QIAseq RNA Fusion XP Panels

Lung Cancer

Cat. nos. 334602 JHS-003Z-12 and 334605 JHS-003Z-96

For constructing molecularly barcoded libraries from RNA for gene fusion, exon skipping, gene expression, and RNA SNV/InDel analysis using digital NGS

The QIAseq RNA Fusion XP Lung Cancer Panel permits the use of next-generation sequencing using 1,210 primers to detect fusions to 72 genes and RNA SNP/indels in 36 genes frequently observed in lung cancer samples as well as the relative gene expression of 289 genes with signatures relevant to lung cancer. Such frequently detected mutations and fusions are likely to be relevant or even important to lung 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 mutated genes and frequently detected fusions were collected for adenocarcinomas, non-small cell lung cancers (NSCLC), small cell lung cancers, squamous cell carcinomas (SCC) other lung carcinomas, and other lung cancers. For the same cancer subtypes, additional fusions were also collected from the Archer Quiver Database, the Human Somatic Mutation Database (HSMD), requests and suggestions by QIAGEN KOLs and SMEs, and other peer-reviewed publications. Genes signatures important for immuno-oncology research were collected from peer-reviewed publications. Using digital DNA sequencing, fusions to, relative gene expression of, and RNA SNP/indels in three different focused panels of genes relevant to lung cancer can be assessed with this primer pool.

For further details, consult the *QIAseq RNA Fusion XP Panels Handbook*.

Shipping and storage

The QIAseq RNA Fusion XP Panel Kit is shipped with dry ice (Box 1) and must be stored at −20°C upon arrival. Box 2 (QIAseq Beads) is shipped on cold packs and should be stored at 4°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

QIAseq RNA Fusion XP Panel catalog number	**334602**	**334605**
No. of preps	**12**	**96**
Box 1 of 2		
QIAseq RNA Fusion XP Panel	48 µL	384 µL
RP Primer II	12 µL	96 µL
EZ Reverse Transcriptase	15 µL	96 µL
BC3 Buffer, 5x	24 µL	192 µL
RNase Inhibitor	12 µL	96 µL
RH RNase	12 µL	96 µL
dNTP II	18 µL	144 µL
BLU Buffer, 10x	24 µL	192 µL
POL Enzyme	12 µL	96 µL
ERA Enzyme	120 µL	960 µL
ERA Buffer, 10x	60 µL	480 µL
DNA Ligase	120 µL	960 µL
Ligation Buffer, 5x	240 µL	2 × 1250 µL
TEPCR Buffer, 5x	60 µL	500 µL
RNA Buffer II, 5x	48 µL	2 × 384µL
TaqIT Plus enzyme	15 µL	2 × 120 µL
HotStarTaq® DNA Polymerase	30 µL	240 µL
Box 2 of 2		
QIAseq Beads	10 mL	55 mL

Gene Table: RNA Fusions

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
ALK	ARL17A	BAG4	BAIAP2L1
BCL11A	BRAF	BRD4	CCDC6
CD74	CLIP4	CRTC1	CUX1
DNAH5	EGFR	EML4	ERG
ETV6	EZR	FER	FGFR1
FGFR2	FGFR3	GCC2	GLRX5
GOPC	HIP1	HLA-DRB1	IRF2BP2
KANSL1	KIAA1217	KIF5B	KLC1
LMNA	LRIG3	MAML2	MAN2A1
MET	MPRIP	NCOA4	NRG1
NTRK1	NTRK2	NTRK3	NUTM1
PAX8	PBX1	PPARG	PTPRK
RAD51	RET	ROS1	RSPO3
RUNX1	SDC4	SEPTIN14	SLC34A2
SLC3A2	SLC45A3	SND1	SQSTM1
STARD3NL	STRN	TACC3	TCF3
TFG	TMPRSS2	TPM3	TPR
TRA2B	TRIM33	VSNL1	WHSC1L1

Gene Table: Gene Expression

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
ACTG1	ADAM17	ADAM28	ADORA2A	AKNA	AKT3
ANP32B	AOAH	APOE	APP	ARHGAP9	ATM
B2M	BANK1	BATF	BCL2	BCL6	BLK
BNIP3L	BTLA	BTNL2	C10orf54	CACNA2D2	CAPZB
CARD11	CARD16	CCL1	CCL13	CCL17	CCL22
CCL4	CCL5	CCL7	CCR2	CCR3	CCR6
CD109	CD160	CD19	CD1A	CD1B	CD1E
CD2	CD200	CD200R1	CD209	CD244	CD247
CD27	CD274	CD276	CD28	CD38	CD3D
CD3E	CD3G	CD40	CD40LG	CD44	CD48
CD52	CD6	CD68	CD69	CD70	CD74
CD79A	CD80	CD86	CD8A	CD8B	CDK2
CDKN2A	CHIT1	CLEC11A	CMA1	CMKLR1	CORO1A
CORO1B	CR2	CSF2	CSF3R	CSNK1E	CTLA4
CTSG	CX3CL1	CXCL10	CXCL11	CXCL13	CXCL5
CXCL9	CXCR4	CXCR6	DOCK9	DPP4	EBI3
EHD1	EOMES	ERBB2	EWSR1	F13A1	FAS
FEZ1	FLT3	FLT3LG	FMNL1	FOXJ1	FOXN3
FOXP3	FPR2	FUT5	FYB	GATA3	GBA2
GBP1	GTF3C1	GZMA	GZMB	GZMM	HAVCR2
HHLA2	HIVEP1	HIVEP2	HLA-A	HLA-B	HLA-C
HLA-DMA	HLA-DMB	HLA-DOA	HLA-DOB	HLA-DPA1	HLA-DPB1
HLA-DQA1	HLA-DQA2	HLA-DQB1	HLA-DQB2	HLA-DRA	HLA-DRB1
HLA-DRB5	HLA-E	HLA-F	HLA-G	HLA-H	HSD11B1
ICOS	ICOSLG	IDO1	IDO2	IFI16	IFI27
IFI30	IFI44L	IFITM1	IFNG	IGHA1	IGHM
IGSF6	IKZF1	IL12RB2	IL15RA	IL17A	IL17RA
IL21R	IL26	IL2RB	IL3RA	IL5RA	INHBA
IRF1	IRF2	ITGA4	ITGAV	ITGB2	ITGB3
ITGB7	ITPKA	JAK1	KIR3DL1	KIT	KLRC1
KLRD1	LAG3	LAIR1	LAIR2	LAMP3	LARGE
LGALS9	LILRB1	LILRB3	LSM4	LST1	LTA
LTA4H	LTK	MAF	MAP3K14	MARCO	MICA
MICB	MME	MPPED1	MR1	MS4A1	MS4A2
MSR1	MYC	NAB2	NAIP	NCR1	NEFL
NFAM1	NFATC4	NFKBIL1	NKG7	NRAS	NRP1
NUP107	OAS3	ODF2	OPTN	PAX5	PDCD1
PDCD1LG2	PHKG2	PLA2G2D	PLA2G6	PMCH	POU2AF1
PPIF	PRF1	PRG2	PRRC2B	PSMB10	PSMB9
PTEN	PTGDR2	PTPRCAP	RBL2	REPS1	RHOC
RORC	RRAD	SELL	SERPINA3	SERPINB9	SH3BP5
SHMT2	SIGMAR1	SMAD2	SMAD3	SMPD3	STAT1
STAT4	STAT6	SYT17	SYTL1	TAP1	TAP2
TAPBPL	TBX21	TGFB1	THBS1	TIA1	TIGIT
TIMP1	TMC8	TMIGD2	TNFRSF13B	TNFRSF14	TNFRSF17
TNFRSF18	TNFRSF19	TNFRSF25	TNFRSF4	TNFRSF8	TNFRSF9
TNFSF14	TNFSF15	TNFSF4	TNFSF9	TPSAB1	TRAC
TRGC1	TRGC2	TXK	USP9Y	VTCN1	ZFYVE9
ZNF205					

Gene Table: **RNA SNP/indel**

Gene Symbol	Gene Symbol	Gene Symbol	Gene Symbol
AKT1	ALK	AMER1	APC
ARID1A	ATM	BRAF	CDKN2A
CREBBP	CTNNB1	EGFR	ERBB2
FBXW7	FGFR1	FGFR2	FGFR3
HRAS	JAK2	KIT	KMT2D
KRAS	MAP2K1	MET	MLH1
MYC	NFE2L2	NRAS	PDGFRA
PIK3CA	PIK3R1	PTEN	RBM10
RET	SMAD4	STK11	U2AF1

Functional Groupings

GENE FUSIONS:

Acinar Adenocarcinomas: ALK, CD74, EML4, HIP1, KIF5B, ROS1, SDC4.

Adenocarcinomas: ALK, BAIAP2L1, BCL11A, BRAF, CCDC6, CD74, CUX1, EML4, EZR, FGFR2, FGFR3, GCC2, GOPC, HIP1, HLA-DRB1, KIAA1217, KIF5B, KLC1, LRIG3, MET, MPRIP, NCOA4, NRG1, NTRK1, NTRK2, PBX1, RET, ROS1, SDC4, SLC34A2, SND1, STARD3NL, STRN, TACC3, TCF3, TFG, TPM3, TPR, TRIM33.

Bronchioloalveolar Adenocarcinomas: ALK, EML4, KLC1, PBX1, ROS1, SDC4, TCF3.

Inflammatory Myofibroblastic Tumors: ALK, CD74, EML4, EZR, GOPC, LRIG3, ROS1, SDC4, SLC34A2, TPM3.

Invasive Mucinous Adenocarcinomas: ALK, CD74, EML4, NRG1, SLC3A2.

Mixed Adenosquamous Carcinomas: ALK, EML4, KIF5B, RET.

Mucoepidermoid Carcinomas: ALK, CRTC1, EML4, MAML2.

Non-Small Cell Carcinomas: ALK, BCL11A, CCDC6, CD74, CUX1, EGFR, EML4, EZR, GCC2, GOPC, HIP1, KIAA1217, KIF5B, KLC1, LRIG3, NCOA4, RET, ROS1, SDC4, SLC34A2, STRN, TFG, TPM3, TPR, TRIM33.

Non-Small Cell Lung Cancers (NSCLC): ALK, BAG4, BAIAP2L1, BCL11A, CCDC6, CD74, CLIP4, CUX1, DNAH5, EGFR, EML4, ETV6, EZR, FER, FGFR1, FGFR3, GCC2, GLRX5, GOPC, HIP1, HLA-DRB1, IRF2BP2, KIAA1217, KIF5B, KLC1, LRIG3, MAN2A1, MET, MPRIP, NCOA4, NRG1, NTRK1, NTRK3, RAD51, RET, ROS1, RUNX1, SDC4, SLC34A2, SLC3A2, SQSTM1, STRN, TACC3, TFG, TPM3, TPR, TRA2B, TRIM33, VSNL1.

Squamous Cell Carcinomas (SCC): ALK, BAIAP2L1, CD74, EML4, FGFR2, FGFR3, HIP1, KIF5B, NRG1, RET, TACC3.

Other Carcinomas: ALK, BRD4, EML4, NUTM1.

Other Lung Cancers: ARL17A, BAG4, BAIAP2L1, CCDC6, CD74, CUX1, EZR, FGFR1, FGFR3, GOPC, IRF2BP2, KANSL1, KIAA1217, KIF5B, LRIG3, MPRIP, NCOA4, NRG1, NTRK1, NUTM1, PTPRK, RET, ROS1, RSPO3, SDC4, SLC34A2, SLC3A2, SQSTM1, TACC3, TPM3, TPR, TRIM33, WHSC1L1.

Commercial Control Samples: ALK, BAIAP2L1, BRAF, CCDC6, CD74, EGFR, EML4, ERG, ETV6, FGFR3, KIF5B, LMNA, MET, NCOA4, NTRK1, NTRK3, PAX8, PPARG, RET, ROS1, SEPT14, SLC34A2, SLC45A3, TACC3, TFG, TMPRSS2, TPM3.

GENE EXPRESSION:

Checkpoint Molecules:

Inhibitory on Tumor Cells: CD200, CD274, CD48, CD80, CD86, ITGAV, ITGB3, LGALS9, MICA, MICB, PDCD1LG2, TNFRSF14, VSIR.

Stimulatory on Tumor Cells: CD40, CD40LG, CD48, CD70, CD86, ICOSLG, TNFRSF9, TNFSF14, TNFSF4, TNFSF9.

Inhibitory on T Cells: BTLA, CD160, CD200R1, CD244, CD274, CD28, CTLA4, HAVCR2, KLRC1, LAG3, LILRB1, LILRB3, PDCD1, VSIR.

Stimulatory on T Cells: CD244, CD27, CD28, CD40, CD40LG, ICOS, TNFRSF14, TNFRSF18, TNFRSF4, TNFRSF9, TNFSF14, TNFSF9.

T Cell Receptor Genes: CD247, CD3D, CD3E, CD3G, TRAC, TRGC2.

Major Histocompatibility Complex I Genes: B2M, HLA-A, HLA-B, HLA-C, HLA-E, HLA-F, HLA-G, HLA-H, MR1.

Major Histocompatibility Complex II Genes: CD74, HLA-DMA, HLA-DMB, HLA-DOA, HLA-DOB, HLA-DPA1, HLA-DPB1, HLA-DQA1, HLA-DQA2, HLA-DQB1, HLA-DQB2, HLA-DRA, HLA-DRB1, HLA-DRB5, IFI30.

Other Checkpoint Molecules: ADORA2A, BTNL2, CD160, CD276, CD44, CD52, CD8A, HHLA2, IDO1, IDO2, KIR3DL1, KLRD1, LAIR1, MS4A1, NRP1, TIGIT, TMIGD2, TNFRSF25, TNFRSF8, TNFSF15, VTCN1.

Checkpoint Blockade Therapy Biomarkers: BTLA, CD274, CD80, CD8A, CSF2, CXCL11, HAVCR2, HLA-DRA, HLA-DRB1, HLA-DRB5, ICOS, IFNG, LAG3, PDCD1, PDCD1LG2.

Immuno Regulatory Gene Signature: ERBB2, FAS, IL5RA, INHBA, TNFRSF8, TNFSF4, TNFSF9.

Immuno Stimulatory Gene Signature: CD160, CD19, CD200, CD27, CD44, CTLA4, HLA-A, IL12RB2, IL17A, KIT, TNFRSF17.

Immuno Suppressive Gene Signature: CD274, CD276, HAVCR2, PDCD1LG2, TGFB1.

Upregulated in Cancer Vaccination Response: CCL5, CD3D, CD86, CD8A, CXCL10, CXCL9, GBP1, ICOS, IRF1, KLRD1, PSMB9, STAT1.

Immune Cell Markers:

CD8 T Cells: CD8A, CD8B, FLT3LG, GZMM, PRF1.

Th1 Cells: CCL4, CD38, CD70, CSF2, CTLA4, DPP4, IFNG, IL12RB2, LTA, STAT4, TBX21.

Th17 Cells: IL17A, IL17RA, RORC.

Th2 Cells: CXCR6, GATA3, IL26, LAIR2, MAF, PMCH, SMAD2, STAT6.

Follicular Helper T Cells: BCL6, CXCL13, MAF, PDCD1.

Other T Helper Cell Markers: ANP32B, BATF, CD28, ICOS, NUP107.

Regulatory T Cells: FOXP3.

Gamma Delta T Cells: CD160, FEZ1, TRGC1.

Central Memory T Cells: ATM, DOCK9, FYB1, NEFL, REPS1, TXK, USP9Y.

Effector Memory T Cells: AKT3, CCR2, EWSR1, IL15RA, LTK, NFATC4.

Other T Cell Markers: CD2, CD247, CD3D, CD3E, CD3G, CD6, IL2RB, TNFRSF25, TRAC, TRGC2.

Myeloid Derived Suppressor Cells: TGFB1.

Cytotoxic Lymphocytes: CD3E, CD3G, CD8A, CD8B, EOMES, GZMA, GZMB, IFNG, KLRC1, KLRD1, NKG7, TBX21.

Natural Killer Cells: BCL2, CD160, FOXJ1, FUT5, GTF3C1, GZMB, IL21R, KIR3DL1, MPPED1, NCR1, PLA2G6, RRAD, ZNF205.

Activated Dendritic Cells: CCL1, EBI3, LAMP3, OAS3.

Immature Dendritic Cells: CD1A, CD1B, CD1E, F13A1, SYT17.

Myeloid Dendritic Cells: CD1A, CD1B, CD1E.

Plasmacytoid Dendritic Cells: IL3RA.

Other Dendritic Cell Markers: CCL13, CCL17, CCL22, CD209, HSD11B1.

Macrophages: APOE, CCL7, CD68, CHIT1, CXCL5, MARCO, MSR1.

Neutrophils: CSF3R, FPR2, MME.

Eosinophils: CCR3, IL5RA, PTGDR2, SMPD3, THBS1.

Mast Cells: CMA1, CTSG, KIT, MS4A2, PRG2, TPSAB1.

B Cells: BANK1, BLK, CD19, CD79A, CR2, HLA-DOB, HLA-DQA1, MS4A1, PAX5, TNFRSF17.

Antigen Presenting Cells: CMKLR1.

Regulatory T Cell Gene Signature: CD274, JAK1, PDCD1LG2, TIGIT, TNFRSF18, TNFRSF4, TNFRSF8, TNFRSF9.

T Cell Trafficking & Infiltration into Tumors:

Stimulates T Cell Trafficking & Infiltration into Tumors: CCL5, CX3CL1, CXCL10, CXCL9, ITGB2, SELL.

Other T Cell Trafficking & Infiltration into Tumors Genes: CCL17, CCL4, CCR3, CCR6, CD274, CD44, CSF2, CXCL11, CXCL13, FOXP3, IFNG, ITGA4, ITGB7, LTA, PDCD1, PDCD1LG2, PTEN, TNFRSF25, TNFSF14.

T Cell Exhaustion:

Upregulated in T Cell Exhaustion: CCL5, CD200, CD27, CD69, CTLA4, CXCL10, CXCL13, GBP1, HLA-DMA, HLA-DQA1, ICOS, IFI16, IFNG, ITGAV, TAP1, TIGIT, TNFRSF9.

Downregulated in T Cell Exhaustion: TNFRSF25.

T Cell Exhaustion Transcriptional Nodes: BATF, TBX21.

Responsiveness or Response Biomarkers:

Enhanced Expression in Responsive Versus Nonresponsive Cancers: APP, CAPZB, CCL4, CCL5, CD8A, CSNK1E, CTLA4, CXCL10, CXCL11, CXCL9, EBI3, EHD1, GBA2, GZMB, HLA-DQA1, IDO1, IFNG, INHBA, IRF2, NKG7, ODF2, PHKG2, PPIF, PRF1, SERPINA3, SHMT2, SIGMAR1, SMAD3, TIA1.

Suppressed Expression in Responsive Versus Nonresponsive Cancers: ACTG1, BNIP3L, CX3CL1, FOXN3, IFI27, JAK1, LTA4H, NAIP, OPTN, PRRC2B, PTEN, RBL2, TXK.

Differentially Expressed in Responsive Versus Nonresponsive Cancers: ADAM28, AKNA, AOAH, ARHGAP9, CACNA2D2, CARD11, CARD16, CD109, CLEC11A, CORO1A, CORO1B, CXCR4, FLT3, FMNL1, HIVEP1, HIVEP2, IFI44L, IFITM1, IGHA1, IGHM, IGSF6, IKZF1, ITPKA, LSM4, LST1, MAP3K14, NFAM1, NFKBIL1, PLA2G2D, POU2AF1, PTPRCAP, SERPINB9, SH3BP5, SYTL1, TMC8, TNFRSF13B, TNFRSF19, ZFYVE9.

Expression Correlates with Positive Objective Response Rates: CD274, CD276, CTLA4, HAVCR2, IDO1, LAG3, PDCD1LG2, VTCN1.

Upregulated during Treatment: CD8A, CTLA4, CXCL10, EOMES, GZMA, GZMB, ICOS, IFNG, PRF1.

Regulated during Treatment: IRF1.

Pre-Treatment Response Prediction:

Predicts Enhanced Response: ADAM17, MYC, RHOC, TIMP1.

Other Pre-Treatment Response Predictors: CDK2, CDKN2A, LARGE1, NAB2, NRAS.

Cancer Cell Killing:

Inhibits Cancer Cell Killing: BTLA, CD274, CD80, HAVCR2, IDO1, IDO2, LAG3, MICA, MICB, PDCD1, TGFB1, VSIR, VTCN1.

Stimulates Cancer Cell Killing: IFNG.

Antigen Processing & Presentation:

Proteasome: PSMB10, PSMB9.

Proteases: IFI30.

Endoplasmic Reticulum & Lysosomal Transport: TAP1, TAP2, TAPBPL.

Major Histocompatibility Complex I Genes: B2M, HLA-A, HLA-B, HLA-C, HLA-E, HLA-F, HLA-G, HLA-H, MR1.

Major Histocompatibility Complex II Genes: CD74, HLA-DMA, HLA-DQA1, HLA-DRA, HLA-DRB1, HLA-DRB5, IFI30.

Immune Cell Receptors & Co-Receptors: CD8A, CD8B, KIR3DL1, KLRC1, KLRD1.

Stimulates Antigen Presentation: CD40, CD40LG.

Interferon Gamma Response:

Cytokines & Chemokines: CCL5, IL15RA, STAT1.

Major Histocompatibility Complex I Genes: B2M, HLA-A, HLA-B, HLA-C, HLA-E, HLA-F, HLA-G, HLA-H.

Major Histocompatibility Complex II Genes: HLA-DMA, HLA-DQA1, HLA-DRA, HLA-DRB1, HLA-DRB5, IFI30.

RNA Degradation: OAS3.

Transcription Factors: IRF1, IRF2.

Other Interferon Gamma Response Genes: CD44, GBP1.

Cytosolic DNA-Sensing Pathway:

Cytokines & Interferons: CCL4, CCL5, CXCL10.

RNA SNP/INDELS:

Non-Small Cell Lung Cancers (NSCLC): ALK, AMER1, APC, ATM, BRAF, CDKN2A, CTNNB1, EGFR, ERBB2, FGFR3, HRAS, JAK2, KRAS, MET, NFE2L2, NRAS, PDGFRA, PIK3CA, PTEN, RET, STK11.

Small Cell Lung Cancers: ALK, AMER1, ARID1A, ATM, CDKN2A, CREBBP, CTNNB1, EGFR, FBXW7, FGFR1, HRAS, KIT, KMT2D, KRAS, MET, MYC, PIK3CA, PIK3R1, PTEN, RBM10, RET.

Carcinomas:

Acinar Adenocarcinomas: BRAF, EGFR, KRAS.

Adenocarcinomas: AKT1, ALK, AMER1, APC, ARID1A, ATM, BRAF, CDKN2A, CREBBP, CTNNB1, EGFR, ERBB2, FBXW7, FGFR1, FGFR2, FGFR3, HRAS, JAK2, KIT, KMT2D, KRAS, MAP2K1, MET, MLH1, MYC, NFE2L2, NRAS, PDGFRA, PIK3CA, PIK3R1, PTEN, RBM10, RET, SMAD4, STK11, U2AF1.

Bronchioalveolar Adenocarcinomas: CDKN2A, EGFR, ERBB2, KRAS, STK11.

Giant Cell Carcinomas: EGFR.

Large Cell Carcinomas: BRAF, CDKN2A, EGFR, FGFR1, FGFR3, HRAS, KRAS, NRAS, PIK3CA, STK11.

Lymphoepithelioma-Like Carcinomas: EGFR.

Micropapillary Adenocarcinomas: BRAF, EGFR, KRAS.

Mixed Adenosquamous Carcinomas: EGFR, KRAS, PIK3CA, STK11.

Mixed Small Cell Carcinoma-Adenocarcinomas: CREBBP, EGFR.

Mucoepidermoid Carcinomas: EGFR.

Oncocytic Adenocarcinomas: EGFR, KRAS.

Pleomorphic Carcinomas: EGFR, KIT, KRAS.

Sarcomatoid Carcinomas: EGFR, KRAS.

Squamous Cell Carcinomas (SCC): AKT1, ALK, AMER1, APC, ARID1A, ATM, BRAF, CDKN2A, CREBBP, CTNNB1, EGFR, ERBB2, FBXW7, FGFR1, FGFR2, FGFR3, HRAS, JAK2, KIT, KMT2D, KRAS, MAP2K1, MET, MLH1, MYC, NFE2L2, NRAS, PDGFRA, PIK3CA, PIK3R1, PTEN, RBM10, RET, SMAD4, STK11, U2AF1.

Terminal Respiratory Unit Type Adenocarcinomas: EGFR.

Undifferentiated Carcinomas: EGFR, KRAS.

Other Carcinomas: ARID1A, CTNNB1, HRAS, NRAS.

Blastomas: CTNNB1.

Carcinoid-Endocrine Tumors:

Atypical: KRAS, PIK3CA.

Typical: PIK3CA.

Carcinosarcomas: EGFR.

Other Cancer Subtypes:

Hyperplasia: EGFR, KRAS.

Mucinous Proliferation: KRAS.

Neoplasms: EGFR, KRAS.

Ordering Information

Product	Contents	Cat. no.
QIAseq RNA Fusion XP Panel (12)	Kit containing ALL reagents (except indices) sufficient to process 12 samples for RNA sequencing analysis of gene fusions, gene expression and RNA SNP/InDel	334602
QIAseq RNA Fusion XP Panel (96)	Kit containing ALL reagents (except indices) sufficient to process 96 samples for RNA sequencing analysis of gene fusions, gene expression and RNA SNP/InDel	334605
QIAseq RNA Fusion XP Custom Panel	Kit containing reagents for first-strand synthesis, second- strand synthesis, end-repair/A-addition, gene-specific amplification, and QIAseq Beads for RNA Fusion XP sequencing, custom panel for 96 samples	334625
QIAseq RNA Fusion XP Booster Panel	Pool of primers used in combination with either catalogued or custom panels	334635
QIAseq 8-Unique Dual Index Set A (48)	Box containing unique dual-indexed adapters, for indexing up to 8 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 48 samples; the first of 2 sets required for multiplexing up to 16 samples	333715
QIAseq 8-Unique Dual Index Set B (48)	Box containing unique dual-indexed adapters, for indexing up to 8 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 48 samples; the second of 2 sets required for multiplexing up to 16 samples	333716
QIAseq 96-Unique Dual Index Set A (384)	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 384 samples; the first of 2 sets required for multiplexing up to 192 samples	333725
QIAseq 96-Unique Dual Index Set B (384)	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 384 samples; the second of 2 sets required for multiplexing up to 192 samples	333735
QIAseq 96-Unique Dual Index Set A V2 (96) *	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 96 samples; four sets are required for multiplexing up to 384 samples	331745

Product	Contents	Cat. no.
QIAseq 96-Unique Dual Index Set B V2 (96) *	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 96 samples; four sets are required for multiplexing up to 384 samples	331755
QIAseq 96-Unique Dual Index Set C V2 (96) *	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 96 samples; four sets are required for multiplexing up to 384 samples	331765
QIAseq 96-Unique Dual Index Set D V2 (96) *	Box containing unique dual-indexed adapters, for indexing up to 96 samples for QIAseq Targeted Panel sequencing on Illumina platforms; enough to process a total of 96 samples; four sets are required for multiplexing up to 384 samples	331775
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
Human XpressRef Universal Total RNA	2 tubes each containing 100 µg human RNA at 1mg/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, and 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 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

Product	Contents	Cat. no.
QIAseq FastSelect – rRNA HMR Kit (24)	Includes 3 tubes of QIAseq FastSelect reagent for rRNA removal: sufficient for 24 reactions from human, mouse, and rat samples	334386
QIAseq FastSelect – rRNA/Globin Kit (24)	Includes 1 tube of QIAseq FastSelect reagent for rRNA removal and 1 tube of QIAseq FastSelect reagent for globin mRNA removal	335376

QIAseq RNA Fusion XP 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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