Acute myeloid leukemia

MYELOID TUMOR PANEL

AML - facts and figures

Acute myeloid leukemia (AML) is an aggressive malignancy of the bone marrow of myeloid precursor cells showing a block in normal differentiation and maturation and increased proliferation. Malignant cells replace normal bone marrow, causing a decrease in red blood cells and platelets and symptomatc easy bruising and bleeding, fatigue, and increased risk of infection due to a lack of normal white blood cells.

AML is one of the most common leukemia in adults (~25% of all leukemia of adults in Western world) with an overall 5 year survival of 40–45% in young patients and less than 10% in the elderly. Chemotherapy results in high rates of remission but majority of patients relapse.

Facts about somatic mutation profile in AML

AML is a clonal disease. Hematopoietic progenitor cells accumulate somatic mutations which influence cell/tumor behavior and carry diagnostic and prognostic information. Targeted sequencing has identified recurrent AML-associated mutations in FLT3, NPM1, KIT, CEBPA, TET2 and other genes.

Examples: Internal tandem duplication in FLT3 (FLT3-ITD), partial tandem duplication in MLL (MLL-PTD), and mutations in ASXL1 and PHF6 genes are associated with reduced overall survival in AML patients. CEBPA and IDH2 mutations are associated with improved overall survival.

Testing strategy for AML at CENTOGENE

Myeloid tumor panel test includes bidirectional NGS DNA sequencing of the targeted region within the 22 key genes.

Molecular genetic profiling of somatic mutations in samples from AML-affected patients targets recommended and additionally commonly involved genes and pathways for actionable variants.

Analysis thus allows an improved understanding of the heterogeneous myeloid neoplasms and helps in improved treatment for the patient.

High-dose chemotherapeutic daunorubicin improves the rate of survival among patients with DNMT3A or NPM1 mutations or MLL translocations and they may benefit from dose-intensified daunorubicin. Individuals with diagnosed or highly suspected AML disease.

Knowledge about the specific genomic profile of the AML can help to refine prognosis and therapy for the individual patient.

Who should be tested?

Individuals with diagnosed or highly suspected AML disease.