

# ZAP-70 Antibody

Purified Mouse Monoclonal Antibody (Mab)

Catalog # AP52815

## Product Information

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<b>Application</b>	WB, IP
<b>Primary Accession</b>	<a href="#">P43403</a>
<b>Reactivity</b>	Human
<b>Host</b>	Mouse
<b>Clonality</b>	Monoclonal
<b>Isotype</b>	IgG2b
<b>Calculated MW</b>	69872

## Additional Information

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<b>Gene ID</b>	7535
<b>Other Names</b>	70 kDa zeta associated protein;70 kDa zeta-associated protein;EC 2.7.10.2;FLJ17670;FLJ17679;Selective T cell defect;SRK;STD;Syk related tyrosine kinase;Syk-related tyrosine kinase;Truncated ZAP kinase;Tyrosine protein kinase ZAP70;Tyrosine-protein kinase ZAP-70;TZK;ZAP 70;ZAP-70;ZAP70;ZAP70_HUMAN;Zeta chain associated protein kinase 70kD;Zeta chain associated protein kinase 70kDa;Zeta chain associated protein kinase 70kDa isoform 1;Zeta chain associated protein kinase 70kDa isoform 2;Zeta chain TCR associated protein kinase 70kD;Zeta chain TCR associated protein kinase 70kDa.
<b>Dilution</b>	WB~~1:1000 IP~~1:500
<b>Format</b>	Purified mouse monoclonal antibody in PBS(pH 7.4) containing with 0.09% (W/V) sodium azide and 50% glycerol.
<b>Storage</b>	Store at -20 °C.Stable for 12 months from date of receipt

## Protein Information

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<b>Name</b>	ZAP70
<b>Synonyms</b>	SRK
<b>Function</b>	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

## **Background**

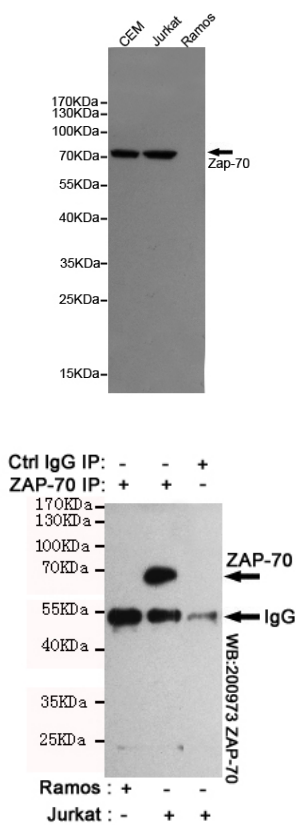
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Tyrosine kinase that plays an essential role in regulation of the adaptive immune response. Regulates motility, adhesion and cytokine expression of mature T-cells, as well as thymocyte development. Contributes also to the development and activation of primary B-lymphocytes. When antigen presenting cells (APC) activate T-cell receptor (TCR), a 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).

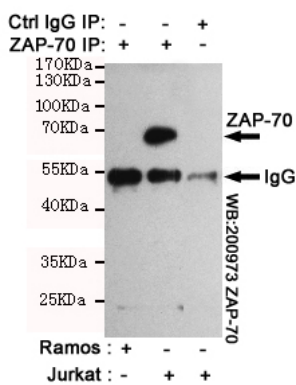
## **References**

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- Chan A.C.,et al.Cell 71:649-662(1992).  
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 Hillier L.W.,et al.Nature 434:724-731(2005).  
 Arpaia E.,et al.Cell 76:947-958(1994).  
 Isakov N.,et al.J. Exp. Med. 181:375-380(1995).



Western blot detection of ZAP-70 in CEM and Jurkat cell lysates, negative in the Ramos cell lysates using ZAP-70 mouse mAb (1:1000 diluted). Predicted band size: 70 kDa. Observed band size: 70 kDa.



Immunoprecipitation analysis of Jurkat cell lysates (ZAP-70 positive expression cell line) and Ramos cell lysates (ZAP-70 negative expression cell line) using ZAP-70 mouse mAb.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.