# Test Definition: CD33

CD33 Immunostain, Technical Component Only

## Overview

### Useful For

Classification of myeloid neoplasms and acute leukemias

### 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 provided**.

Technical component only stains **should not** be ordered with PATHC / Pathology Consultation. If ordered with PATHC, the technical component stains **will be canceled**. Any immunohistochemistry (IHC)/in situ hybridization (ISH) stain performed as a part of the PATHC will be performed at the reviewing pathologist's discretion at an additional charge.

### 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

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**Supplies:** Immunostain Technical Only Envelope (T693)
**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
**Additional Information:** Broken or cracked unstained slides will be rejected. Stained slides that were broken and repaired (ie, double mounted) at the client site will not be rejected, as, in most cases, they can still be reviewed under the microscope. However, due to the double mounting, digital scanning cannot be performed.

## 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/ihc-stains/
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/ihc-stains/#FAQ

## 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 |
| Broken or cracked unstained slides | Reject |
| Broken or cracked stained slides | Reject |

| | |
|---|---|
| that cannot be repaired | |

### Specimen Stability Information

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

## Clinical & Interpretive

### Clinical Information

CD33 (cluster of differentiation 33) is a transmembrane protein that is a member of the sialic acid-binding immunoglobulin-like lactic (Siglec) family. The exact function of CD33 is not known, but it may be involved in cell-to-cell adhesion. It is not expressed on hematopoietic stem cells but is expressed on maturing myelomonocytic cells. As granulocytes mature, there is progressive down regulation of CD33. Monocytes and macrophage/histiocytic cells maintain strong expression of CD33. In normal bone marrow, weak to moderate CD33 staining is seen on granulocytic and monocytic precursors, with strong staining in scattered mast cells. CD33 staining is useful for diagnosis of myeloid neoplasms and classification of acute leukemias. A therapeutic antibody targeting CD33 (gemtuzumab/Myelotarg) is available.

### 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

Broken or cracked unstained slides are not compatible with the instrumentation used in our performing laboratories and

will be rejected. Additional material may be requested.

Attempts will be made to repair broken or cracked stained slides; however, if they are unable to be repaired (ie, shattered in transit), they will be rejected and discarded due to safety concerns.

### Clinical Reference

1. Soeno T, Katoh H, Ishii S, et al. CD33+ immature myeloid cells critically predict recurrence in advanced gastric cancer. J Surg Res. 2020;245:552-563
2. Wadai GM, Hussain TA, Hussain MJ. Detect the level of expression of cluster differentiation (CD) marker (CD13 and CD33) in acute myeloid leukemia Iraqi patients. Al-Kufa Univers J Biol. 2016;Special Second International Scientific Conference for the Life Sciences:113-116
3. Kenderian SS, Ruella M, Shestova O, et al. CD33-specific chimeric antigen receptor T cells exhibit potent preclinical activity against human acute myeloid leukemia. Leukemia. 2015;29(8):1637-1647
4. Magaki S, Hojat SA, Wei B, So A, Yong WH. An introduction to the performance of immunohistochemistry. Methods Mol Biol. 2019;1897:289-298. doi:10.1007/978-1-4939-8935-5_25

## Performance

### Method Description

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 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 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 |
|---|---|---|
| CD33 | CD33 IHC, Tech Only | Order only;no result |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| 70700 | CD33 IHC, Tech Only | Bill only; no result |