

# Test Definition: HBRM

SWI/SNF Chromatin Remodeling Complex  
Subunit ATPase 2 (SMARCA2 or BRM)  
Immunostain, Technical Component Only

## Overview

### Useful For

Identifying and further subtyping SWI/SNF complex subunit loss associated with malignant rhabdoid tumors, epithelioid sarcomas, BRG1 (SMARCA4) deficient tumors, and other poorly differentiated malignancies

### 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 (IHC)

### NY State Available

Yes

## Specimen

### Specimen Type

TECHONLY

### Ordering Guidance

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 "Attention Pathology" address label (T498) and the pink Immunostain Technical Only label included in the kit to the outside of the transport container.

### Specimen Required

**Specimen Type:** Tissue

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

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

**Submit:**

Formalin-fixed, paraffin-embedded tissue block

OR

2 Unstained, positively charged glass slides (25- x 75- x 1-mm) per test ordered; sections 4-microns thick

**Digital Image Access**

- 1. Information on accessing digital images of immunohistochemical (IHC) stains and the manual requisition form can be accessed through this website: <https://news.mayocliniclabs.com/pathology/digital-imaging/>
- 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: <https://news.mayocliniclabs.com/pathology/digital-imaging/#section3>

**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**

Wet/frozen tissue	Reject
Cytology smears	Reject
Nonformalin fixed tissue	Reject
Nonparaffin embedded tissue	Reject
Noncharged slides	Reject
ProbeOn slides	Reject
Snowcoat slides	Reject

**Specimen Stability Information**

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

**Clinical & Interpretive**

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## Clinical Information

BRM is one of two mutually exclusive catalytic ATPase subunits of the SWI/SNF complex. The loss of at least one SWI/SNF subunit has been associated with undifferentiated carcinomas and/or advanced tumorigenesis. The homogenous and heterogenous loss of BRM can occur independently or concordantly with other SWI/SNF subunits.

## Interpretation

This test does not include pathologist interpretation, only technical performance of the stain. If interpretation is required, order PATHC / Pathology Consultation for a full diagnostic evaluation or second opinion of the case.

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

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.

The charge of glass slides can be affected by environmental factors and subsequently may alter slide staining. Sending unsuitable glass slides can result in inconsistent staining due to poor slide surface chemistry.

- Best practices for storage of positively charged slides:
- Minimize time slides are stored after being unpackaged
  - Limit exposure to high humidity and heat
  - Minimize exposure to plastics

## Clinical Reference

1. Marquez-Vilendrer SB, Rai SK, Gramling SJ, Lu L, Reisman DN. Loss of the SWI/SNF ATPase subunits BRM and BRG1 drives lung cancer development. *Oncoscience*. 2016;3(11-12):322-336
2. Jancewicz I, Siedlecki1 JA, Sarnowski TJ, Sarnowska E. BRM: the core ATPase subunit of SWI/SNF chromatin-remodelling complex-a tumour suppressor or tumour-promoting factor?. *Epigenetics & Chromatin*. 2019;12(1):68
3. Chang B, Sheng W, Wang L, et al. SWI/SNF Complex-deficient Undifferentiated Carcinoma of the Gastrointestinal Tract: Clinicopathologic Study of 30 Cases With an Emphasis on Variable Morphology, Immune Features, and the Prognostic Significance of Different SMARCA4 and SMARCA2 Subunit Deficiencies. *Am J Surg Pathol*. 2022;46(7):889-906
4. Li L, Fan Xs, Xia Qy, et al. Concurrent loss of INI1, PBRM1, and BRM expression in epithelioid sarcoma: implications for the cocontributions of multiple SWI/SNF complex members to pathogenesis. *Hum Pathol*. 2014;45(11):2247-2254

## Performance

## Method Description

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

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

1 to 3 days

Specimen Retention Time

Until staining is completed

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 has been cleared, approved, or is exempt by the US 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
HBRM	BRM (SMARCA2) IHC, Tech Only	No LOINC Needed

Result ID	Test Result Name	Result LOINC® Value
622928	BRM (SMARCA2) IHC, Tech Only	No LOINC Needed