

## Overview

### Useful For

Part of a panel of immunostains to identify the primary site for carcinomas of unknown origin

### Reflex Tests

Test ID	Reporting Name	Available Separately	Always Performed
IHTOI	IHC Initial, Tech Only	No	No
IHTOA	IHC Additional, Tech Only	No	No

## Testing Algorithm

[For the initial technical component only immunohistochemical \(IHC\) stain performed, the appropriate bill-only test ID will be reflexed and charged \(IHTOI\). For each additional technical component only IHC stain performed, an additional bill-only test ID will be reflexed and charged \(IHTOA\).](#)

### Method Name

Immunohistochemistry

### NY State Available

Yes

## Specimen

### Specimen Type

TECHONLY

### Advisory Information

This test includes only technical performance of the stain (no pathologist interpretation is performed). If diagnostic consultation by a pathologist is required order PATHC / Pathology Consultation.

### Shipping Instructions

Attach the green pathology address label and the pink Immunostain Technical Only label included in the kit to the outside of the transport container.

### Specimen Required

**Supplies:** Immunostain Technical Only Envelope (T693)

**Specimen Type:** Tissue

**Preferred:** 2 Unstained positively charged glass slide (25- x 75- x 1-mm) per test ordered; sections 4-microns thick.

**Acceptable:** Formalin-fixed, paraffin-embedded (FFPE) tissue block

### Digital Image Access

1. Information on accessing digital images of immunohistochemical (IHC) stains and the manual requisition form can

be accessed through this website: [www.mayocliniclabs.com/test-info/ihc/index.html](http://www.mayocliniclabs.com/test-info/ihc/index.html)

2. Clients ordering stains using a manual requisition form will not have access to digital images.
3. Clients wishing to access digital images must place the order for IHC stains electronically. Information regarding digital imaging can be accessed through this website: [www.mayocliniclabs.com/test-info/ihc/faq.html](http://www.mayocliniclabs.com/test-info/ihc/faq.html)

### Forms

If not ordering electronically, complete, print, and send a [Immunohistochemical \(IHC\)/In Situ Hybridization \(ISH\) Stains Request](#) (T763) with the specimen.

### Reject Due To

Tissue/Slides	Wet/frozen tissue Cytology smears Nonformalin fixed tissue Nonparaffin embedded tissue Noncharged slides ProbeOn slides
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### Specimen Stability Information

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

## Clinical and Interpretive

### Clinical Information

Thyroid transcription factor 1 (TTF1) is a nuclear protein expressed in thyroid follicular cells, type II pneumocytes, and a subset of bronchial cells. Given its relative specificity for cells of thyroid or lung origin, this immunostain is often included in a panel to identify the primary site for carcinomas of unknown origin.

### Interpretation

This test includes only technical performance of the stain (no pathologist interpretation is performed). Mayo Clinic cannot provide an interpretation of tech only stains outside the context of a pathology consultation. If an interpretation is needed, refer to PATHC / Pathology Consultation for a full diagnostic evaluation or second opinion of the case. All material associated with the case is required. Additional specific stains may be requested as part of the pathology consultation, and will be performed as necessary at the discretion of the Mayo pathologist.

The positive and negative controls are verified as showing appropriate immunoreactivity and documentation is retained at Mayo Clinic Rochester. If a control tissue is not included on the slide, a scanned image of the relevant quality control tissue is available upon request. Contact 855-516-8404.

Interpretation of this test should be performed in the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

### Cautions

Age of a cut paraffin section can affect immunoreactivity. Stability thresholds vary widely among published literature and are antigen-dependent. Best practice is for paraffin sections to be cut within 6 weeks.

### Clinical Reference

1. [Bejarano PA, Nikiforov YE, Swenson ES, Biddinger PW: Thyroid transcription factor-1, thyroglobulin, cytokeratin 7, and cytokeratin 20 in thyroid neoplasm. Appl Immunohistochem Mol Morphol 2000;8\(3\):189-194](#)

2. Coomperat E, Zhang F, Perrotin C, et al: Variable sensitivity and specificity of TTF-1 antibodies in lung metastatic adenocarcinoma of colorectal origin. Mod Pathol 2005;18:1371-1376

3. Folpe AL, Gown AM, Lamps LW, et al: Thyroid transcription factor-1: immunohistochemical evaluation in pulmonary neuroendocrine tumors. Mod Pathol 1999;12(1):5-8

4. Matoso A, Singh K, Jacob R, et al: Comparison of thyroid transcription factor-1 expression by two monoclonal antibodies in pulmonary and non-pulmonary primary tumors. Appl Immunohistochem Mol Morphol 2010;18(2):142-149

5. Yatabe Y, Mitsudomi T, Takahashi T: TTF-1 Expression in pulmonary adenocarcinomas. Am J Surg Pathol 2002;26(6):767-773

### Performance

#### Method Description

Immunohistochemistry on sections of paraffin-embedded tissue.(Cartun RW, Taylor CR, Dabbs DJ: Techniques of immunohistochemistry: Principles, pitfalls, and standardization. In: Dabbs DJ, ed. Diagnostic Immunohistochemistry. 5th ed. Elsevier; 2019:1-46)

#### PDF Report

No

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

Monday through Friday

#### Analytic Time

1 day

#### Maximum Laboratory Time

3 days

#### Specimen Retention Time

Until staining 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.

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- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

**Test Classification**

This test has been cleared, approved or is exempt by the U.S. Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

**CPT Code Information**

88342-TC, primary

88341-TC, if additional IHC

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
TTFSP	TTF1 (SPT24) IHC, Tech Only	Order only;no result

Result ID	Test Result Name	Result LOINC Value
70888	TTF1 (SPT24) IHC, Tech Only	Bill only; no result