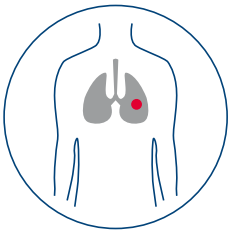
Single consolidated NGS workflow for DNA + RNA

With QIAseq® Lung Multimodal you no longer have to split your precious samples

Sample to Insight

QIAGEN



Challenges of lung cancer profiling

Lung cancers are characterized by a wide range of genomic and transcriptomic changes including SNVs, InDels, fusions and exon-skipping events. Recent advances in NGS chemistries, platforms and bioinformatics pipelines have empowered users to efficiently interrogate DNA and RNA alterations in biological samples. Current approaches, however, require the use of 2 separate workflows to prepare libraries from separate DNA and RNA isolates. Limitations of such approaches include:

- Precious samples must be split to extract DNA and RNA in separate sample prep protocols
- Large amounts of sample material are required to generate sufficient amounts of input DNA and RNA for multiple workflows
- Workflow has added complexity of deriving integrated insights from results of different technical approaches, each with its own innate bias
- Separate workflows result in inefficient use of resources and long turnaround times

Streamlined, consolidated one-day workflow

To overcome the limitations associated with current approaches, the QIAseq Lung Multimodal panel starts with total nucleic acids (or DNA + RNA) and prepares targeted DNA and RNA libraries containing Unique Molecular Indices for use on Illumina® platforms using a one-day, consolidated workflow (see Figure 1).

The QIAseq Lung Multimodal panel delivers:

- The ONLY single consolidated workflow for DNA + RNA library prep using total nucleic acids as input
- Operational efficiency with a 50% reduction in user interventions
- Confident detection of low-frequency variants with Unique Molecular Indices (UMIs)
- Reduced index hopping with Unique Dual Indices (UDIs)
- Comprehensive coverage of known and novel fusions as well as all relevant alterations
- 70 DNA gene targets and 54 RNA gene targets (Table 1 and 2)

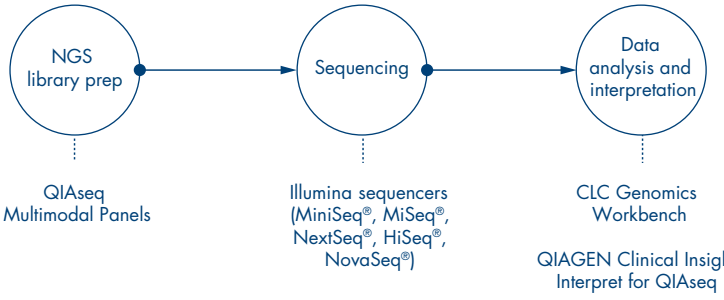


Figure 1. Extract more information, while reducing sample, time and cost with a simple, one-day workflow. This flexible solution enables the construction of libraries compatible with Illumina platforms from as little as 10 ng total nucleic acid isolated from a wide range of samples. The data analysis pipelines in CLC Genomics Workbench translate raw sequence data in FASTQ format to DNA and RNA variant files (VCFs), which can be further interpreted for biological significance through QCI® Interpret for QIAseq.

Confidently interpret NGS variants

Our software workflow makes it easy to extract, identify the variants of interest and deliver a comprehensive variant interpretation from your raw NGS data. The industry leading genomic analysis and interpretation software solutions, CLC Genomic Workbench and QCI Interpret for QIAseq, provide you with a comprehensive report to support your workflow, including variant classification, details on variant function, literature references, drug labels, drug interactions and relevant clinical trials. Accelerate your clinical research and go from raw NGS data to detailed and trusted insights in minutes – not hours.

Key differentiators

- The ONLY single consolidated workflow for DNA + RNA library prep using total nucleic acids as input
- Cuts user interventions by 50%
- Confident detection of low-frequency variants
- Detection of both known and novel fusions
- Increased target coverage of all relevant alterations

Table 1. 70 DNA gene targets

AKT1	*EGFR*	*KIT*	*NTRK1*	*RET*
ALK	*EPHA5*	*KMT2D*	*NTRK2*	*RIT1*
AMER1	*ERBB2*	*KRAS*	*NTRK3*	*ROS1*
APC	*ERBB4*	*LRP1B*	*PDGFRA*	*RUNX1T1*
ARID1A	*FBXO7*	*MAP2K1*	*PIK3CA*	*SETD2*
ATM	*FBXW7*	*MDM2*	*PIK3CG*	*SMAD4*
BAI3	*FGFR1*	*MET*	*PIK3R1*	*SMARCA4*
BAP1	*FGFR2*	*MGA*	*PIK3R2*	*SOX2*
BRAF	*FGFR3*	*MLH1*	*PKHD1*	*STK11*
CDKN2A	*FHIT*	*MUC16*	*PTEN*	*TNFAIP3*
CDKN2B	*GRM8*	*MYC*	*PTPRD*	
CREBBP	*HRAS*	*NF1*	*RARB*	
CSMD3	*JAK2*	*NFE2L2*	*RASSF1*	
CTNNB1	*KDR*	*NOTCH1*	*RB1*	
DDR2	*KEAP1*	*NRAS*	*RBM10*	

Table 2. 54 RNA gene targets

BAG4-FGFR1	*GOPC-ROS1*	*SLC3A2-NRG1*
BCL11A-ALK	*HIP1-ALK*	*SND1-BRAF*
BRD4-C15orf55	*IRF2BP2-NTRK1*	*SQSTM1-NTRK1*
CCDC6-RET	*KANSL1-ARL17A*	*SQSTM1-NTRK3*
CD74-NRG1	*KIAA1217-RET*	*STARD3NL-MET*
CD74-NTRK1	*KIF5B-ALK*	*STRN-ALK*
CD74-ROS1	*KIF5B-MET*	*TCF3-PBX1*
CLIP4-VSNL1	*KIF5B-RET*	*TFG-ALK*
CRTC1-MAML2	*KLC1-ALK*	*TPM3-ROS1*
CUX1-RET	*LRIG3-ROS1*	*TPR-ALK*
EGFR-EGFR	*MAML2-CRTC1*	*TPR-NTRK1*
EGFR-RAD51	*MAN2A1-FER*	*TRA2B-DNAH5*
EML4-ALK	*MET-MET*	*TRIM24-NTRK2*
ETV6-NTRK3	*MPRIP-NTRK1*	*TRIM33-RET*
EZR-ROS1	*NCOA4-RET*	
FGFR2-CCAR2	*NSD3-NUTM1*	
FGFR2-CIT	*PTPRK-RSPO3*	
FGFR3-BAIAP2L1	*RUNX1-GLRX5*	
FGFR3-TACC3	*SDC4-ROS1*	
GCC2-ALK	*SLC34A2-ROS1*	

Ordering Information

Product	Contents	Number of samples	Panel variant number	Cat. no.
QIAseq Lung Multimodal Panel	Kit containing ALL reagents (except indices) for multimodal (DNA and RNA) sequencing	12	UHS-005Z-12	333932
		96	UHS-005Z-96	333935
QIAseq Multimodal Index I (12)	Box containing oligos, enough to process a total of 12 samples, for indexing up to a total of 12 samples for Multimodal panel sequencing on Illumina platforms			333962
QIAseq Multimodal Index I Set A (96)	Box containing oligos, enough to process a total of 48 samples, for indexing up to a total of 48 samples for Multimodal panel sequencing on Illumina platforms; one of two sets required for multiplexing 96 samples			333965
QIAseq Multimodal Index I Set B (96)	Box containing oligos, enough to process a total of 48 samples, for indexing up to a total of 48 samples for Multimodal panel sequencing on Illumina platforms; Two of two sets required for multiplexing 96 samples			333975

Visit **www.qiagen.com/QIAseqLungMM** and discover how you can double your NGS insights and free up half of your resources.

Visit the QIAseq Knowledge Hub at **www.qiagen.com/clp/qiaseq-knowledge-hub/** – your one-stop shop for QIAseq Multimodal (RNA + DNA) and Targeted DNA webinars.

The QIAseq Lung Multimodal Panel is intended for molecular biology applications. This product is 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.