MAYO CLINIC LABORATORIES

Test Definition: TLPMF

T-Cell Lymphoma, Specified FISH, Varies

Overview

Useful For

Detecting a neoplastic clone associated with the common chromosome abnormalities seen in patients with various T-cell lymphomas using client specified probes

Tracking known chromosome abnormalities and response to therapy in patients with T-cell lymphoma

Evaluating specimens in which standard cytogenetic analysis is unsuccessful

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
TLPMB	Probe, Each Additional (TLPMF)	No	No

Testing Algorithm

This test includes a charge for application of the first probe set (2 fluorescence in situ hybridization [FISH] probes) and professional interpretation of results. Analysis charges will be incurred based on the number of cells analyzed per probe set.

When specified, any of the following probes will be performed:
14q32.1 rearrangement, TCL1A break-apart
14q11.2 rearrangement, TRAD break-apart
i(7q), D7Z1/D7S486
+8, D8Z2/MYC

For more information see Bone Marrow Staging for Known or Suspected Malignant Lymphoma Algorithm.

Special Instructions

- Bone Marrow Staging for Known or Suspected Malignant Lymphoma Algorithm

Method Name

Fluorescence In Situ Hybridization (FISH)

NY State Available

Yes

Specimen

Specimen Type

Varies

Ordering Guidance

This test is intended for instances when limited T-cell lymphoma fluorescence in situ hybridization (FISH) probes are needed. The FISH probes to be analyzed must be specified on the request, otherwise test processing may be delayed in order to determine intended analysis. If specific probes are not included with this test request, the test may be canceled and automatically reordered by the laboratory as TLPDF / T-Cell Lymphoma, Diagnostic FISH, Varies.

If the entire T-cell lymphoma panel is preferred, order TLPDF / T-Cell Lymphoma, Diagnostic FISH, Varies.

For patients with T-cell acute lymphoblastic leukemia/lymphoma (T-ALL/LBL), order either TALAF / T-Cell Acute Lymphoblastic Leukemia/Lymphoma (ALL), FISH, Adult, Varies. or TALPF / T-Cell Acute Lymphoblastic Leukemia/Lymphoma (ALL), FISH, Pediatric, Varies depending on the age of the patient.

For testing paraffin-embedded tissue samples from patients with T-lymphoblastic lymphoma (T-BLB), see TLBLF / T-Lymphoblastic Leukemia/Lymphoma, FISH, Tissue.

Shipping Instructions

Advise Express Mail or equivalent if not on courier service.

Necessary Information

1. **A list of probes requested for analysis is required.** Probes available for this test are listed in the Testing Algorithm section.
2. A reason for testing and a flow cytometry and/or a bone marrow pathology report should be sent with each specimen**.** The laboratory will not reject testing if this information is not provided, but appropriate testing and interpretation may be compromised or delayed. If this information is not provided, an appropriate indication for testing may be entered by Mayo Clinic Laboratories.

Specimen Required

Submit only 1 of the following specimens:

Preferred
Specimen Type: Bone marrow
Container/Tube:
Preferred: Yellow top (ACD)
Acceptable: Green top (heparin) or lavender top (EDTA)
Specimen Volume: 2-3 mL
Collection Instructions:
1. It is preferable to send the first aspirate from the bone marrow collection.
2. Invert several times to mix bone marrow.

Acceptable
Specimen Type: Blood
Container/Tube:
Preferred: Yellow top (ACD)
Acceptable: Green top (heparin) or lavender top (EDTA)

Specimen Volume: 6 mL
Collection Instructions: Invert several times to mix blood.

Forms
If not ordering electronically, complete, print, and send a Hematopathology/Cytogenetics Test Request (T726) with the specimen.

Specimen Minimum Volume
Blood: 2 mL
Bone Marrow: 1 mL

Reject Due To
All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Ambient (preferred)		
	Refrigerated		

Clinical & Interpretive

Clinical Information
T-cell neoplasms are relatively uncommon, accounting for approximately 12% of all non-Hodgkin lymphomas. There are several subtypes of T-cell neoplasms: T-lymphoblastic leukemia , T-cell prolymphocytic leukemia , T-cell large granular lymphocytic leukemia , anaplastic large cell lymphoma , peripheral T-cell lymphoma, and various other cutaneous, nodal, and extranodal lymphoma subtypes.

There are a few common chromosome abnormalities associated with specific T-cell lymphoma subtypes evaluated by this FISH test as seen in the following table.

Table. Common Chromosome Abnormalities in T-Cell Lymphomas

Lymphoma subtype	Chromosome abnormality	Fluorescence in situ hybridization probe
T-cell prolymphocytic leukemia/lymphoma (T-PLL)	inv(14)(q11q32) and t(14;14)(q11;q32)	5'/3'TCL1A
	Reflex: 14q11.2 rearrangement	5'/3'TRAD
Hepatosplenic T-cell lymphoma	Isochromosome 7q	D7S486/D7Z1
	Trisomy 8	D8Z2/MYC

These probes have diagnostic relevance and can also be used to track response to therapy.

Reference Values
An interpretive report will be provided.

Interpretation
A neoplastic clone is detected when the percent of cells with an abnormality exceeds the normal reference range for any

given probe.

Detection of an abnormal clone supports a diagnosis of a T-cell lymphoma. The specific abnormality detected may help subtype the neoplasm.

The absence of an abnormal clone does not rule out the presence of lymphoma.

Cautions

This test is not approved by the U.S. Food and Drug Administration, and it is best used as an adjunct to existing clinical and pathologic information.

Bone marrow is the preferred sample type for this fluorescence in situ hybridization test. If bone marrow is not available, a blood specimen may be used if there are neoplastic cells in the blood specimen (as verified by a hematopathologist).

Supportive Data

Each probe was independently tested and verified on unstimulated peripheral blood and bone marrow specimens. Normal cutoffs were calculated based on the results of 25 normal specimens. Each probe set was evaluated to confirm the probe set detected the abnormality it was designed to detect.

Clinical Reference

1. Swerdlow S, Campo E, Harris NL, et al, eds: WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. IARC Press; 2017
2. Gesk S, Martin-Subero JI, Harder L, et al: Molecular cytogenetic detection of chromosomal breakpoints in T-cell receptor gene loci. Leukemia. 2003;17:738-745
3. Chin M, Mugishima H, Takamura M, et al: Hemophagocytic syndrome and hepatosplenic (gamma)(delta) T-cell lymphoma with isochromosome 7q and 8 trisomy. J Pediatr Hematol Oncol. 2004;26(6):375-378

Performance

Method Description

This test is performed using commercially available and laboratory-developed probes. Rearrangements involving *TCL1A* and *TRAD* are detected using a dual-color break-apart strategy probe. Trisomy of chromosome 8 and isochromosome 7q are detected using enumeration strategy probes. For each probe set, 100 interphase nuclei are scored. All results are expressed as the percent abnormal nuclei.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

7 to 10 days

Specimen Retention Time

4 weeks

Performing Laboratory Location

Rochester

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

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

CPT Code Information

88271x2, 88275 x1, 88291x1- FISH Probe, Analysis, Interpretation; 1 probe set
88271x2, 88275 x1 - FISH Probe, Analysis; each additional probe set (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
TLPMF	T-cell Lymphoma B/BM, Spec FISH	101682-3

Result ID	Test Result Name	Result LOINC® Value
614348	Result Summary	50397-9
614349	Interpretation	69965-2
614350	Result Table	93356-4
614351	Result	62356-1
GC141	Reason for Referral	42349-1
GC142	Probes Requested	78040-3
GC143	Specimen	31208-2
614352	Source	31208-2
614353	Method	85069-3
614354	Additional Information	48767-8
614355	Disclaimer	62364-5
614356	Released By	18771-6