

Anti- Human CD7 (4H9)

Fluorochrome	Reference	Size
FITC	7F2-100T	100 test
APC	7A2-100T	100 test

PRODUCT DESCRIPTION

Clone: 4H9

Isotype: Mouse / IgG2a, kappa

Tested application: flow cytometry

Immunogen: T-ALL blast cells

Species reactivity: Human

Storage instruction: store in the dark at 2-8 °C

Storage buffer: aqueous buffered solution containing protein stabilizer and 0.09% sodium azide (NaN₃).

Recommended usage: Immunostep's CD7, clone 4H9, is a monoclonal antibody intended for the identification and analysis of human cells expressing CD7, a 40 kDa transmembrane glycoprotein of the immunoglobulin superfamily, by flow cytometry. CD7 is broadly expressed on mature T lymphocytes, natural killer (NK) cells, and early hematopoietic precursors, and is retained in the majority of T-lineage leukemias and certain NK-cell neoplasms.

This reagent is suitable for immunophenotyping, lineage assessment, and research applications focused on T-cell biology, NK-cell function, hematopoietic development, and the characterization of lymphoid malignancies.

This antibody is designed for use in flow cytometry. This reagent is effective for direct immunofluorescence staining of human tissue for flow cytometric analysis using 1 test for 10⁶ cells.

Presentation: liquid

Source: Supernatant proceeding from an *in vitro* cell culture of a cell hybridoma.

Purification: Affinity chromatography.

ANTIGEN DETAILS

The CD7 antigen is a 40 kDa transmembrane glycoprotein of the immunoglobulin superfamily, broadly expressed on human T lymphocytes, natural killer (NK) cells, and early lymphoid and myeloid precursor cells².

CD7 emerges early in T-cell ontogeny and remains present throughout T-cell differentiation, making it one of the most persistent markers of the T-cell lineage.

Functionally, CD7 appears to play a costimulatory role in T-cell and NK-cell activation. Engagement of CD7 on T cells leads to association with intracellular signaling pathways, including activation of phosphoinositide 3-kinase (PI3-K), tyrosine phosphorylation events, and modulation of integrin-mediated adhesion and cell activation¹.

In NK cells, cross-linking of CD7 induces rapid calcium flux, upregulation of activation markers (e.g., CD25, CD69), secretion of cytokines such as interferon-γ, proliferation, and enhanced cytotoxic activity.

These functional attributes support CD7's role as a regulator of lymphocyte activation, adhesion, and effector functions.

Because of its broad and stable expression on normal T and NK cells, and its retention on many T-lineage leukemias and lymphomas, CD7 is widely used in immunophenotyping to define T-cell and NK-cell populations, as well as to support diagnosis and classification of hematological malignancies. bdbiosciences.com

The absence or downregulation of CD7 expression is also a well-recognized immunophenotypic aberration in certain T-cell proliferative disorders and may provide clinically relevant diagnostic information.

The monoclonal antibody clone 4H9 specifically recognizes human CD7, with no reported cross-reactivity against non-CD7 antigens under standard conditions. The strong reactivity of this clone with the majority of peripheral blood T cells (85 – 90%), NK cells, and immature thymic or hematopoietic precursors, as well as its validated performance in flow cytometry, makes 4H9 an excellent tool for reliable immunophenotypic analysis in both healthy and pathological contexts³.

In summary, CD7 (clone 4H9) facilitates the clear discrimination of T-cell and NK-cell subsets, supports assessment of lymphoid development and malignancy, and enables research into lymphocyte biology, immune activation, and hematopoietic differentiation.

Other Names: gp40

Gene ID: 924

UniProt ID: P09564

Molecular weight: CD7 is a Ig superfamily protein, .

For research use only, not for diagnostic procedures. Please, refer to www.immunostep.com technical support for more information.

WARRANTY

Warranted only to conform to the quantity and contents stated on the label or in the product labelling at the time of delivery to the customer. Immunostep disclaims hereby other warranties. Immunostep's sole liability is limited to either the replacement of the products or refund of the purchase price.

REFERENCES

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2. Rabinowich H, Pricop L, Herberman RB, Whiteside TL. Expression and function of CD7 molecule on human natural killer cells. *J Immunol.* 1994 Jan 15;152(2):517-26. PMID: 7506726.
3. Aandahl EM, Sandberg JK, Beckerman KP, Taskén K, Moretto WJ, Nixon DF. CD7 is a differentiation marker

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