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ZAP70 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1052a

Product Information

Application	WB, IHC, E
Primary Accession	P43403
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	3D2A4
Isotype	IgG1
Calculated MW	69872
Description	ZAP70 (zeta-chain associated protein kinase), a 70 kDa member of the SYK tyrosine kinase family, plays a central role in lymphocyte activation and development, and is implicated in several immune disorders. ZAP70 controls TCR(T-cell antigen receptor)-linked signal transduction pathways. Its key role in thymocytes development and mature T lymphocytes activation has been illustrated by the characterization of several human immunodeficiencies presenting with mutations in the ZAP70 gene. ZAP70 is also expressed in several types of B-cell neoplasm and is easily detected by immunohistochemistry, providing a useful prognostic marker in patients with chronic lymphocytic leukaemia.
Immunogen	Purified recombinant fragment of human ZAP70 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

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
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	ZAP70 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

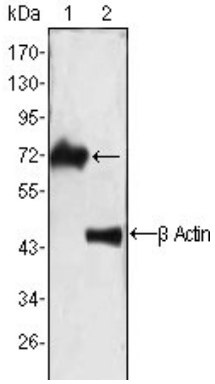
Name	ZAP70
Synonyms	SRK
Function	Tyrosine kinase that plays an essential role in regulation of the adaptive immune response. Regulates motility, adhesion and cytokine expression of mature T-cells, as well as thymocyte development. Also contributes to the development and activation of primary B-lymphocytes.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

References

1. Sigal Gelkop , Gerrald D. Gish, Yael Babichev J Immunol. 2005 Dec 15;175(12):8123-32. 2. Joaquim Carreras , Neus Villamor ,Lluis Colomo J Pathol. 2005 Mar;205(4):507-13. 3. Claire Hivroz Med Sci (Paris). 2005 Feb;21(2):150-5.

Images

Figure 1: Western blot analysis using ZAP70 mouse mAb against Jurkat cell lysate (1).



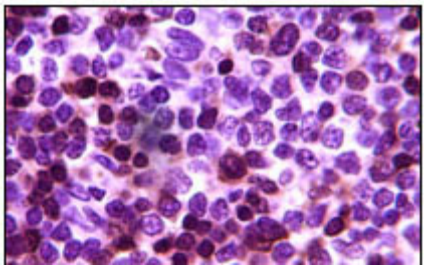


Figure 2: Immunohistochemical analysis of paraffin-embedded human lymph tumor, showing cytoplasmic localization using ZAP70 mouse mAb with DAB staining