

## Overview

### Useful For

Identifying *NR4A3* gene rearrangements in patients with extraskeletal myxoid chondrosarcoma (EMC)

### 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,	No, (Bill Only)	No
_I099	Interphases, 25-99	No, (Bill Only)	No
_I300	Interphases, >=100	No, (Bill Only)	No

### Testing Algorithm

This test does not include a pathology consult. If a pathology consultation is requested, PATHC / Pathology Consultation should be ordered and the appropriate FISH test will be ordered and performed at an additional charge.

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

Additional charges will be incurred for all reflex probes 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.

### Method Name

Fluorescence In Situ Hybridization (FISH)

### NY State Available

Yes

## Specimen

### Specimen Type

Tissue

### Shipping Instructions

Advise Express Mail or equivalent if not on courier service.

### Necessary Information

**1. A pathology report is required in order for testing to be performed.** Acceptable pathology reports include working drafts, preliminary pathology or surgical pathology reports.

**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.

### Specimen Required

**Submit only 1 of the following specimens:**

**Specimen Type:** Tissue

**Container/Tube:** Formalin-fixed, paraffin-embedded tumor tissue block

**Specimen Type:** Slides

**Specimen Volume:** Four Consecutive, unstained, 5 micron-thick sections placed on positively charged slides and 1 hematoxylin and eosin-stained slide

### Forms

[If not ordering electronically, complete, print, and send an Oncology Test Request \(T729\)](#) with the specimen.

### Specimen Minimum Volume

Two consecutive, unstained, 5 micron-thick sections placed on positively charged slides and 1 hematoxylin and eosin-stained slide.

### 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 and Interpretive

### Clinical Information

The gene *NR4A3* is often altered in patients with extraskeletal myxoid chondrosarcomas (EMC). Rearrangement of the *NR4A3* gene region may be involved with up to 4 partner genes as a pathway to EMC. FISH analysis allows for the detection of rearrangement of the *NR4A3* gene region.

### Reference Values

An interpretive report will be provided.

### Interpretation

A positive result with the *NR4A3* probe is detected when the percent of cells with an abnormality exceeds the normal cutoff for the probe set. A positive result of *NR4A3* suggests inactivating structural alterations of the *NR4A3* gene region at 9q22.33. A negative result suggests no structural alterations of the locus.

### Cautions

This test is not approved by the FDA and should be used as an adjunct to existing clinical and pathologic information.

Fixatives other than formalin (eg, Prefer, Bouin) may not be successful for FISH assays. Although FISH testing will not be rejected due to nonformalin fixation, results may be compromised.

Paraffin-embedded tissues that have been decalcified are generally unsuccessful for FISH analysis. The pathologist reviewing the hematoxylin and eosin-stained slide may find it necessary to cancel testing.

### Supportive Data

FISH analysis was performed on 27 formalin-fixed paraffin-embedded specimens including 21 extraskeletal myxoid chondrosarcoma (EMC) tissue samples, 6 non-EMC sarcomas, and 25 noncancerous control specimens. The normal controls were used to generate the normal cutoff values. Structural alterations resulting in the rearrangement of the *NR4A3* gene region were identified and results correlated with pathology findings.

### Clinical Reference

Benini S, Cocchi S, Gamberi G, Magagnoli G, et al: Diagnostic utility of molecular investigation in extraskeletal myxoid chondrosarcoma. *J Mol Diagn* 2014 May;16(3):314-323

### Performance

#### Method Description

This test uses a laboratory developed *NR4A3* (9q22.33) dual-color break-apart probe (BAP) strategy. Formalin-fixed paraffin-embedded tissues 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 etcher on the back of the unstained slide to be assayed. The probes are hybridized to the appropriate target areas and 2 technologists analyze each probe set. Using the *NR4A3* probe set, each technologist analyzes 50 interphase nuclei (100 total) and the results are expressed as the percent of abnormal nuclei. (Unpublished Mayo method)

#### PDF Report

No

#### Day(s) and Time(s) Test Performed

Specimens are processed Monday through Sunday.

Results reported Monday through Friday, 8 a.m.-5 p.m.

#### Analytic Time

7 days

#### Maximum Laboratory Time

10 days

#### Specimen Retention Time

Slides and H&E used for analysis are retained by the laboratory in accordance to CAP and NYS requirements. Client provided paraffin blocks and extra unstained slides (if provided) will be returned after testing is complete.

#### Performing Laboratory Location

Rochester

### Fees and 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 Regional Manager. 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 U.S. Food and Drug Administration.

**CPT Code Information**

88271 x 2, 88291-DNA probe, each (first probe set), Interpretation and report

88271 x 2-NA probe, each; each additional probe set (if appropriate)

88271 x 1-DNA probe, each; coverage for sets containing 3 probes (if appropriate)

88271 x 2-DNA probe, each; coverage for sets containing 4 probes (if appropriate)

88271 x 3-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 ID	Test Order Name	Order LOINC Value
NR4A3	NR4A3, Rearrangement, FISH, Ts	21796-8

Result ID	Test Result Name	Result LOINC Value
92340	Result Summary	50397-9
92341	Interpretation	69965-2
92342	Result	62356-1
CG999	Reason For Referral	42349-1
92343	Specimen	31208-2
92344	Source	31208-2
92345	Tissue ID	80398-1
92346	Method	49549-9
92347	Additional Information	48767-8
92348	Disclaimer	62364-5
92349	Released By	18771-6