

## Overview

### Useful For

Diagnosis of clear cell renal cell carcinoma and clear cell papillary renal cell carcinoma.

### Reflex Tests

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

### 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

**Container/Tube:** Immunostain Technical Only Envelope

**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 IHC stains and the manual requisition form can be accessed through this website: [www.mayocliniclaboratories.com/test-info/ihc/index.html](http://www.mayocliniclaboratories.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.mayocliniclaboratories.com/test-info/ihc/faq.html](http://www.mayocliniclaboratories.com/test-info/ihc/faq.html)

### Forms

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

### Reject Due To

|           |  |
|-----------|--|
| Hemolysis | NA   |
| Lipemia   | NA   |
| Icterus   | NA   |
| Other     | Cytology smears<br>Nonformalin fixed tissue<br>Nonparaffin embedded tissue<br>Noncharged slides<br>ProbeOn slides<br>Wet/frozen tissue |

### Specimen Stability Information

| Specimen Type | Temperature         | Time |
|---------------|---------------------|------|
| TECHONLY      | Ambient (preferred) |      |
|               | Refrigerated        |      |

## Clinical and Interpretive

### Clinical Information

Carbonic anhydrase IX (CA-IX) is a hypoxia-induced protein expressed in the gastrointestinal tract, mainly in the stomach. Expression of CA-IX is useful in the diagnosis of clear cell renal cell carcinoma and clear cell papillary renal cell carcinoma. It can assist in distinguishing clear cell carcinoma from chromophobe carcinoma, oncocytoma, and several other renal cell carcinomas.

### Interpretation

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.

The positive and negative controls are verified as showing appropriate immunoreactivity. 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**

[No significant cautionary statements](#)

**Clinical Reference**

1. Alshenawy H: Immunohistochemical panel for differentiating renal cell carcinoma with clear and papillary features. *J Microsc Ultrastruct* 2015;3(2):68-74
2. Genega E, Ghebremichael M, Najarian R, et al: Carbonic anhydrase IX expression in renal neoplasms: correlation with tumor type and grade. *Am J Clin Pathol* 2010;134(6):873-879
3. Stillebroer A, Mulders P, Boerman O, et al: Carbonic Anhydrase IX in Renal Cell Carcinoma: Implications for Prognosis, Diagnosis, and Therapy. *Euro Urol* 2010;58(3):75-83
4. Zhanyong B, Lal P, Lu S, et al: Role of carbonic anhydrase IX, alpha-methylacyl coenzyme a racemase, cytokeratin 7, and galectin-3 in the evaluation of renal neoplasms: a tissue microarray immunohistochemical study. *Annals of Diag Pathol* 2013;17(8):58-62

**Performance****Method Description**

Immunohistochemistry on sections of paraffin-embedded tissue.(Unpublished Mayo method)

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

---

**Test Classification**

This test has been modified from the manufacturer's instructions. Its performance characteristics were 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**

88342-TC, primary

88341-TC, if additional IHC

**LOINC® Information**

| Test ID | Test Order Name     | Order LOINC Value    |
|---------|---------------------|----------------------|
| CAIX    | CAIX IHC, Tech Only | Order only;no result |

| Result ID | Test Result Name    | Result LOINC Value   |
|-----------|---------------------|----------------------|
| 606252    | CAIX IHC, Tech Only | Bill only; no result |