

# QIAseq Targeted RNAscan Panels

## Human Oncology

Cat. nos. 333612 FHS-3001Z-12 and 333615 FHS-3001Z-96

**For constructing molecularly barcoded libraries from RNA for gene fusion analysis using digital NGS**

The QIAseq Targeted RNAscan Human Oncology Panel allows the use of next-generation sequencing using 950 primers to detect fusions to 222 genes frequently observed in many cancer samples. Such frequently detected fusions are likely to be relevant or even important to cancer biology and may be used in translational research to classify samples with known phenotypes. Using the Catalogue of Somatic Mutations in Cancer (COSMIC), frequently detected fusions were collected for bone cancers, brain cancers, breast cancers, colorectal cancers, gastric cancers, kidney cancers, leukemias, liver cancers, lung cancers, lymphomas, myelodysplastic syndromes (MDS), myeloproliferative neoplasms (MPN), lung cancers, pancreatic cancers, prostate cancers, sarcomas, skin cancers including melanomas, thyroid cancers, urinary tract cancers, and other cancers. For the same cancer types, additional fusions were also collected from the Archer Quiver Database, requests and suggestions by QIAGEN KOLs and SMEs, and other peer-reviewed publications. Using digital DNA sequencing, fusions to a focused panel of genes relevant to oncology can be detected with this primer pool.

For further details, consult the *QIAseq Targeted RNAscan Panels Handbook*.

### Shipping and storage

The QIAseq Targeted RNAscan Panel Kit is shipped with dry ice (Box 1) and must be stored at  $-30$  to  $-15^{\circ}\text{C}$  upon arrival. Box 2 (QIAseq Beads) is shipped on cold packs and should be stored at  $4^{\circ}\text{C}$ . When stored under these conditions and handled correctly, the product can be kept based on the expiration date on each component without reduction in performance.

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



## Panel Contents

<b>QIAseq Targeted RNAscan Panel Catalog Number</b>	<b>333612</b>	<b>333615</b>
<b>No. of preps</b>	<b>12</b>	<b>96</b>
<b>Box 1 of 2</b>		
QIAseq Targeted RNAscan Panel	48 $\mu$ l	384 $\mu$ l
RP Primer	12 $\mu$ l	96 $\mu$ l
EZ Reverse Transcriptase	12 $\mu$ l	96 $\mu$ l
BC3 Buffer, 5x	24 $\mu$ l	192 $\mu$ l
RNase Inhibitor	12 $\mu$ l	96 $\mu$ l
RH RNase	12 $\mu$ l	96 $\mu$ l
dNTP	12 $\mu$ l	96 $\mu$ l
XC Buffer, 10x	24 $\mu$ l	192 $\mu$ l
BX Enzyme	12 $\mu$ l	96 $\mu$ l
ERA Enzyme	120 $\mu$ l	960 $\mu$ l
ERA Buffer, 10x	60 $\mu$ l	480 $\mu$ l
DNA Ligase	120 $\mu$ l	960 $\mu$ l
Ligation Buffer, 5x	240 $\mu$ l	2 x 960 $\mu$ l
QIAseq RNA Buffer	300 $\mu$ l	2 x 1200 $\mu$ l
Nuclease-Free Water	1.5 ml	2 x 1500 $\mu$ l
HotStarTaq® DNA Polymerase	22 $\mu$ l	180 $\mu$ l
Handbook	1	1
<b>Box 2 of 2</b>		
QIAseq Beads	10 ml	34 ml

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## Gene Table

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
ABII	ABLI	ABL2	ACTN4	AFDN
AFF1	AFF3	AGK	AKAP9	ALK
ARHGAP26	ARHGEF12	ASPSCR1	ATF1	ATIC
AUTS2	BAG4	BAIAP2L1	BCOR	BCR
BIRC3	BRAF	CARS1	CBFA2T3	C8FB
CBL	CCDC6	CCDC88C	CD74	CEP170B
CEP43	CEP89	CHIC2	CLCN6	CLTC
CNTRL	COL1A1	CREB1	CREBBP	CRTC1
CUX1	DAZL	DCTN1	DDIT3	DDX10
DEK	DHH	ELL	ELN	EML1
EML4	EP300	EPS15	ERC1	ERG
ESRP1	ETV1	ETV4	ETV6	EW5R1
EZR	FAM131B	FCHSD1	FGFR1	FGFR2
FGFR3	FIPL1	FLI1	FLT3	FN1
FNBP1	FOXO1	FOXO4	FOXP1	FRYL
FUS	GAS7	GATA1	GATM	GLIS2
GNAI1	GOLGA5	GOPC	GOT1	GPHN
HACL1	HERPUD1	HIP1	HLF	HOOK3
HOXA9	HOXD13	JAK2	KAT6A	KDM5A
KIF5B	KLC1	KMT2A	KNL1	KRAS
LMNA	LNPI	LRIG3	LSM14A	MALTI
MAML2	MECOM	MKRN1	MLF1	MLLT1
MLLT10	MLLT11	MLLT3	MLLT6	MNI
MNX1	MPRIIP	MRTFA	MSN	MYB
MYH11	MYO1F	MYO5A	NCOA2	NCOA4
NDE1	NPM1	NRG1	NSD1	NSD3
NTRK1	NTRK3	NUMA1	NUP214	NUP98
P2RY8	PAPSS1	PAX3	PAX5	PAX7
PAX8	PBX1	PCMI	PDGFB	PDGFRA
PDGFRB	PHF23	PICALM	PLAG1	PML
PPARG	PPF1BP1	PRCC	PRDM16	PRKARIA
PRKG2	PRRX1	PSIP1	PTPRR	PVALBP2A
RAF1	RANBP2	RAP1GDS1	RARA	RBM15
RCS1	RET	RHEBL1	RNF130	ROS1
RPL22	RPN1	RUNX1	RUNX1T1	SDC4
SEC31A	SEPTIN2	SEPTIN5	SEPTIN6	SEPTIN9
SET	SFPQ	SLC34A2	SLC45A3	SND1
SQSTM1	SRGAP3	SS18	SSX1	SSX2
STAT5B	STIL	STRN	TACC1	TACC3
TAF15	TALI	TCF3	TCF7L2	TET1
TFE3	TFG	TMPRSS2	TOPI	TPM3
TPM4	TPR	TRIM24	TRIM27	TRIM33
TRIP11	UBE2L3	USP42	VCL	VT11A
WT1	ZBTB16	ZMIZ1	ZMYM2	ZNF384
ZNF703	ZSCAN30			

## Functional Groupings

**Bone Cancers:** ATF1, ERG, ETV1, ETV4, EWSR1, FLI1.

**Breast Cancers:** ALK, CRTC1, DAZL, EML4, ETV6, FGFR1, MAML2, NTRK3, RAF1, ZNF703.

**Clear Cell Sarcomas:** ATF1, CREB1, EWSR1.

**Central Nervous System Cancers:** BRAF, CLCN6, EWSR1, FAM131B, FGFR1, FGFR3, FLI1, GNAI1, GOPC, MKRN1, RAF1, RNF130, ROS1, SRGAP3, TACC1, TACC3.

**Colorectal Cancers:** ALK, EML4, ETV6, LMNA, NTRK1, NTRK3, TCF7L2, TPM3, VTI1A.

**Ewing's Sarcomas:** ERG, ETV1, ETV4, EWSR1, FLI1.

**Gastric Cancers:** BRAF, ROS1, SLC34A2, SND1.

**Gliomas:** GOPC, RAF1, ROS1, SRGAP3.

**Inflammatory Myofibroblastic Tumors:** ALK, ATIC, CAR51, CLTC, RANBP2, SEC31A, TPM3, TPM4.

**Kidney Cancers:** ALK, ASPSCR1, ETV6, NTRK3, PRCC, TFE3, VCL.

### Leukemia

**Acute Lymphoblastic Leukemia (ALL):** ABL1, ABL2, ACTN4, AFDN, AFF1, AFF1, AFF3, AUTS2, BCR, CEP43, ELN, EML1, EPS15, ETV6, EWSR1, FGFR1, FOXO4, FOXP1, FRYL, GAS7, GPHN, HLF, JAK2, KMT2A, KMT2A, KNL1, LNPI, MLLT1, MLLT10, MLLT10, MLLT3, MNX1, NCOA2, NUP214, NUP98, P2RY8, PAX5, PBX1, PCM1, PICALM, PICALM, PML, RAPIGDS1, RCSD1, RUNX1, SET, SFPQ, STIL, TAF15, TAL1, TCF3, TET1, ZMIZ1, ZNF384.

**Acute Myeloid Leukemia (AML):** AB11, AFDN, ALK, ARHGAP26, ARHGEF12, BCOR, BCR, CBFA2T3, CBF3, CBL, CCDC88C, CEP170B, CHIC2, CREBBP, DDX10, DEK, DHH, ELL, EP300, EPS15, ERG, ETV6, FIP1L1, FNBP1, FOXO4, FRYL, FUS, GAS7, GATA1, GLIS2, GPHN, HOXA9, HOXD13, JAK2, KAT6A, KDM5A, KMT2A, KMT2A, KNL1, LNPI, MAML2, MECOM, MLF1, MLLT1, MLLT10, MLLT10, MLLT11, MLLT3, MLLT6, MN1, MNX1, MRTFA, MYB, MYH11, MYO1F, NCOA2, NPM1, NSD1, NSD3, NTRK3, NUMA1, NUP214, NUP98, PCM1, PDGFRA, PDGFRB, PHF23, PICALM, PICALM, PML, PRDM16, PRRX1, PSIP1, PTPRR, RANBP2, RARA, RBM15, RHEBL1, RPL22, RPN1, RUNX1, RUNX1T1, SEPTIN2, SEPTIN5, SEPTIN6, SEPTIN9, SET, STAT5B, TAF15, TET1, TOP1, TRIP11, USP42, ZBTB16, ZNF384.

**Chronic Myeloid Leukemia (CML):** ABL1, BCR, CCDC88C, JAK2, MECOM, NDE1, PDGFRB, RUNX1.

**Lymphomas:** ALK, ATIC, BIRC3, CLTC, ETV6, FGFR3, MALT1, MSN, NPM1, SQSTM1, TFG, TPM3, TPM4.

**Liver Cancers:** CCDC6, FGFR2, TACC3.

**Lung Cancers:** ALK, BRAF, CCDC6, CD74, CRTC1, CUX1, EML4, EZR, FGFR3, GOPC, KIF5B, KLC1, LRIG3, MAML2, MPRIP, NCOA4, NRG1, NTRK1, RET, ROS1, SDC4, SLC34A2, SND1, STRN, TACC3, TFG, TPM3, TRIM33.

**Melanomas:** AGK, ATF1, BRAF, CREB1, EWSR1, PAPS51, TRIM24.

**Myelodysplastic Syndromes (MDS):** ACTN4, DEK, ETV6, FGFR1, FRYL, GOT1, HOXD13, JAK2, KMT2A, KNL1, LNPI, MAML2, MECOM, MLF1, MN1, MNX1, NDE1, NPM1, NUP214, NUP98, PCM1, PDGFRB, PRDM16, PTPRR, RUNX1, TOP1, ZMYM2.

**Myeloproliferative Neoplasms (MPN):** ABL1, BCR, CEP43, CNTRL, ETV6, FGFR1, FIP1L1, FLT3, HOXA9, HOXD13, JAK2, MECOM, MLF1, MN1, NPM1, NUP98, PDGFRA, PDGFRB, PRKG2, PSIP1, RARA, RUNX1.

**Non-Small Cell Lung Cancers (NSCLC):** ALK, BAG4, CCDC6, CD74, EML4, EZR, FGFR1, GOPC, HIP1, KIF5B, KLC1, LRIG3, NRG1, RET, ROS1, SDC4, SLC34A2, STRN, TFG, TPM3, TPR, TRIM33.

**Pancreatic Cancers:** BRAF, EWSR1, FLI1, GATM, HAACL1, HERPUD1, RAF1, SND1, ZSCAN30.

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**Prostate Cancers:** BRAF, ERG, ESRP1, KRAS, RAF1, SLC45A3, SND1, TMPRSS2, UBE2L3.

**Salivary Gland Cancers:** CRTC1, ETV6, FGFR1, MAML2, NTRK3, PLAG1.

**Sarcomas:** ALK, ASPSCR1, COL1A1, DDIT3, ETV6, EWSR1, FOXO1, FUS, LMNA, NPM1, NTRK1, NTRK3, PAX3, PAX7, PDGFB, SS18, SSX1, SSX2, TFE3, WT1.

**Skin Cancers:** ALK, ATF1, BRAF, CEP89, CRTC1, ERC1, EWSR1, FCHSD1, GOLGA5, KIF5B, LSM14A, MAML2, MYO5A, PPFIBP1, PWWP2A, RET, ROS1, SQSTM1, TPM3.

**Soft Tissue Cancers:** ALK, ASPSCR1, ATF1, ATIC, CARS1, CLTC, COL1A1, CREB1, DCTN1, DDIT3, ERG, ETV1, ETV4, ETV6, EWSR1, FLI1, FN1, FOXO1, FUS, NCOA4, NTRK3, PAX3, PAX7, PDGFB, PPFIBP1, RANBP2, RET, SEC31A, SS18, SSX1, SSX2, TFE3, TPM3, TPM4, WT1.

**Thyroid Cancers:** AKAP9, ALK, BRAF, CCDC6, CRTC1, EML4, ERC1, ETV6, GOLGA5, HOOK3, MAML2, NCOA4, NTRK1, NTRK3, PAX8, PCM1, PPARG, PRKAR1A, RET, STRN, TFG, TPM3, TRIM24, TRIM27, TRIM33.

**Urinary Tract Cancers:** BAIAP2L1, FGFR3, TACC3.

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## Ordering Information

Product	Contents	Cat. no.
QIAseq Targeted RNAscan Panel (12)	Kit containing reagents for first strand synthesis, second strand synthesis, end-repair/A-addition, gene specific amplification and QIAseq Beads for targeted RNAscan sequencing, fixed panel for 12 samples	333602
QIAseq Targeted RNAscan HC Panel (12)	Kit containing reagents for first strand synthesis, second strand synthesis, end-repair/A-addition, gene specific amplification and QIAseq Beads for targeted RNAscan sequencing, fixed panel for 12 samples	333612
QIAseq Targeted RNAscan Panel (96)	Kit containing reagents for first strand synthesis, second strand synthesis, end-repair/A-addition, gene specific amplification and QIAseq Beads for targeted RNAscan sequencing, fixed panel for 96 samples	333605
QIAseq Targeted RNAscan HC Panel (96)	Kit containing reagents for first strand synthesis, second strand synthesis, end-repair/A-addition, gene specific amplification and QIAseq Beads for targeted RNAscan sequencing, fixed panel for 96 samples	333615
QIAseq Targeted RNAscan Custom Panel	Kit containing reagents for first strand synthesis, second strand synthesis, end-repair/A-addition, gene specific amplification and QIAseq Beads for targeted RNAscan sequencing, custom panel for 96 samples	333625
QIAseq 12-Index I (48)	Box containing oligos, enough for a total of 48 samples, for indexing up to 12 samples for targeted panel sequencing on Illumina platforms	333714
QIAseq 96-Index I Set A (384)	Box containing oligos, enough for a total of 384 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; one of four sets	333727
QIAseq 96-Index I Set B (384)	Box containing oligos, enough for a total of 384 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; two of four sets	333737
QIAseq 96-Index I Set C (384)	Box containing oligos, enough for a total of 384 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; three of four sets required for multiplexing 384 samples	333747

Product	Contents	Cat. no.
QIAseq 96-Index I Set D (384)	Box containing oligos, enough for a total of 384 samples, for indexing up to 96 samples for targeted panel sequencing on Illumina platforms; four of four sets required for multiplexing 384 samples	333757
QIAseq 12-Index L (48)	Box containing oligos, enough for a total of 48 samples, for indexing up to 12 samples for targeted panel sequencing on Ion Torrent platforms	333764
QIAseq 96-Index L (384)	Box containing oligos in arrays, enough for a total of 384 samples, for indexing up to 96 samples for targeted panel sequencing on Ion Torrent platforms	333777
<b>Related products</b>		
Human XpressRef Universal Total RNA	2 tubes each containing 100 µg human RNA at 1 mg/ml	338112
RNeasy Mini Kit (50)	50 RNeasy Mini Spin Columns, Collection Tubes (1.5 ml and 2 ml), RNase-free reagents and buffers	74104
RNeasy FFPE Kit (50)	50 RNeasy MinElute® Spin Columns, Collection Tubes, Proteinase K, RNase-Free DNase I, DNase Booster Buffer, RNase-free buffers, Nuclease-free water	73504
PAXgene® Blood RNA Kit (50)	50 PAXgene Spin Columns, 50 PAXgene Shredder Spin Columns, Processing Tubes, RNase-Free DNase I, RNase-free reagents and buffers; to be used in conjunction with PAXgene Blood RNA Tubes	762174
RNeasy Microarray Tissue Mini Kit (50)	RNeasy Mini Spin Columns, Collection Tubes, QIAzol® Lysis Reagent, RNase-free reagents and buffers	73304
RNeasy Micro Kit (50)	50 RNeasy MinElute Spin Columns, Collection Tubes (1.5 ml and 2 ml), RNase-free DNase I, Carrier RNA, RNase-free reagents and buffers	74004
QIAamp® RNA Blood Mini Kit (50)	50 QIAamp Mini Spin Columns, 50 QIAshredder Spin Columns, Collection Tubes (1.5 ml and 2 ml), RNase-free reagents and buffers	52304

QIAseq Targeted RNAseq Panels are intended for molecular biology applications. These products are not intended for the diagnosis, prevention or treatment of a disease.

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**Sample to Insight**