Test Definition: MYD88

MYD88, L265P, Somatic Gene Mutation, DNA
Allele-Specific PCR, Varies

Overview

Useful For

Establishing the diagnosis of lymphoplasmacytic lymphoma/Waldenstrom macroglobulinemia

Helping to distinguish lymphoplasmacytic lymphoma/Waldenstrom macroglobulinemia (low-grade B-cell lymphoma) from other subtypes

Special Instructions

- Hematopathology Patient Information

Method Name

Allele-Specific Polymerase Chain Reaction (PCR)

NY State Available

Yes

Specimen

Specimen Type

Varies

Shipping Instructions

Whole blood or bone marrow specimens must arrive within 10 days of collection.

Specimen Required

Submit only 1 of the following specimens:

Preferred:
Specimen Type: Bone marrow aspirate
Container/Tube:
Preferred: Lavender top (EDTA)
Acceptable: Yellow top (ACD), green top (sodium heparin)
Specimen Volume: 2 mL
Collection Instructions:
1. Invert several times to mix bone marrow.
2. Send bone marrow specimen in original tube. **Do not aliquot.**
3. Label specimen as bone marrow.
Specimen Stability Information: Ambient (preferred) 10 days/Refrigerated 10 days

Specimen Type: Whole blood
Container/Tube:
Preferred: Lavender top (EDTA)
Acceptable: Yellow top (ACD), green top (sodium heparin)
Specimen Volume: 3 mL
Collection Instructions:
1. Invert several times to mix blood.
2. Send whole blood specimen in original tube. **Do not aliquot.**
3. Label specimen as blood.
Specimen Stability Information: Ambient (preferred) 10 days/Refrigerated 10 days

Specimen Type: Paraffin-embedded tissue
Container/ Tube: Paraffin block
Collection Instructions:
1. Decalcified specimens (eg, bone marrow core biopsies) are not acceptable.
2. Indicate specimen source.
Specimen Stability Information: Ambient
Additional Information: If the quality of the biopsy specimen is poor, testing should not be ordered. Testing may be canceled if DNA requirements are inadequate.

Acceptable:
Specimen Type: Tissue slide
Slides: 20 unstained slides
Container/ Tube: Transport in plastic slide holders.
Collection Instructions:
1. Send 20 unstained, nonbaked slides with 5-micron thick sections of tissue.
2. Decalcified specimens (eg, bone marrow core biopsies) are not acceptable.
3. Indicate specimen source.
Specimen Stability Information: Ambient
Additional Information: Testing may be canceled if resultant extracted DNA does not meet concentration requirements.

Specimen Type: Frozen tissue
Container/Tube: Plastic container
Specimen Volume: 100 mg
Collection Instructions:
1. Freeze tissue within 1 hour of collection
2. Indicate specimen source.
Specimen Stability Information: Frozen

Specimen Type: Extracted DNA
Container/Tube: 1.5- to 2-mL tube
Specimen Volume: Entire specimen
Collection Instructions:
1. DNA must be extracted within 7 days of collection.

2. Label specimen as extracted DNA and source of specimen.
3. Provide volume and concentration of DNA on label.

Specimen Stability Information: Frozen (preferred)/Refrigerated/Ambient

Additional Information: DNA must be extracted in a CLIA-certified laboratory or equivalent and must be extracted from a specimen type listed as acceptable for this test (including applicable anticoagulants). We cannot guarantee that all extraction methods are compatible with this test. If testing fails, one repeat will be attempted, and if unsuccessful, the test will be reported as failed and a charge will be applied.

Forms

1. Hematopathology Patient Information (T676)
2. If not ordering electronically, complete, print, and send a Hematopathology/Cytogenetics Test Request (T726) with the specimen.

Specimen Minimum Volume

Whole blood, bone marrow aspirate, body fluid: 0.5 mL; Frozen tissue: 50 mg; Extracted DNA: 50 microliters (mcL) at 20 ng/mcL; Tissue slides: 10 unstained slides

Reject Due To

Gross hemolysis	Reject
B5-fixed tissues	Reject
Decalcified bone marrow core biopsies	Reject
Frozen tissue	Reject
Methanol acetic acid (MAA)-fixed pellets	Reject
Moderately to severely clotted	Reject
Paraffin shavings	Reject
Broken or cracked unstained slides	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container

Varies	Varies	10 days	

Clinical & Interpretive

Clinical Information

The single point alteration in *MYD88,* L265P, is present in 67% to 100% of patients with lymphoplasmacytic lymphoma, and these patients typically have clinical manifestations of Waldenstrom macroglobulinemia (often designated LPL/WM).

Reference Values

Variant present or absent based on expected alteration polymerase chain reaction product size. Concurrent amplification of wild type *MYD88* fragment determined for sample amplification integrity. *MYD88* gene (NCBI accession NM_002468.4)

Interpretation

Mutation present or not detected; an interpretive report will be issued.

Cautions

This *MYD88* test is a targeted assay and will not detect any alteration at *MYD88* codon 265 that does not result in the L>P (leucine to proline) amino acid change. It will also not detect additional *MYD88* alterations, including insertion or deletion events.

The analytical sensitivity of the assay (1% *MYD88* L265P in a wild-type background) can be affected by a variety of factors, including biologic availability (ie, tumor burden), fixation of paraffin-embedded specimens, or nonspecific polymerase chain reaction interferences.

Rare cases of lymphoplasmacytic lymphoma/Waldenstrom macroglobulinemia (LPL/WM) have been reported to lack the *MYD88* L265P abnormality, so a negative result would not completely exclude this diagnosis but would make the possibility of LPL/WM more unlikely.

Broken or cracked unstained slides are not compatible with the instrumentation used in our performing laboratories and will be rejected. Additional material may be requested.

Clinical Reference

1. Treon SP, Xu L, Yang G, et al. MYD88 L265P somatic mutation in Waldenstrom's macroglobulinemia. N Engl J Med. 2012;367(9):826-833
2. Varettoni M, Arcaini L, Zibellini S, et al. Prevalence and clinical significance of the MYD88 (L265P) somatic mutation in Waldenstrom's macroglobulinemia and related lymphoid neoplasms. Blood. 2013;121(13):2522-2528
3. Xu L, Hunter ZR, Yang G, et al. MYD88 L265P in Waldenstrom macroglobulinemia, immunoglobulin M monoclonal gammopathy, and other B-cell lymphoproliferative disorders using conventional and quantitative allele-specific polymerase chain reaction. Blood. 2013;121(11);2051-2058
4. Poulain S, Roumier C, Decambron A, et al. MYD88 L265P mutation in Waldenstrom macroglobulinemia. Blood. 2013;121(22);4504-4511
5. Gachard N, Parrens M, Soubeyran I, et al. IGHV gene features and MYD88 L265P mutation separate the three marginal

zone lymphoma entities and Waldenstrom macroglobulinemia/lymphoplasmacytic lymphomas. Leukemia. 2013;27(1):183-189. doi:10.1038/leu.2012.257
6. Ondrejka SL, Lin JJ, Warden DW, Durkin L, Cook JR, Hsi ED. MYD88 L265P somatic mutation: its usefulness in the differential diagnosis of bone marrow involvement by B-cell lymphoproliferative disorders. Am J Clin Pathol. 2013;140(3):387-394
7. Gertz MA. Waldenstrom macroglobulinemia: 2025 Update on diagnosis, risk stratification, and management. Am J Hematol. 2025;100(6):1061-1073. doi:10.1002/ajh.27666

Performance

Method Description
Extracted DNA from the clinical specimen is subjected to a single-tube allele-specific polymerase chain reaction (PCR) using *MYD88* exon 5 primers that simultaneously amplify both a wildtype sequence fragment and a fragment containing the specific nucleotide change resulting in L265P if present. PCR products are visualized by capillary electrophoresis, and the presence of altered and wildtype amplicons is determined according to the expected specific PCR product sizes.(Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
5 to 8 days

Specimen Retention Time
Bone marrow aspirate/Whole blood/Fresh/Frozen Tissue: 2 weeks; Extracted DNA: 3 months; FFPE tissue: Unused portions of blocks will be returned to the client. Unstained slides: Not retained

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

Test Definition: MYD88

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This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

81305

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MYD88	MYD88 L265P Gene Mutation Analysis	82140-5

Result ID	Test Result Name	Result LOINC® Value
MP021	Specimen Type	31208-2
36308	Final Diagnosis	82140-5
621251	MYD88 Cancel	77202-0