MAYO CLINIC LABORATORIES

Test Definition: TLPMF

T-Cell Lymphoma, Specified FISH, Varies

Overview

Useful For

Detecting common chromosome abnormalities associated with specific T-cell lymphoma subtypes using **client-specified** probe set(s)

This test **should not be used** to screen for residual T-cell lymphoma

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 the probe application, analysis, and professional interpretation of results for one probe set (2 individual fluorescence in situ hybridization [FISH] probes). Additional charges will be incurred for additional probe sets performed. Analysis charges will be incurred based on the number of cells analyzed per probe set. If no cells are available for analysis, no analysis charges will be incurred.

This test is performed using client-specified FISH probes and is not intended as a panel test. Specific probes or suspected T-cell lymphoma subtype must be listed in the probe request field. Reflex probes can be performed when appropriate if specified in the order request field.

When specified, any of the following probes for the following known subtypes of T-cell lymphoma will be performed:

i(7q) or isochromosome 7q, request probe D7Z1/D7S486
+8 or trisomy 8, request probe D8Z2/MYC
t(14q32.1;var) or *TCL1A* rearrangement, request probe TCL1A break-apart
t(14q11.2;var) or *TRA* rearrangement, request probe TRA break-apart

TCL1A and TRA break-apart probe sets will be performed simultaneously and cannot be ordered independently.

When this test and flow cytometry testing for leukemia/lymphoma are ordered concurrently, the flow cytometry result will be utilized to determine if sufficient clonal T-cells are available for FISH testing. If the result does not identify a sufficient clonal T-cell population, this FISH test order will be canceled, and no charges will be incurred. The T-cell lymphoma subtype will be used by the laboratory to determine appropriate FISH probes, if determined and applicable.

Appropriate ancillary probes may be performed at consultant discretion to render comprehensive assessment. Any additional probes will have the results included within the final report and will be performed at an additional charge.

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 based on specific abnormalities or abnormalities identified in the diagnostic sample. **The FISH probes to be analyzed must be specified on the ordering request.** If targeted FISH probes are not included with this test order, test processing will be delayed.

This test should only be ordered if the specimen is known to have a sufficient clonal T-cell population. If a flow cytometry result is available and does not identify a sufficient clonal T-cell population, this test order will be canceled, and no charges will be incurred.

TCL1A and TRA break-apart probe sets are performed simultaneously and cannot be ordered independently.

This test **should NOT be used** to screen for residual T-cell lymphoma.

If a complete T-cell lymphoma panel is preferred, order TLPFD / T-Cell Lymphoma BM/BL Panel, Diagnostic, FISH, Varies.

This test **should NOT be used** to screen for residual T-cell lymphoma.

This assay detects chromosome abnormalities observed in blood or bone marrow specimens of patients with T-cell lymphoma. If a paraffin-embedded tissue specimen is submitted, the test will be canceled and TLYM / T-Cell Lymphoma, FISH, Tissue will be added and performed as the appropriate test.

For patients with T-cell acute lymphoblastic leukemia/lymphoma, order either TALAF / T-Cell Acute Lymphoblastic Leukemia/Lymphoma (ALL), FISH, Adult, Varies or TALFP / Pediatric T-Lymphoblastic Leukemia/Lymphoma Panel, FISH, Varies, depending on the age of the patient. For testing paraffin-embedded tissue samples from patients with T-cell lymphoblastic Lymphoma, 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 must be provided. If this information is not provided, an appropriate indication for testing may be entered by Mayo Clinic Laboratories.

3. A flow cytometry and/or a bone marrow pathology report should be submitted 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.

Specimen Required

Submit only 1 of the following specimens:

Preferred
Specimen Type: Bone marrow
Container/Tube:
Preferred: Yellow top (ACD)
Acceptable: Green top (sodium heparin) or lavender top (EDTA)
Specimen Volume: 2 to 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.
3. Send bone marrow in original tube. **Do not aliquot.**

Acceptable
Specimen Type: Whole Blood
Container/Tube:
Preferred: Yellow top (ACD)
Acceptable: Green top (sodium heparin) or lavender top (EDTA)
Specimen Volume: 6 mL
Collection Instructions:
1. Invert several times to mix blood.
2. Send whole blood specimen in original tube. **Do not aliquot.**

Forms

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

Specimen Minimum Volume

Bone marrow: 1 mL; Whole blood: 2 mL

Reject Due To

Fresh tissue	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

T-cell malignancies account for approximately 10% of all non-Hodgkin lymphomas. Genetic abnormalities can assist diagnosis and have served as important prognostic markers in T-cell lymphomas. Fluorescence in situ hybridization (FISH) permits the detection of recurrent gene rearrangements associated with various chromosomal abnormalities in specific T-cell lymphoma subtypes (see Table).

Table. Common Chromosome Abnormalities in T-cell Lymphomas

Lymphoma type	Chromosome abnormality	FISH probe
T-cell prolymphocytic leukemia	inv(14)(q11q32)/ (14;14)(q11;q32)	5'/3' TRA 5'/3' TCL1A
Hepatosplenic T-cell lymphoma	Isochromosome 7q	D7Z1/ D7S486
	Trisomy 8	D8Z2/MYC

Reference Values

An interpretive report will be provided.

Interpretation

A neoplastic clone is detected when the percentage of cells with an abnormality exceeds the normal reference range for any given probe set.

The absence of an abnormal clone does not rule out the presence of lymphoma or another neoplastic disorder.

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

Cautions

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

Bone marrow is the preferred specimen type for this fluorescence in situ hybridization (FISH) 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).

If no FISH signals are observed post-hybridization, the case will be released indicating a lack of FISH results.

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(4):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 *TRA* 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 percentage of 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
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
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
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