ctDNA Colorectal

NGS Panel

NGS
Clinical Panels

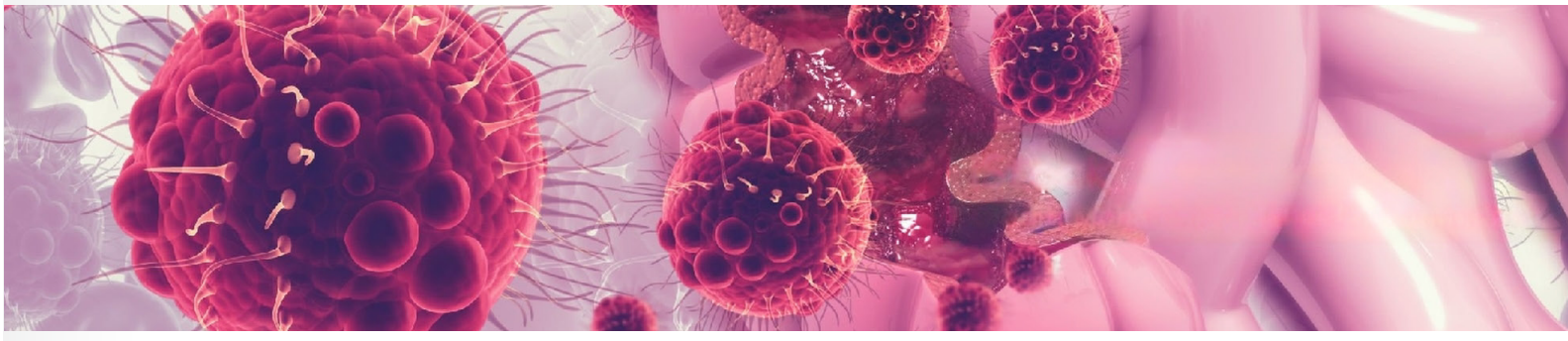
The Genes 2Me ctDNA Colorectal Panel is a hybridization based solution for targeted sequencing employing NGS. With a fast turnaround time this product provides detection and identification of 35 clinically relevant genes spanning 75 Kb of genome size (whole coding sequence) that covers all major mutations like SNV & InDels linked to colorectal cancer

Focused Comprehensive Panel: Targets all the specific genes encapturing ultra-low VAF mutations

Low Input: Process compatible with low input quality compromised samples

Robust and Rapid Workflow: Hybridization enhancer technology and enzyme based library preparation enables quick turn around time.

CliSeq Interpreter: User friendly companion software for automated & cloud based analysis and reporting.



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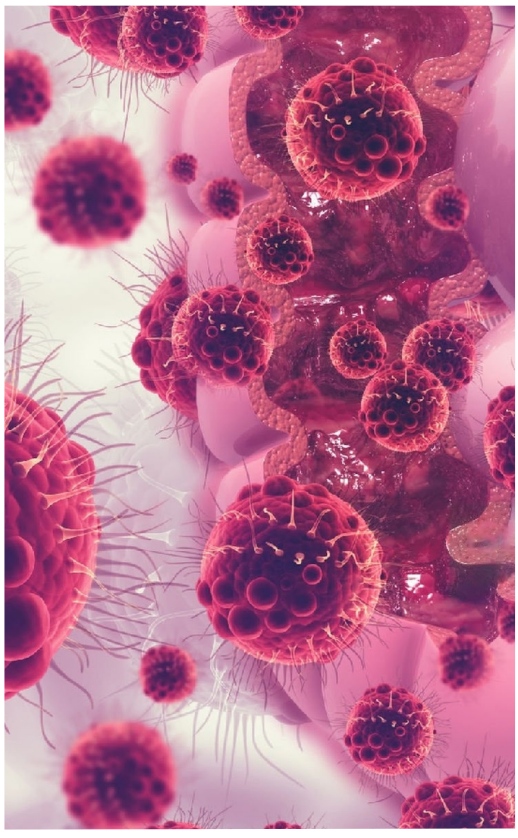
NGS Panel



Colorectal cancer (CRC) is the third most common cancer, and in 2008, it was the fourth most frequent cause of cancer-related death worldwide. Circulating tumor DNA (ctDNA) may reveal dynamic tumor status during therapy. Tumor DNA with specific genetic alterations is present as minor sub-clones in the cell-free fraction of the peripheral blood. Analysis of the plasma circulating tumor DNA (ctDNA) is a non-invasive alternative to classical tissue-based analysis for tumor specific genetic alterations. Not only non-invasive, but it may also provide better means of monitoring in light of spatial and temporal tumor heterogeneity. ctDNA analysis makes tumor analysis possible in the patients whose tissue specimens are otherwise impossible to obtain, for medical or anatomical reasons. And it makes it feasible to obtain multiple specimens repeatedly. Furthermore, as blood can carry ctDNA shed into tumors at different locations in the body, ctDNA may be more comprehensive representation of the tumor mutations of an individual patient. Recent advances in next generation sequencing (NGS) technology have enabled evaluation of various genetic variations in a single procedure

No. of Genes	35
Gene count /family	~25
Covered region	Whole CDS, Hotspots,DNA Fusions
Target size	75 Kb
Mutation type	SNVs/InDels
Sample type	Blood/Plasma

The Genes 2Me ctDNA Colorectal Panel screens Colorectal cancer causing genes to identify somatic mutations in DNA from blood. It provides comprehensive detail of the cancer and helps to decide the best course of treatment. The screening method involves using circulating tumor cells that are used as biomarkers to detect Colorectal cancer. Circulating tumor DNA (ctDNA) is released from tumor cells. Applications of ctDNA in Colorectal cancer include early diagnosis and detection, prognosis prediction, detecting mutations and structural alterations, minimal residual disease, tumor mutational burden, and tumor evolution tracking.

Gene List

APC	ASXL1	BRAF	CHEK2	CTNNB1	DNMT3A	EGFR	ERBB2	ERBB3
FBXW7	FGFR1	GNAS	HRAS	IDH1	IRS1	KRAS	MAP2K1	MET
NRAS	PDGFRB	PIK3CA	PTEN	SMAD4	TET2	TP53		

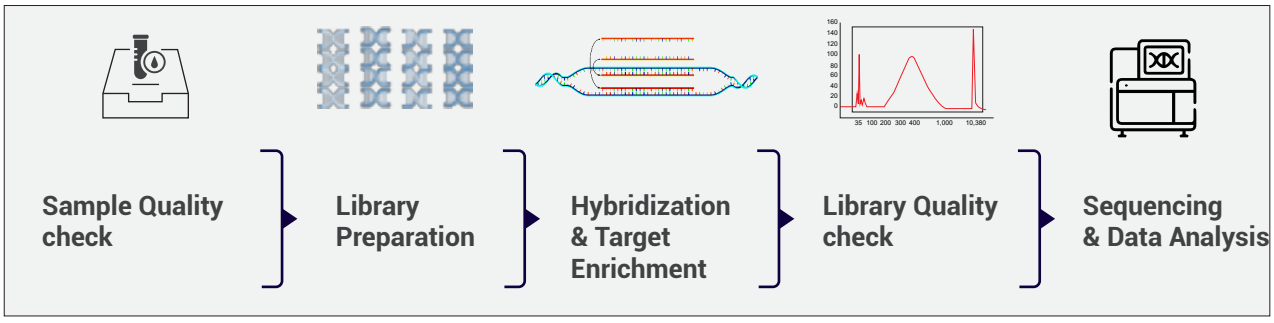
Specifications

Starting Material (DNA)	Library preparation time	Bioinformatics analysis	Databases used for Annotation
10-20 ng circulating tumor DNA	1.5 days (including Target Capture & Enrichment) for manual process With **G2M Auto EzyPrep automated NGS Library preparation system:** Minimum Hands-on required	Within 24hrs (Raw data to CSM report)	COSMIC, TCGA, ICGC, FusionDB, OncoDB, ClinVar, OMIM, gnomAD 1000Genome, dbSNP

Process Workflow

A. Platform Agnostic

Sequencing on multiple platforms (Illumina, MGI and Element Biosciences)



B. Bioinformatics Solutions

Data Analysis and Interpretation using Genes 2Me Cliseq Interpreter software

RAW DATA (FASTQ) → **QUALITY CHECK** / TRIMMING / QC METRICES → **ALIGNMENT** (BAM) → **TARGETED VARIANT CALLING** (VCF) → **SOMATIC DATABASES** → **ANNOTATION** (VCF) → **FILTER** As per Allele frequency & Phenotypic information → **CSM** (Clinical Significant Mutations) **REPORT**

Panel Performance

Features	Illumina	MGI
Coverage uniformity	98%	98%
Precision	94%	95%
Reproducibility	96%	96%
Sensitivity	<1% VAF at 95%	<1% VAF at 95%
On Target Ratio	85-95 %	86-95%

Gene & Drug details

Type of Cancer	Gene	Drug
Colorectal Cancer	EGFR	Cetuximab, Panitumumab
Colorectal Cancer	KRAS	Cetuximab, Panitumumab
Gastric and gastroesophageal cancer	ERBB2	Trastuzmab

References

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Ordering Details

Commercial Name	Cat No.	Pack Size
ctDNA Colorectal Panel	G2MCTCP11001-ill	96T
	G2MCTCP11001-MG	96T

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MAKE IN INDIA

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