

Rabbit Anti-Phospho-ZAP70 (Tyr315 + Tyr319)/AP Conjugated antibody

SL3478R-AP

Product Name	Anti-Phospho-ZAP70 (Tyr315 + Tyr319)/AP
Chinese Name	碱性磷酸酶 (AP) 标记的磷酸化 zeta 相关蛋白 70 抗体
Alias	Zap-70(Phospho-Tyr315/Tyr319); Zap-70(Phospho-Y315/Y319); p-ZAP70 (Tyr315/Tyr319); p-ZAP-70 (Tyr315/Tyr319); p-ZAP70 (Y315/Y319); ZAP-70; ZAP 70; ZAP70; zeta-associated protein 70; ZAP-70=protein tyrosine kinase Syk homolog {SH2-like and C-terminal kinase domains}; Tyrosine-protein kinase ZAP-70; 70 kDa zeta-associated protein; Syk-related tyrosine kinase. SRK; STD; TZK; ZAP70_HUMAN; Tyrosine-protein kinase ZAP-70; 70 kDa zeta-chain associated protein.
Product Type	Phosphorylated anti
Research Area	Tumour Cell biology immunology Signal transduction transcriptional regulatory factor Kinases and Phosphatases The cell membrane 受体 t-lymphocyte
Immunogen Species	Rabbit
Clonality	Polyclonal
React Species	Human,Mouse(predicted:Chicken,Dog,Pig,Cow,Horse,Rabbit,GuineaPig) WB=1:500-2000, IHC-P=1:100-500, IHC-F=1:100-500, IF=1:200
Applications	not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Molecular weight	68kDa
Form	Lyophilized or Liquid
Concentration	1mg/ml
immunogen	KLH conjugated Synthesised phosphopeptide derived from human Zap-70 around the phosphorylation site of Tyr315/Tyr319
Lsotype	IgG
Purification	affinity purified by Protein A
Storage Buffer	1M TBS(pH7.4) with 1% BSA, 3% Proclin300 and 50% Glycerol.
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and

for greater than a year when kept at -20°C . When reconstituted in sterile pH 7.4 1M PBS or diluent of antibody the antibody is stable for at least two weeks at $2-4^{\circ}\text{C}$.

background:

This gene encodes an enzyme belonging to the protein tyrosine kinase family, and it plays a role in T-cell development and lymphocyte activation. This enzyme, which is phosphorylated on tyrosine residues upon T-cell antigen receptor (TCR) stimulation, functions in the initial step of TCR-mediated signal transduction in combination with the Src family kinases, Lck and Fyn. This enzyme is also essential for thymocyte development. Mutations in this gene cause selective T-cell defect, a severe combined immunodeficiency disease characterized by a selective absence of CD8-positive T-cells. Two transcript variants that encode different isoforms have been found for this gene. [provided by RefSeq, Jul 2008].

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. Contributes also to the development and activation of primary B-lymphocytes. When antigen presenting cells (APC) activate T-cell receptor (TCR), a series 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).

Product Detail

Subunit:

Interacts with NFAM1. Interacts with adapter proteins SLA and SLA2; these

interactions negatively regulates T-cell receptor signaling. Interacts with CBLB (By similarity). Interacts with DEF6. Interacts (via SH2 domains) with RHOH; this interaction regulates ZAP70 subcellular localization (By similarity). Interacts with FCRL3. Interacts with VAV1. Interacts with CD247/CD3Z; this interaction docks ZAP70 at the stimulated TCR. Interacts with CBL; this interaction promotes ubiquitination, internalization and subsequent degradation of CD247/CD3Z. Identified in a complex with CBL and UBE2L3.

Subcellular 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. Co-localizes together with RHOH in the immunological synapse. RHOH is required for its proper localization to the cell membrane and cytoskeleton fractions in the thymocytes.

Tissue Specificity:

Expressed in T- and natural killer cells. Also present in early thymocytes and pro/pre B-cells.

Post-translational modifications:

Phosphorylated on tyrosine residues upon T-cell antigen receptor (TCR) stimulation. Phosphorylation of Tyr-315 and Tyr-319 are essential for ZAP70 positive function on T-lymphocyte activation whereas Tyr-292 has a negative regulatory role. Within the C-terminal kinase domain, Tyr-492 and Tyr-493 are phosphorylated after TCR induction, Tyr-492 playing a negative regulatory role and Tyr-493 a positive. Tyr-493 is dephosphorylated by PTN22.

DISEASE:

Selective T-cell defect (STCD) [MIM:269840]: A form of severe combined immunodeficiency characterized by a selective absence of CD8+ T cells. Note=The disease is caused by mutations affecting the gene represented in this entry.

Similarity:

Belongs to the protein kinase superfamily. Tyr protein kinase family. SYK/ZAP-70 subfamily.
Contains 1 protein kinase domain.
Contains 2 SH2 domains.

Database links:

[Entrez Gene: 7535](#) Human

[Entrez Gene: 22637](#) Mouse

[Entrez Gene: 301348](#) Rat

[Omim: 176947](#) Human

[SwissProt: P43403](#) Human

[SwissProt: P43404](#) Mouse

[Unigene: 234569](#) Human

[Unigene: 8038](#) Mouse

Important Note:

This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

ZAP70 为慢性 lymphocyte 性白血病的预后指标。