



Test Definition: MASF

Angiosarcoma, MYC (8q24) Amplification,
FISH, Tissue

Overview

Useful For

Identifying *MYC* amplification to aid in the differentiation of cutaneous angiosarcomas from atypical vascular lesions after radiotherapy

Reflex Tests

| Test Id | Reporting Name | Available Separately | Always Performed |
|---------|---------------------------------------|----------------------|------------------|
| _PBCT | Probe, +2 | No, (Bill Only) | No |
| _PADD | Probe, +1 | No, (Bill Only) | No |
| _PB02 | Probe, +2 | No, (Bill Only) | No |
| _PB03 | Probe, +3 | No, (Bill Only) | No |
| _IL25 | Interphases, <25 | No, (Bill Only) | No |
| _I099 | Interphases, 25-99 | No, (Bill Only) | No |
| _I300 | Interphases, >=100 | No, (Bill Only) | No |
| CULFB | Fibroblast Culture for Genetic Test | Yes | No |
| CULAF | Amniotic Fluid Culture/Genetic Test | Yes | No |
| _STR1 | Comp Analysis using STR (Bill only) | No, (Bill only) | No |
| _STR2 | Add'l comp analysis w/STR (Bill Only) | No, (Bill only) | No |

Testing Algorithm

This test includes a charge for the probe application, analysis, and professional interpretation of results for one probe set (2 individual FISH probes). 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.

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.

Method Name

Fluorescence In Situ Hybridization (FISH)

NY State Available

Yes

Specimen

Specimen Type

Tissue

Ordering Guidance

This test does not include a pathology consultation. If a pathology consultation is requested, order PATHC / Pathology Consultation, and appropriate testing will be added at the discretion of the pathologist and performed at an additional charge.

Multiple oncology (cancer) gene panels are also available. For more information see [Hematology, Oncology, and Hereditary Test Selection Guide](#).

Additional Testing Requirements

To resolve atypical fluorescence in situ hybridization results, confirmation testing by microarray testing is available; order CMAPT / Chromosomal Microarray, Tumor, Formalin-Fixed Paraffin-Embedded.

Shipping Instructions

Advise Express Mail or equivalent if not on courier service.

Necessary Information

- 1. A pathology report is required for testing to be performed.** If not provided, appropriate testing and interpretation may be compromised or delayed. Acceptable pathology reports include working drafts, preliminary pathology, or surgical pathology reports.
- 2. The following information must be included in the report provided:**
 - Patient name
 - Block number-must be on all blocks, slides, and paperwork
 - Date of collection
 - Tissue source
- 3. 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.

Specimen Required

Submit only 1 of the following specimens:

Preferred

Specimen Type: Tissue block (fresh tissue is **not acceptable**)

Collection Instructions:

1. Submit a formalin-fixed, paraffin-embedded tumor tissue block.
2. Blocks prepared with alternative fixation methods (eg, Prefer, Bouin's) will be attempted but are less favorable for successful results. Provide fixation method used.

Additional Information:

1. Paraffin-embedded specimens can be from any anatomic location (skin, soft tissue, lymph node, etc).
2. Decalcified paraffin-embedded specimens will have testing attempted; however, the success rate is approximately 50%. **Testing may be canceled** if sufficient tumor tissue is not present.
3. **Submitted fresh tissue specimens will be canceled upon receipt.** If only fresh tissue is available, embed in paraffin prior to sending.

Acceptable:**Specimen Type:** Tissue slides**Slides:** 1 Hematoxylin and eosin stained and 4 unstained**Collection Instructions:** Submit 4 consecutive unstained, positively charged, unbaked slides with 5 micron-thick sections of the tumor tissue and 1 slide stained with hematoxylin and eosin.**Forms**If not ordering electronically, complete, print, and send an [Oncology Test Request](#) (T729) with the specimen.**Specimen Minimum Volume**

Slides: 1 Hematoxylin and eosin stained and 2 unstained

Reject Due To

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

Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---------------|---------------------|------|-------------------|
| Tissue | Ambient (preferred) | | |
| | Refrigerated | | |

Clinical & Interpretive**Clinical Information**

Post-radiation cutaneous angiosarcoma is a malignancy associated with very poor outcome and is consequently treated aggressively. Atypical vascular lesions are also associated with radiation therapy but are considered to be benign and do not require aggressive management. Therefore, the differentiation of these neoplasms is of considerable clinical importance. Post-radiation cutaneous angiosarcomas often demonstrate high-level amplification of *MYC*, whereas reactive and benign vascular lesions do not show amplification of *MYC*.

Reference Values

An interpretive report will be provided.

Interpretation*MYC* will be clinically interpreted as positive, negative, or equivocal.

The *MYC* locus is reported as amplified when the *MYC*:D8Z2 ratio is 2.0 or greater and demonstrates 6 or more copies of *MYC*.

A *MYC*:D8Z2 ratio less than 2.0 or showing a ratio of 2.0 or greater with less than 6 copies of *MYC* is considered to lack amplification of *MYC*.

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.

This fluorescence in situ hybridization (FISH) assay does not rule out other chromosome abnormalities.

Fixatives other than formalin (eg, Prefer, Bouin's) may not be successful for FISH assays. Non-formalin fixed specimens will not be rejected.

Paraffin-embedded tissues that have been decalcified may not be successful for FISH analysis. The success rate of FISH studies on decalcified tissue is approximately 50%, but FISH will be attempted if sufficient tumor is present for analysis.

Fluorescence in situ hybridization studies will be attempted if sufficient tumor is present for analysis. The pathologist reviewing the hematoxylin and eosin-stained slide may find it necessary to cancel testing if insufficient tissue/tumor is available for testing.

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

Supportive Data

The probe set was independently validated in a blinded study on 23 paraffin-embedded primary and post radiation angiosarcoma tissue samples and 25 noncancerous control specimens. The normal controls were used to generate the normal cutoffs. *MYC* amplification was detected in 4 (17.4%) of the angiosarcomas and the incidence is consistent with published reports.

Clinical Reference

1. Mentzel T, Schildhaus H, Palmedo G, Buttner R, Kutzner H. Postradiation cutaneous angiosarcoma after treatment of breast carcinoma is characterized by *MYC* amplification in contrast to atypical vascular lesions after radiotherapy and control cases: clinicopathological, immunohistochemical and molecular analysis of 66 cases. *Mod Pathol*. 2012;25(1):75-85
2. Manner J, Radlwimmer B, Hohenberger P, et al. *MYC* high level gene amplification is a distinctive feature of angiosarcomas after irradiation or chronic lymphedema. *Am J Pathol*. 2010;176(1):34-39. doi:10.2353/ajpath.2010.090637
3. WHO Classification of Tumours Editorial Board. *Soft Tissue and Bone*. 5th ed. IARC; 2020. World Health Organization Classification of Tumours. Vol 3

Performance

Method Description

This test is performed using a commercially available probe set with a *MYC* probe and a chromosome 8 centromere probe (D8Z2). Paraffin-embedded tissue samples are cut at 5 microns and mounted on positively charged glass slides. The selection of tissue and the identification of target areas on the hematoxylin and eosin (H and E)-stained slide are performed by a pathologist. Using the H and E-stained slide as a reference, target areas are etched with a

diamond-tipped engraving tool on the back of the unstained slide to be assayed. Each probe set is hybridized to the appropriate target areas, as indicated on the H and E, and 60 interphase nuclei are scored within the targeted areas. The results are expressed as a ratio of MYC:D8Z2 signals.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

7 to 10 days

Specimen Retention Time

Slides used for analysis are retained by the laboratory in accordance with regulatory requirements. Client provided paraffin blocks and extra unstained slides (if provided) will be returned after testing is complete.

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, 88291-DNA probe, each (first probe set), Interpretation and report

88271x2-DNA probe, each; each additional probe set (if appropriate)

88271x1-DNA probe, each; coverage for sets containing 3 probes (if appropriate)

88271x2-DNA probe, each; coverage for sets containing 4 probes (if appropriate)

88271x3-DNA probe, each; coverage for sets containing 5 probes (if appropriate)

88274 w/modifier 52-Interphase in situ hybridization, <25 cells, each probe set (if appropriate)

88274-Interphase in situ hybridization, 25 to 99 cells, each probe set (if appropriate)

88275-Interphase in situ hybridization, 100 to 300 cells, each probe set (if appropriate)

LOINC® Information

Test Definition: MASF

Angiosarcoma, MYC (8q24) Amplification,
FISH, Tissue

| Test ID | Test Order Name | Order LOINC® Value |
|---------|------------------------------------|--------------------|
| MASF | MYC (8q24), Angiosarcoma, FISH, Ts | 101384-6 |

| Result ID | Test Result Name | Result LOINC® Value |
|-----------|------------------------|---------------------|
| 54606 | Result Summary | 50397-9 |
| 54609 | Interpretation | 69965-2 |
| 54608 | Result | 62356-1 |
| CG896 | Reason for Referral | 42349-1 |
| 54610 | Specimen | 31208-2 |
| 54611 | Source | 31208-2 |
| 54612 | Tissue ID | 80398-1 |
| 54613 | Method | 85069-3 |
| 54614 | Released By | 18771-6 |
| 55126 | Additional Information | 48767-8 |
| 53818 | Disclaimer | 62364-5 |