FLT3 Gene Mutation Analysis

**Test:** FLT3 D835 and FLT3 ITD

**CPT code:** 81245. 81246

**Methodology:**

The FLT3 ITD gene region (exon 14) and FLT3 TKD region (exon 20) are amplified. The size of the ITD PCR product is determined by capillary electrophoresis to assess the percent mutant allele burden. The D835 PCR product is digested with EcoRV and assessed by capillary electrophoresis to determine the mutant burden.

**Clinical Use:**

FLT3 is a tyrosine kinase receptor with important role in hematopoietic stem cell proliferation and survival. Activating mutations in FLT3-ITD are seen in approximately 20-30% of acute myeloid leukemia (AML) patients. There are two major types of clinically significant FLT3 mutations: can be seen as either internal tandem duplication (ITD) within the juxtamembrane domain of FLT3 gene or as a missense point mutation within tyrosine kinase domain (TKD) at codon 835. FLT3-ITD mutations range from 3-400 bp and are always in-frame. Since the presence of ITD mutations in normal cytogenetics AML patients are associated with poorer outcomes and more aggressive therapy, knowledge of these mutations may benefit the patients from the currently available clinical trials using FLT3 inhibitors.

**Specimen Requirements:**

- 5-10 mL of blood or bone marrow-purple (EDTA) tube or yellow (ACD) tube within 24 hours of collection.
- DNA 200ng at a minimum of 25ng/µL.
  
  **Note:** If sample cannot arrive at laboratory within 24 hours of draw, refrigerate until sample can be transported and then transfer it at room temperature.

**Test Performed:**

Weekly

**Turn Around Time:**

7-10 days

**References:**


