10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

ZAP70 (Chronic Lymphocytic Leukemia Marker) Antibody - With BSA and Azide

Mouse Monoclonal Antibody [Clone 2F3.2]
Catalog # AH12536

Product Information

Application	IHC, IF, FC
Primary Accession	P43403
Other Accession	7535, 234569
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG2a, kappa
Clone Names	2F3.2
Calculated MW	69872

Additional Information

Gene ID	7535
Other Names	Tyrosine-protein kinase ZAP-70, 2.7.10.2, 70 kDa zeta-chain associated protein, Syk-related tyrosine kinase, ZAP70, SRK
Application Note	IHC~~1:100~500 IF~~1:50~200 FC~~1:10~50
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	ZAP70 (Chronic Lymphocytic Leukemia Marker) Antibody - With BSA and Azide is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ZAP70
Synonyms	SRK
Function	Tyrosine kinase that plays an essential role in regulation of the adaptive immune response. Regulates motility, adhesion and cytokine expression of mature T-cells, as well as thymocyte development. Also contributes to the development and activation of primary B-lymphocytes. When antigen presenting cells (APC) activate T-cell receptor (TCR), a serie of phosphorylations lead to the recruitment of ZAP70 to the phosphorylated TCR components CD3E and CD247/CD3Z through ITAM motif at the plasma membrane (PubMed:7509083). This recruitment serves to localization to the stimulated TCR and to relieve its autoinhibited conformation. Release of

	ZAP70 active conformation is further stabilized by phosphorylation mediated by LCK. Subsequently, ZAP70 phosphorylates at least 2 essential adapter proteins: LAT and LCP2. In turn, a large number of signaling molecules are recruited and ultimately lead to lymphokine production, T-cell proliferation and differentiation. Furthermore, ZAP70 controls cytoskeleton modifications, adhesion and mobility of T-lymphocytes, thus ensuring correct delivery of effectors to the APC. ZAP70 is also required for TCR-CD247/CD3Z internalization and degradation through interaction with the E3 ubiquitin-protein ligase CBL and adapter proteins SLA and SLA2. Thus, ZAP70 regulates both T-cell activation switch on and switch off by modulating TCR expression at the T-cell surface. During thymocyte development, ZAP70 promotes survival and cell-cycle progression of developing thymocytes before positive selection (when cells are still CD4/CD8 double negative). Additionally, ZAP70-dependent signaling pathway may also contribute to primary B-cells formation and activation through B-cell receptor (BCR).
Cellular Location	Cytoplasm. Cell membrane; Peripheral membrane protein. Note=In quiescent T-lymphocytes, it is cytoplasmic. Upon TCR activation, it is recruited at the plasma membrane by interacting with CD247/CD3Z. Colocalizes together with RHOH in the immunological synapse. RHOH is required for its proper localization to the cell membrane and cytoskeleton fractions in the thymocytes (By similarity).
Tissue Location	Expressed in T- and natural killer cells. Also present in early thymocytes and pro/pre B-cells

Background

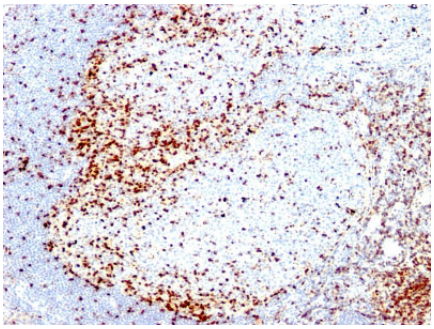
ZAP70 is a 70kDa protein tyrosine kinase found in T-cells and natural killer cells. Control of this protein translation is via the IgVH gene. In Western blotting of whole cell lysates of normal peripheral blood mononuclear cells, the antibody labels a band corresponding to ZAP70. In Western blotting of whole cell lysates of CD19-positive purified leukemia cells from patients with Ig-unmutated and Ig-mutated CLL, the antibody labels a band corresponding to ZAP70 in the Ig-unmutated CLL samples, whereas no band is observed in the Ig-mutated CLL samples. In Western blotting of cell lysates of Jurkat cells (T-lymphoblastic cell line), the antibody labels a band of 70kDa protein. In Western blotting of cell lysates of A431 cells (carcinoma cell line), no band is observed. ZAP70 protein is expressed in leukemic cells of approximately 25% of chronic lymphocytic leukemia (CLL) cases as well. Anti-ZAP70 expression is an excellent surrogate marker for the distinction between the Ig-mutated (anti-ZAP70 negative) and Ig-unmutated (anti-ZAP70 positive) CLL subtypes and can identify patient groups with divergent clinical courses. The anti-ZAP70 positive Ig-unmutated CLL cases have been shown to have a poorer prognosis.

References

Iwashima M, Irving BA, van Oers NSC, Chan AC, Weiss A. Sequential interactions of the TCR with two distinct cytoplasmic tyrosine kinases. Science 1994;263:1136-9

Images

Formalin-fixed, paraffin-embedded human Tonsil stained with ZAP70 Monoclonal Antibody (2F3.2).



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