Abnova Germline Genetic DNA Service

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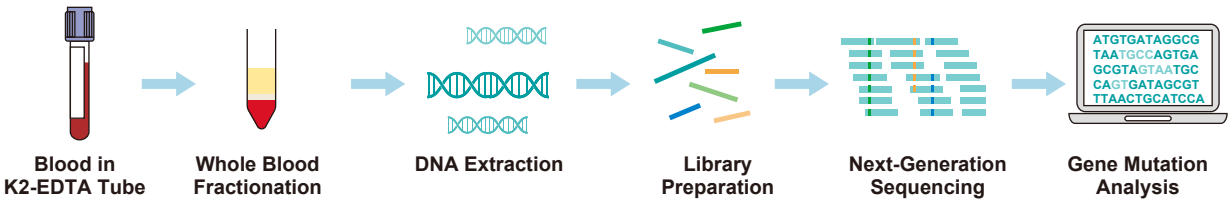
Abnova provides germline genetic DNA service to interested individuals, requesting physicians, clinics, and hospitals. These inherited genes are passed on from parents to offspring and play an important role in cancer risk and susceptibility. Moreover, knowledge of these heritable genes can be used not only to reduce the likelihood of developing cancer but also to select effective, evidenced-based therapy to treat cancer. The advent of next-generation sequencing (NGS) platforms has ushered a paradigm shift in the efficient, high-throughput identification and analysis of heritable predisposing genes and their variants across the human genome. Abnova leverages multiple NGS platforms to access these essential yet complex genetic changes to provide the critical information for personalized and hereditary cancer management.



Blood in K2-EDTA Tube → Whole Blood Fractionation → DNA Extraction → Library Preparation → Next-Generation Sequencing → Gene Mutation Analysis

Specimen Requirement

- Human whole blood: collect at least 4ml whole blood in K2-EDTA tube (purple cap) at room temperature.
- Sample shipment: keep whole blood sample in room temperature after blood collection and throughout transportation.
- DNA preparation: extract genomic DNA from the buffy coat fraction of the whole blood sample on the same day of collection and store at 4°C.

Whole Blood Fractionation, Genomic DNA Extraction, Library Preparation, Next-Generation Sequencing, and Gene Mutation Analysis

- Whole blood fractionation: centrifuge and separate the whole blood into plasma, buffy coat (white blood cells & platelets), and erythrocyte fractions.
- DNA extraction: extract the genomic DNA from the buffy coat fraction followed by DNA purification and quantification.
- Library preparation: fragment and size the genomic DNA, convert to double-stranded DNA, attach oligonucleotide adaptors, and quantitate library product.
- Next-generation sequencing: perform targeted sequencing of heritable predisposing genes established by the national clinical cancer guidelines.
- Gene mutation analysis: annotate and compare cancer gene mutations including germline variants with published literature and public databases.

Analytical Methods

- Next Generation Sequencing (NGS)

Deliverables (Sent Within 14 Working Days)

An interpretative report of the germline cancer gene mutations will be provided.

- Sequences of cancer gene mutations and their germline variants based on next-generation sequencing.
- Germline cancer mutation annotation and comparison with known datasets.
- Additional heritable predisposing gene sequencing per customer's request.

Services

Cancers	Heritable Predisposing Genes	Total
Breast Cancer	BRCA1, BRCA2	Inquire
Ovarian Cancer	BRCA1, BRCA2	Inquire
Colorectal Cancer	EpCAM, MLH1, MSH2, MLH6, PMS2	Inquire
Prostate Cancer	BRCA1, BRCA2, ATM, PALB, FANCA	Inquire
Renal Cancer	VHL	Inquire
Any Cancer	TP53	Inquire

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