	ZBTB22	ZNF446	_GDC_CONTROL_06_
_GDC_CONTROL_07_	_GDC_CONTROL_14_	_GDC_CONTROL_21_	_GDC_CONTROL_24_
_GDC_CONTROL_32_			

Ordering Information

Product	Contents	Cat. no.
QIAseq Targeted RNA Panel (12)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; fixed panel for 12 samples	333002
QIAseq Targeted RNA Panel (96)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; fixed panel for 96 samples	333005
QIAseq Targeted RNA Extended Panel (12)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; extended panel for 12 samples	333012
QIAseq Targeted RNA Extended Panel (96)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; extended panel for 96 samples	333015
QIAseq Targeted RNA Custom Panel (12)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; custom panel for 12 samples	333022
QIAseq Targeted RNA Custom Panel (96)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; extended panel for 96 samples	333025
QIAseq Targeted RNA Custom Panel (384)	Kit containing reagents for first strand synthesis, molecular barcoding, gene-specific amplification and QIAseq Beads for targeted RNA sequencing; extended panel for 384 samples	333027
QIAseq Targeted RNA 12-index I (48)	Box containing oligos, enough for a total of 48 samples (for indexing up to 12 samples per run) and Custom Sequencing Primer for targeted RNA sequencing on Illumina platforms	333114
QIAseq Targeted RNA 96-index I (384)	Box containing oligos, enough for a total of 384 samples (for indexing up to 96 samples per run) and Custom Sequencing Primer for targeted RNA sequencing on Illumina platforms	333117
QIAseq Targeted RNA 96-index HT I (384)	Box containing oligos in arrays, enough for a total of 384 samples (for indexing up to 96 samples per	333127

Product	Contents	Cat. no.
	run) and Custom Sequencing Primer for targeted RNA sequencing on Illumina platforms	
QIAseq Targeted RNA 12-index L (48)	Box containing oligos, enough for a total of 48 samples (for indexing up to 12 samples per run) for targeted RNA sequencing on Ion Torrent platforms	333214
QIAseq Targeted RNA 96-index HT L (384)	Box containing oligos, enough for a total of 384 samples (for indexing up to 96 samples per run) for targeted RNA sequencing on Ion Torrent platforms	333217

QIAseq Targeted RNA Panels 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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Sample to Insight