



MEDGENOME

Prima  
Cancer Genetics

CAP  
ACCREDITED  
COLLEGE of AMERICAN PATHOLOGISTS

# OncoTrack Liquid

(NGS based Liquid Biopsy Tests)

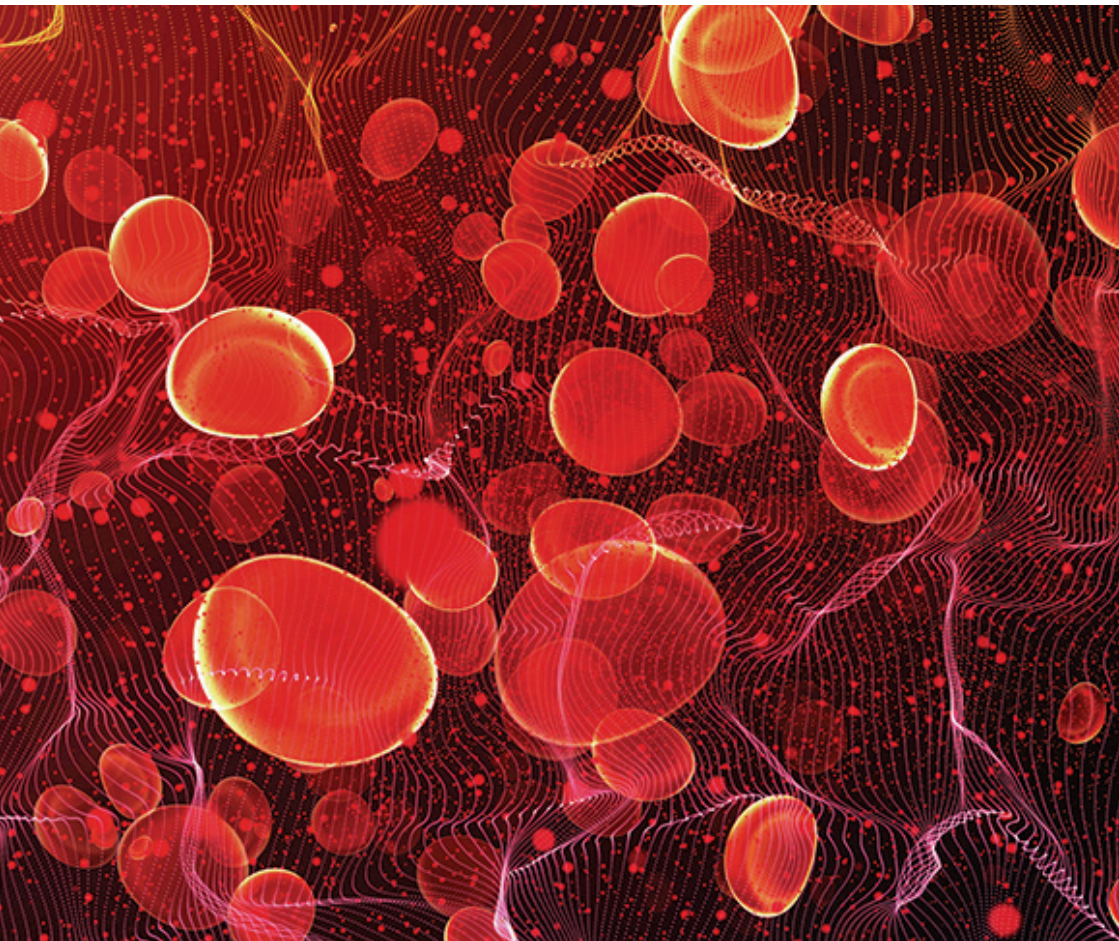
Genomic Profiling of Solid Tumors from Blood

Minimally  
invasive

High precision  
multibiomarker

CAP accredited &  
extensively validated assay

$\geq 20,000X$  sequencing depth  
(pre-UMI, LOD of 0.2% VAF)



## Next Generation Sequencing (NGS) based Liquid Biopsy test

NGS based liquid biopsy is a test performed on the blood of the patient to evaluate tumor derived DNA (ctDNA) for molecular biomarker detection.

Cells in the body die continuously in a process known as “apoptosis”, releasing DNA/RNA into the bloodstream. This freely circulating DNA in the blood stream is termed as **Cell free DNA (cfDNA)**.

Tumours cells also shed their contents including DNA into the blood stream. This tumour derived DNA present in the blood stream is called as **Circulating tumour DNA or ctDNA**.

Liquid Biopsy test is advised in the following situations:

### Patient discomfort, risk & morbidity

Difficulty in obtaining tumor biopsy from cancer patients for practical and clinical reasons

### Fixation & Quality problems

Biopsy material is degraded or damaged or improperly/poorly fixed; Bony tissue consistent coverage & fewer assay failures in Liquid Biopsy

### Low tumor cellularity in Tissue Biopsy

- Tissue unavailability
- Tumor biopsy is limited to single site & time frozen whereas Liquid Biopsy represents more spatial & temporal heterogeneity
- More accurately represents metachronous metastatic sites

### Treatment monitoring and Relapse

in cancer patients (MRD)

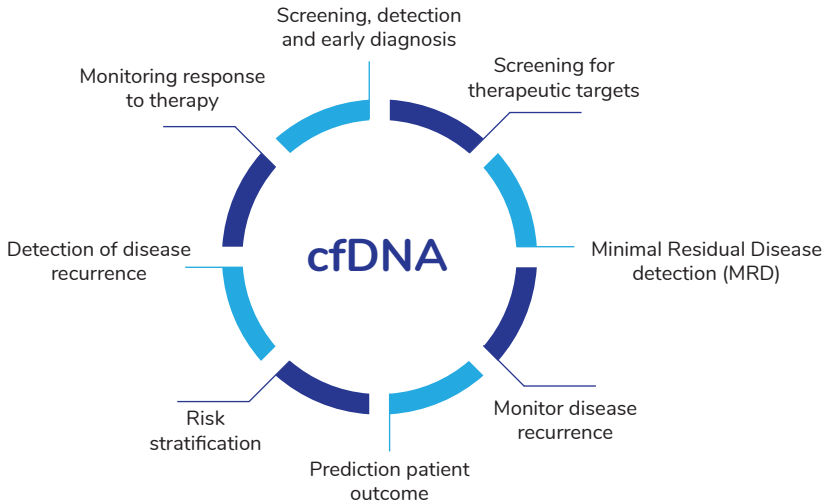
### Determination of secondary acquired resistance

mutations during the course of treatment (example: EGFR T790M or MET exome skipping mutation in NSCLC)

### Urgent treatment

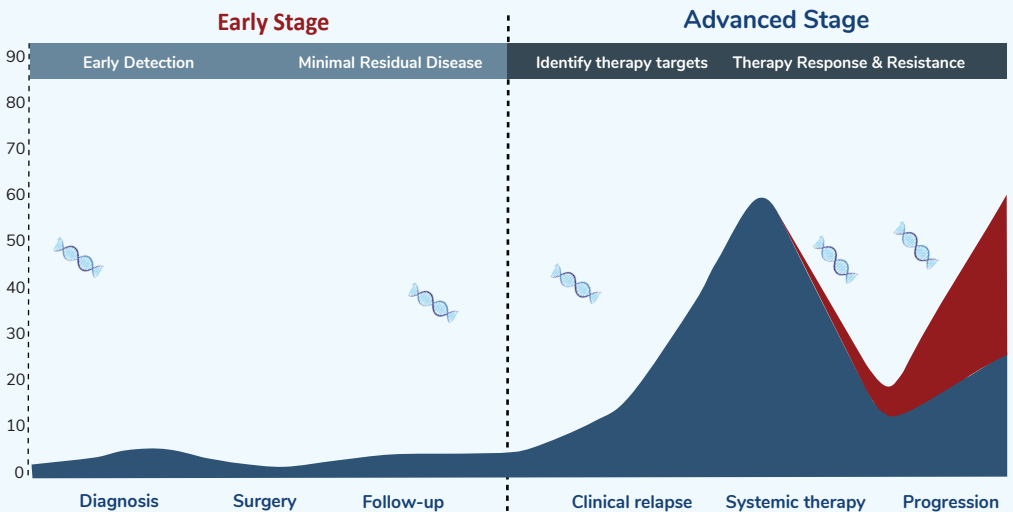
Delay in obtaining tissue Biopsy, Liquid Biopsy saves times

# Clinical Applications of Liquid Biopsy



Liquid Biopsy Test can be used as a **Complementary, Alternative, Reflex** and **Serial** to Tissue Biopsy Test

## Liquid Biopsy - Implications in Cancer Management



# MedGenome Liquid Biopsy NGS Assays

## OncoTrack

Test code: MGM403 | TAT - 12 working days



- Screens for the presence of oncogenic mutations in four key genes: **EGFR, KRAS, NRAS** and **BRAF**.
- These genes have a **potential role in clinical decision making** for different lines of approved targeted therapy and those in clinical trials.
- This assay also **screens for resistance mutations** that demonstrate the mechanism of acquired secondary/primary resistance to these drugs.

## HRR Track

Test code: MGM2455 | TAT - 14 working days



- Indicated for Prostate, Ovarian, Breast and Pancreatic cancer
- Evaluates mutations in cfDNA (ctDNA) shed from dying cancer cells
- Screens for the mutations (SNVs and InDels) in 15 Homologous Recombination Repair(HRR) genes including **BRCA1** and **BRCA2** genes
- Informs PARPi eligibility (approved targeted therapies and in clinical trials.)
- Complete Coding regions and splice site boundaries (+ /-10 bp) are covered
- Detects both somatic and germline\* variants.

\*Germline variants to be confirmed on blood DNA

## LungTrack Advance

Test code: MGM2623 | TAT - 14 working days



- NGS based CAP accredited assay to **screen all the NCCN guided actionable biomarkers** in Non-small cell Lung cancer (NSCLC)
- Detects **SNVs, Indels and Fusions**, all known / unknown fusion gene partners are detected
- **Enhanced coverage of intronic region** for key fusion genes and their reported partners
- Variants (SNVs, InDels) can be detected at **0.2% VAF** ; Fusions >3 read support
- Detects **Primary driver mutation** and **Secondary resistance** markers
- Enables **Minimal Residual Disease (MRD)** detection

Fusions will be determined in genes highlighted as bold | Novel fusion partners can also be detected







# Limit of Detection (LOD) - Liquid Biopsy Assay

Alteration Type	Analytical Sensitivity <sup>#</sup>	Limit of Detection (LOD)	Analytical Specificity <sup>**</sup>
		30ng	
SNVs*	≥95%	>0.2 AF%	100%
INDELS*	≥95%	>0.2 AF%	100%
Fusions **	≥95%	≥3 Reads	100%

\* Tested on cfDNA reference standards  
 \*\* Tested on Lung track advance

<sup>#</sup>Analytical Sensitivity defined as the Detection Rate for variants present at or above the limit of detection (LoD).  
<sup>\*\*</sup>Analytical Specificity defined as 1 minus the per-sample false positive rate

## All Solid Tumours

Test Code	Test Name	Gene list (SNVs and InDels)	Gene list (Fusions)
MGM2718 TAT: 14 Working Days	<b>Oncotrack Advance -Liquid Biopsy NGS test (SNVs, InDels and Fusions)</b>  Total Genes Covered: 133	<b>No. of Genes Covered : 118</b> ABL1, ABL2, AKT1, ALK, APC, AR, ARAF, ARID1A, ARID1B, ATM, ATR, ATRX, BAP1, BARD1, BRAF, BRCA1, BRCA2, BRIP1, C11orf65, CCND1, CDH1, CDK12, CDK4, CDKN2A, CDX2, CHEK1, CHEK2, CSF1R, CTNNB1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, ERCC2, ESR1, EZH2, FANCL, FBXW7, FGFR1, FGFR2, FGFR3, FGFR4, FLT3, FOXA1, FOXL2, GATA3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK1, JAK2, JAK3, KDM5C, KDM6A, KEAP1, KIT, KRAS, MAP2K1, MAP2K2, MAPK1, MET(Exon 14 skipping mutations), MLH1, MPL, MSH2, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NF1, NF2, NOTCH1, NPM1, NRAS, NTRK1, NTRK3, PALB2, PBRM1, PDGFRA, PIK3CA, PMS2, POLD1, POLE, PPP2R2A, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, RET, RHEB, RHOA, RIT1, ROS1, SETD2, SF3B1, SMAD4, SMARCB1, SMO, SPOP, SRC, STK11, TERT, TP53, TSC1, TSC2, VHL	<b>No. of Genes Covered : 15</b> ALK, BRAF, EGFR, ERBB2, FGFR1, FGFR2, FGFR3, FGFR4, MET, NRG1, NTRK1, NTRK2, NTRK3, RET, ROS1
MGM455 TAT: 14 Working Days	<b>Oncotrack Ultima - Liquid Biopsy test by NGS (SNVs &amp; InDels)</b>  Total Genes Covered: 118	<b>No. of Genes Covered : 118</b> ABL1, ABL2, AKT1, ALK, APC, AR, ARAF, ARID1A, ARID1B, ATM, ATR, ATRX, BAP1, BARD1, BRAF, BRCA1, BRCA2, BRIP1, C11orf65, CCND1, CDH1, CDK12, CDK4, CDKN2A, CDX2, CHEK1, CHEK2, CSF1R, CTNNB1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, ERCC2, ESR1, EZH2, FANCL, FBXW7, FGFR1, FGFR2, FGFR3, FGFR4, FLT3, FOXA1, FOXL2, GATA3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK1, JAK2, JAK3, KDM5C, KDM6A, KEAP1, KIT, KRAS, MAP2K1, MAP2K2, MAPK1, MET(Exon 14 skipping mutations), MLH1, MPL, MSH2, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NF1, NF2, NOTCH1, NPM1, NRAS, NTRK1, NTRK3, PALB2, PBRM1, PDGFRA, PIK3CA, PMS2, POLD1, POLE, PPP2R2A, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, RET, RHEB, RHOA, RIT1, ROS1, SETD2, SF3B1, SMAD4, SMARCB1, SMO, SPOP, SRC, STK11, TERT, TP53, TSC1, TSC2, VHL	NA
MGM2772 TAT: 14 Working Days	<b>Liquid Biopsy NGS Panel (SNVs, InDels &amp; Fusions)</b>  Total Genes Covered: 33	<b>No. of Genes Covered : 33</b> AKT1, ALK, ATM, BRAF, CDKN2A, CTNNB1, DDR1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, FGFR1, FGFR2, FGFR3, FGFR4, HRAS, KIT, KRAS, MAP2K1, MET, NRAS, NRG1, NTRK1, NTRK2, NTRK3, PIK3CA, PTEN, PTPN11, RET, ROS1, SMAD4, TP53	<b>No. of Genes Covered : 13</b> ALK, BRAF, FGFR1, FGFR2, FGFR3, FGFR4, MET(Exon, NRG1, NTRK1, NTRK2, NTRK3, RET, ROS1
MGM2649 TAT: 14 Working Days	<b>Minimal Residual Disease (MRD) by NGS in Solid Tumours (Liquid Biopsy)</b>  Total Genes Covered: 118	<b>No. of Genes Covered : 118</b> ABL1, ABL2, AKT1, ALK, APC, AR, ARAF, ARID1A, ARID1B, ATM, ATR, ATRX, BAP1, BARD1, BRAF, BRCA1, BRCA2, BRIP1, C11orf65, CCND1, CDH1, CDK12, CDK4, CDKN2A, CDX2, CHEK1, CHEK2, CSF1R, CTNNB1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, ERCC2, ESR1, EZH2, FANCL, FBXW7, FGFR1, FGFR2, FGFR3, FGFR4, FLT3, FOXA1, FOXL2, GATA3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK1, JAK2, JAK3, KDM5C, KDM6A, KEAP1, KIT, KRAS, MAP2K1, MAP2K2, MAPK1, MET, MLH1, MPL, MSH2, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NF1, NF2, NOTCH1, NPM1, NRAS, NTRK1, NTRK3, PALB2, PBRM1, PDGFRA, PIK3CA, PMS2, POLD1, POLE, PPP2R2A, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, RET, RHEB, RHOA, RIT1, ROS1, SETD2, SF3B1, SMAD4, SMARCB1, SMO, SPOP, SRC, STK11, TERT, TP53, TSC1, TSC2, VHL	NA
MGM3309 TAT: 21 Working Days	<b>OncoTrack CGP (Liquid Biopsy)</b> Total Genes Covered: 523	Gene list added separately	23 Genes for fusions - List added separately





# HRR Genes Liquid Biopsy Panel (Breast, Ovarian, Prostate and Pancreatic Cancer)

Test Code	Test Name	Gene list (SNVs and InDels)	Gene list (Fusions)
MGM2455 TAT: 14 Working Days	Liquid Biopsy NGS test (SNVs and Indels) -15 Homologous Recombination Repair (HRR) pathway genes including BRCA1/2 Total Genes Covered: 15	No. of Genes Covered : 15 ATM, BARD1, BRCA1, BRCA2, BRIP1, CDK12, CHEK1, CHEK2, FANCL, PALB2, PPP2R2A, RAD51B, RAD51C, RAD51D, RAD54L	NA

## Breast Cancer

Test Code	Test Name	Gene list (SNVs and InDels)	Gene list (Fusions)
MGM2732 TAT: 14 Working Days	ESR1 gene testing by NGS -Liquid Biopsy (Hot Spot Mutations) Total Genes Covered: 1	No. of Genes Covered : 1 ESR1	
MGM2455 TAT: 14 Working Days	Liquid Biopsy NGS test (SNVs and Indels) -15 Homologous Recombination Repair (HRR) pathway genes including BRCA1/2 Total Genes Covered: 15	No. of Genes Covered : 15 ATM, BARD1, BRCA1, BRCA2, BRIP1, CDK12, CHEK1, CHEK2, FANCL, PALB2, PPP2R2A, RAD51B, RAD51C, RAD51D, RAD54L	NA
MGM455 TAT: 14 Working Days	Oncotrack Ultima - Liquid Biopsy test by NGS (SNVs & InDels) Total Genes Covered: 118	No. of Genes Covered : 118 ABL1, ABL2, AKT1, ALK, APC, AR, ARAF, ARID1A, ARID1B, ATM, ATR, ATRX, BAP1, BARD1, BRAF, BRCA1, BRCA2, BRIP1, C11orf65, CCND1, CDH1, CDK12, CDK4, CDKN2A, CDX2, CHEK1, CHEK2, CSF1R, CTNNB1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, ERCC2, ESR1, EZH2, FANCL, FBXW7, FGFR1, FGFR2, FGFR3, FGFR4, FLT3, FOXA1, FOXL2, GATA3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK1, JAK2, JAK3, KDM5C, KDM6A, KEAP1, KIT, KRAS, MAP2K1, MAP2K2, MAPK1, MET(Exon 14 skipping mutations), MLH1, MPL, MSH2, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NF1, NF2, NOTCH1, NPM1, NRAS, NTRK1, NTRK3, PALB2, PBRM1, PDGFRA, PIK3CA, PMS2, POLD1, POLE, PPP2R2A, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, RET, RHEB, RHOA, RIT1, ROS1, SETD2, SF3B1, SMAD4, SMARCB1, SMO, SPOP, SRC, STK11, TERT, TP53, TSC1, TSC2, VHL	
MGM2649 TAT: 14 Working Days	Minimal Residual Disease (MRD) by NGS in Solid Tumours (Liquid Biopsy) Total Genes Covered: 118	No. of Genes Covered : 118 ABL1, ABL2, AKT1, ALK, APC, AR, ARAF, ARID1A, ARID1B, ATM, ATR, ATRX, BAP1, BARD1, BRAF, BRCA1, BRCA2, BRIP1, C11orf65, CCND1, CDH1, CDK12, CDK4, CDKN2A, CDX2, CHEK1, CHEK2, CSF1R, CTNNB1, DDR2, EGFR, ERBB2, ERBB3, ERBB4, ERCC2, ESR1, EZH2, FANCL, FBXW7, FGFR1, FGFR2, FGFR3, FGFR4, FLT3, FOXA1, FOXL2, GATA3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, INPP4B, JAK1, JAK2, JAK3, KDM5C, KDM6A, KEAP1, KIT, KRAS, MAP2K1, MAP2K2, MAPK1, MET, MLH1, MPL, MSH2, MSH6, MTOR, MUTYH, MYC, MYCN, MYD88, NF1, NF2, NOTCH1, NPM1, NRAS, NTRK1, NTRK3, PALB2, PBRM1, PDGFRA, PIK3CA, PMS2, POLD1, POLE, PPP2R2A, PTCH1, PTEN, PTPN11, RAD51B, RAD51C, RAD51D, RAD54L, RAF1, RB1, RET, RHEB, RHOA, RIT1, ROS1, SETD2, SF3B1, SMAD4, SMARCB1, SMO, SPOP, SRC, STK11, TERT, TP53, TSC1, TSC2, VHL	NA

**Methodology:** Next Generation Sequencing  
**Sample Type:** Peripheral blood in Streck tube (10ml X 2)  
**Depth:** 20000X | **Limit of Detection:** 0.2% VAF

## Small NGS panels

Test Code	Test Name	Gene list (SNVs and InDels)	Gene list (Fusions)
MGM1678*	<b>PIK3CA - therascreen® - Liquid biopsy</b> TAT: 6 Working Days Total Genes Covered: 1 Limit of Detection: 1.82 - 7.07%	<b>No. of Genes Covered : 1</b> <i>PIK3CA (11 hotspot mutations)</i>	NA
MGM1677	<b>PIK3CA gene mutation analysis by NGS- Liquid Biopsy</b> TAT: 14 Working Days Total Genes Covered: 1 Limit of Detection: 0.2% VAF	<b>No. of Genes Covered : 1</b> <i>PIK3CA (11 hotspot mutations)</i> Depth: 20000X	
MGM403	<b>OncoTrack - Liquid Biopsy NGS test (EGFR, KRAS, NRAS, BRAF)</b> TAT: 12 Working Days Total Genes Covered: 4 Limit of Detection: 0.2% VAF	<b>No. of Genes Covered : 4</b> <i>EGFR, KRAS, NRAS, BRAF</i> Depth: 20000X	NA
MGM482	<b>OncoFocus Express - Liquid Biopsy NGS test for EGFR gene mutations</b> TAT: 10 Working Days Total Genes Covered: 1 Limit of Detection: 0.2% VAF	<b>No. of Genes Covered : 1</b> <i>EGFR (Exon 18, 19, 20, 21)</i> Depth: 20000X	
MGM481	<b>OncoFocus -Liquid Biopsy NGS test for EGFR gene mutations</b> TAT: 12 Working Days Total Genes Covered: 1 Limit of Detection: 0.2% VAF		
MGM420	<b>OncoSelect - Liquid Biopsy NGS test for EGFR TKI resistance</b> TAT: 12 Working Days Total Genes Covered: 2 Limit of Detection: 0.2% VAF	<b>No. of Genes Covered : 2</b> <i>EGFR (T790M and C797S)</i> Depth: 20000X	

**Methodology:** Next Generation Sequencing  
**Sample Type:** Peripheral blood in Streck tube (10ml X 2)

For more information on CAP accredited Liquid Biopsy test portfolio please write to our experts at [techsupport@medgenome.com](mailto:techsupport@medgenome.com)

# OncoTrack CGP ( Liquid Biopsy )

Gene List: 523 genes for SNVs | 59 genes for CNVs (bold) | 23 genes for fusion (underlined)

ABL1	CALR	DNAJB1	<b>FGF14</b>	HIST1H3A	KEAP1	<b>MYCL</b>	PIK3CD	RHOA	SUFU
ABL2	CARD11	DNMT1	<b>FGF19</b>	HIST1H3B	KEL	<b>MYCN</b>	PIK3CG	<b>RICTOR</b>	SUZ12
ACVR1	CASP8	DNMT3A	<b>FGF2</b>	HIST1H3C	KIF5B	MYD88	PIK3R1	RIT1	SYK
ACVR1B	C8FB	DNMT3B	<b>FGF23</b>	HIST1H3D	KIT	MYO1D	PIK3R2	RNF43	TAF1
AKT1	CBL	DOT1L	<b>FGF3</b>	HIST1H3E	KLF4	<b>NAB2</b>	PIK3R3	<b>ROS1</b>	TBX3
<b>AKT2</b>	<b>CCND1</b>	E2F3	<b>FGF4</b>	HIST1H3F	KLHL6	NBN	PIM1	RPS6KA4	TCEB1
AKT3	CCND2	EED	<b>FGF5</b>	HIST1H3G	KMT2B	NCOA3	PLCG2	<b>RPS6KB1</b>	TCF3
<b>ALK</b>	<b>CCND3</b>	EGFL7	<b>FGF6</b>	HIST1H3H	KMT2C	NCOR1	PLK2	RPS6KB2	TCF7L2
ALOX12B	<b>CCNE1</b>	<b>EGFR</b>	<b>FGF7</b>	HIST1H3J	KMT2D	NEGR1	PMAIP1	RPTOR	TERC
ANKRD11	CD274	E1F1AX	<b>FGF8</b>	HIST1H3K	KRAS	NF1	PMS1	RUNX1	TERT
ANKRD26	CD276	E1F4A2	<b>FGF9</b>	HIST2H3A	<b>LAMP1</b>	NF2	PMS2	RUNX1T1	TET1
APC	<b>CD74</b>	E1F4E	<b>FGFR1</b>	HIST2H3C	LATS1	NFE2L2	PNR1	RYBP	TEF2
<b>AR</b>	CD79A	EML4	<b>EGFR2</b>	HIST2H3D	LATS2	NFKBIA	POLD1	SDHA	TFE3
ARAF	CD79B	EP300	<b>EGFR3</b>	HIST3H3	LMO1	NKX2-1	POLE	SDHAF2	<b>TFRC</b>
ARFRP1	CDC73	EPCAM	<b>FGFR4</b>	HLA-A	LRP1B	NKX3-1	<b>EPARG</b>	SDHB	TGFBR1
ARID1A	CDH1	EPHA3	<b>FH</b>	HLA-B	LYN	NOTCH1	PPM1D	SDHC	TGFB2
ARID1B	CDK12	EPHA5	FLCN	HLA-C	LZTR1	NOTCH2	PPP2R1A	SDHD	TMEM127
ARID2	<b>CDK4</b>	EPHA7	FLI1	HNF1A	MAGI2	NOTCH3	PPP2R2A	SETBP1	TMPRSS2
ARID5B	<b>CDK6</b>	EPHB1	FLT1	HNRNPK	MALT1	NOTCH4	PPP6C	SETD2	TNFAIP3
ASXL1	CDK8	<b>ERBB2</b>	FLT3	HOXB13	MAP2K1	NPM1	PRDM1	SF3B1	TNFRSF14
ASXL2	CDKN1A	<b>ERBB3</b>	FLT4	HRAS	MAP2K2	<b>NRAS</b>	PREX2	SH2B3	TOP1
<b>ATM</b>	CDKN1B	ERBB4	FOXA1	HSD3B1	MAP2K4	<b>NRG1</b>	PRKAR1A	SH2D1A	TOP2A
ATR	CDKN2A	<b>ERCC1</b>	FOXO2	HSP90AA1	MAP3K1	NSD1	PRKCI	SHQ1	TP53
ATRX	CDKN2B	<b>ERCC2</b>	FOXO1	ICOSLG	MAP3K13	<b>NTRK1</b>	PRKDC	SLIT2	TP63
AURKA	CDKN2C	ERCC3	FOXP1	ID3	MAP3K14	<b>NTRK2</b>	PTSS8	SLX4	TRAF2
AURKB	CEBPA	ERCC4	FRS2	IDH1	MAP3K4	NTRK3	PRCH1	SMAD2	TRAF7
AXIN1	CENPA	ERCC5	FUBP1	IDH2	MAPK1	NUP93	<b>PTEN</b>	SMAD3	TSC1
AXIN2	CHD2	ERG	FYN	IFNGR1	MAPK3	<b>NUTM1</b>	PTPN11	SMAD4	TSC2
AXL	CHD4	ERRF1	GABRA6	IGF1	MAX	PAK1	PTPRD	SMARCA4	TSHR
B2M	<b>CHEK1</b>	<b>ESR1</b>	GATA1	IGF1R	MCL1	PAK3	PTPRS	SMARCB1	U2AF1
BAP1	<b>CHEK2</b>	ETS1	GATA2	IGF2	MDC1	PAK7	PTPRT	SMARCD1	VEGFA
BARD1	CIC	<b>ETV1</b>	GATA3	IKBKE	<b>MDM2</b>	PALB2	QKI	SMC1A	VHL
BBC3	CREBBP	<b>ETV4</b>	GATA4	IKZF1	<b>MDM4</b>	PARK2	RAB35	SMC3	VTCN1
BCL10	CRKL	ETV5	GATA6	IL10	MED12	PARP1	RAC1	SMO	WISP3
BCL2	CRLF2	<b>ETV6</b>	GEN1	IL7R	MEF2B	<b>PAX3</b>	RAD21	SNCAIP	WT1
BCL2L1	CSF1R	<b>EWSR1</b>	GID4	INHBA	MEN1	PAX5	RAD50	SOCS1	XIAP
BCL2L11	CSF3R	EZH2	GLI1	INHBA	<b>MET</b>	PAX7	RAD51	SOX10	XPO1
BCL2L2	CSNK1A1	FAM123B	GNA11	INPP4A	MGA	<b>PAX8</b>	RAD51B	SOX17	XRCC2
BCL6	CTCF	FAM175A	GNA13	INPP4B	MITF	PBRM1	RADS5C	SOX2	YAP1
BCOR	CTLA4	FAM46C	GNAQ	INSR	MLH1	PDCD1	RAD51D	SOX9	YES1
BCORL1	CTNNA1	FANCA	GNAS	IRF2	MLL	PDCD1LG2	RAD52	SPEN	ZBTB2
BCR	CTNNB1	FANCC	GPR124	IRF4	MLL3	<b>PDGFRA</b>	RAD54L	SPOP	ZBTB7A
BIRC3	CUL3	FANCD2	GPS2	IRS1	MPL	<b>PDGFRB</b>	<b>RAF1</b>	SPTA1	ZFXH3
BLM	CUX1	FANCE	GREM1	IRS2	MRE11A	PKD1	RANBP2	SRC	ZNF217
BMPR1A	CXCR4	FANCF	GRIN2A	JAK1	MSH2	PDPK1	RARA	SRSF2	ZNF703
<b>BRAF</b>	CYLD	FANCG	GRM3	<b>JAK2</b>	MSH3	PGR	RASA1	STAG1	ZRSR2
<b>BRCA1</b>	DAXX	FANCI	GSK3B	JAK3	MSH6	PHF6	RSB1	STAG2	
<b>BRCA2</b>	DCUN1D1	FANCL	H3F3A	JUN	MST1	PHOX2B	RBM10	STAT3	
BRD4	DDR2	FAS	H3F3B	KAT6A	MST1R	PIK3C2B	RECQL4	STAT4	
BRIP1	DDX41	FAT1	H3F3C	KDM5A	MTOR	PIK3C2G	REL	STAT5A	
BTG1	DHX15	FBXW7	HGF	KDM5C	MUTYH	PIK3C3	<b>RET</b>	STAT5B	
BTK	DICER1	<b>FGF1</b>	HIST1H1C	KDM6A	MYB	<b>PIK3CA</b>	RFWD2	STK11	
C11orf30	DIS3	<b>FGF10</b>	HIST1H2BD	KDR	<b>MYC</b>	<b>PIK3CB</b>	RHEB	STK40	

## Liquid Biopsy Case Studies

Biopsy material is degraded/damaged/insufficient and difficulty in obtaining biopsy material



**60-year-old Female** | Adenocarcinoma lung | Tissue Biopsy was not feasible  
Test performed - OncoTrack Ultima

Gene	CDS variant details	Amino acid change/ Exon No.	Overall Depth/Mutan Allele Percentage	FDA Approved drugs against variant
ERBB2	c.2313_2324dup (ENST00000269571 .10)	p.Tyr772_Ala775dup/Exon20	3248X/1.4%	Trasuzumab Deruxtecan

The OncoTrack Ultima test successfully identified actionable mutation for which an FDA drug is available. This helps the clinician take appropriate treatment decisions.

### Tissue material insufficient



**47-year-old male** | case of NSCLC (ADCC); stage4

Due to limited tissue amount, only EGFR test was performed & found to be negative.

**Test performed:** LungTrack Advance

**Treated with:** First line chemotherapy (Carboplatin + Paclitaxel) and progressed after 4 cycles; now started on second line chemotherapy.

**LungTrack Advance Test was performed to identify actionable driver mutations**

Result - POSITIVE				
CLINICALLY RELEVANT VARIANT/S DETECTED				
AMP Classification	CDS variant details	Interpretation	Treatment Recommendations	Treatment Response
<b>EZR/ROS1(FUSION)</b> Total Read depth - 76x				
Tier I	NA	Oncogenic	Crizotinib, Entrectinib	Effective
<b>TP53 p.Ala84ArgfsTer40 (FRAMESHIFT-INS)</b> Variant Allele Frequency - 3.79%				
Tier II	c.248_249dup (ENST00000269305.9)	Oncogenic	NA	NA

01

#### EZR/ROS1

FDA approved Targeted therapy indicated (crizotinib, entrectinib)

02

#### TP53

Frame shift insertion oncogenic mutation was detected; indicative of poor prognosis.

## Therapeutic response monitoring - Detection of resistance



62-year-old male

Diagnosed with Adenocarcinoma lung cancer 3 years ago.

Test performed: LungTrack Advance

Treated using EGFR TKIs & progressed. Test performed to determine resistance mechanism.

Gene	CDS variant details	Amino acid change/ Exon No.	Overall Depth/Mutan Allele Percentage	FDA Approved drugs against variant	Drug response
EGFR	c.2237_2255 delinsT(ENST0000275493.2)	p.Glu746_Ser752 delinsVal/Exon 19	925904X/16 %	Osimertinib/Gefitinib/Erlotinib/Afatinib/Dacomitinib	Sensitive to EGFR TKIs
EGFR	c.2369C>T(ENST00000275493.2)	p.Thr790Met /Exon 20	123188X/14 .9%	Osimertinib (Tagrisso):Third generation TKI	Resistance to first /second generation TKIs

LungTrack Advance successfully identified resistance mutation in the cfDNA of the patient

Resistance mutation acquired by patient after treatment

## Liquid biopsy test for HRR gene testing



56-year-old Male

Prostatic acinar adenocarcinoma, grade 5

Test Performed: HRR Track and HRR somatic mutation panel

Genomic alteration	Nucleotide change	Depth / VAF	AMP Classification^	Interpretation	Treatment Recommendation
BRCA2 p.Gly3153AlafsTer10	c.9458del (ENST00000380152.8)	2720X / 46%	Tier 1	Deleterious	Confers sensitivity to PARP inhibitors

HRR track Liquid Biopsy test identified pathogenic mutation in BRCA2 gene at 46% VAF which can be useful for treatment decisions.

HRR somatic mutation panel on Tissue Biopsy also detected same mutation at 65.6t%. Germline confirmation is under process

### Talk to the Experts:

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