MYD88 L265P Mutation Detection by PCR, Quantitative

Indications for Ordering
- Useful in distinguishing lymphoplasmacytic lymphoma (LPL) from other low-grade B-cell lymphoproliferative disorders which may be in the differential diagnosis
- Monitoring of individuals with LPL diagnosis and previously identified MYD88 L265P mutation

Test Description
- Real-time PCR
  - Performed on whole blood, bone marrow, and formalin-fixed, paraffin-embedded (FFPE) tissue
  - Quantitation of MYD88 L265P mutant alleles

Tests to Consider
MYD88 L265P Mutation Detection by PCR, Quantitative 2009318

Disease Overview
Prevalence – 3-4/million
- Mostly affects older individuals

Diagnostic/treatment issues
- MYD88 L265P mutations are present in the majority of LPL cases
  - Includes Waldenström’s macroglobulinemia
  - Marker for risk of progression from monoclonal gammopathy of undetermined significance (MGUS) IgM to Waldenström macroglobulinemia
  - Mutation also detected in a low percentage of chronic lymphocytic leukemia (CLL) and diffuse large B-cell lymphoma (DLBCL) cases
- Detection of MYD88 L265P mutation can aid in differentiation between LPL and other low-grade B-cell lymphoproliferative disorders which may appear similar to LPL
  - May be crucial for treatment decisions
  - LPL may be treated with chemotherapy or rituximab

Genetics
Gene – MYD88

Structure/function
- MYD88 encodes an adaptor protein that acts as a signal transducer in the interleukin-1 and toll-like receptor signaling pathways
- MYD88 L265P mutation augments cell survival through increased NF-κB activity and JAK-STAT3 signaling

Test Interpretation
Analytic sensitivity – 0.5% mutant allele

Results
- Detected – MYD88 L265P mutation detected
  - Quantitated as % of MYD88 L265P mutant allele
  - Strongly supports LPL in the presence of appropriate clinical and histologic setting
- Not detected – no mutation detected

Limitations
- Does not detect mutations in other regions of the MYD88 gene
- Does not detect MYD88 codon 265 mutations other than L265P
- Results of this test must be interpreted in the context of morphological and other relevant data
- Test should not be used alone to diagnose malignancy