MYD88 L265P Mutation Detection by PCR, Quantitative

The MYD88 L265P mutation has been identified in the majority of patients with Waldenström macroglobulinemia and lymphoplasmacytic lymphoma (LPL) and is useful in differentiating LPL from other low-grade B-cell lymphoproliferative disorders that may be considered in the differential diagnosis. MYD88 L265P mutation detection assists in determining treatment options and in monitoring disease progression in individuals diagnosed with LPL and a previously identified MYD88 L265P mutation.¹,²,³

Disease Overview

Prevalence

3-4/million; mostly affects older individuals⁴,⁵

Diagnostic/Treatment Issues

MYD88 L265P mutations are present in the majority of LPL cases

- Includes Waldenström 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) patients

Genetics

Gene

MYD88

Structure/Function

- MYD88 gene encodes for myeloid differentiation primary response 88 (MYD88), 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: \textit{MYD88} L265P mutation detected
  - Quantitated as % of \textit{MYD88} L265P mutant allele
  - Strongly supports a diagnosis of 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 \textit{MYD88} gene
- Does not detect \textit{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

References


