Rabbit ZAP-70 Polyclonal Antibody | anti-ZAP-70 antibody

Phospho-ZAP-70 (Tyr493) Antibody

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA321623	**Rabbit**	**Human, Mouse, Rat**	**ELISA, Immunocytochemistry, Immunofluorescence, Immunohistochemistry, Western Blot**

PRODUCT SYNONYMS

ZAP-70; Polyclonal Antibody; Phospho-ZAP-70 (Tyr493) Antibody; 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; 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; anti-ZAP-70 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-ZAP-70 (Tyr493) antibody detects endogenous levels of ZAP-70 only when phosphorylated at Tyrosine 493
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho-and non-phospho-peptide affinity columns.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	619
Applicable Applications for anti-ZAP-70 antibody	ELISA, ICC (Immunocytochemistry), IF (Immunofluorescence), IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthesized peptide derived from human ZAP-70 around the phosphorylation site of Tyrosine 493
Subcellular Location	Cytoplasm. Cell Membrane. After antigen stimulation, isoform 1 concentrates at the immunological synapse and isoform 2 remains cytoplasmic. 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.
Predicted Cross Reactivity	**Pig, Bovine, Horse, Sheep, Rabbit, Dog, Chicken**
Similarity	Pig (100%), Bovine (100%), Horse (100%), Sheep (100%), Rabbit (100%), Dog (100%), Chicken (82%)
Conjugation	Unconjugated
Epitope	Phospho Tyr493
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.

IMAGES

WB (Western Blot)
Western blot analysis of ZAP-70 phosphorylation expression in Jurkat whole cell lysates, The lane on the left is treated with the antigen-specific peptide.

WB (Western Blot)
Western blot analysis of Phospho-ZAP-70 (Tyr493) expression in various lysates

IHC (Immunohiostchemistry)
AAA321623 at 1/200 staining human kidney tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IF (Immunofluorescence)
AAA321623 staining Hela cells by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100, then blocked in 10% serum for 45 minutes at 25 degree C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37 degree C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) antibody, diluted at 1/600, was used as secondary antibody.

ADDITIONAL INFORMATION

Related Product Information for anti-ZAP-70 antibody	Description: ZAP70 (human) a tyrosine kinase of the Syk family. Associates with the T-cell antigen receptor zeta-chain after TCR stimulation. Phosphorylated by Src-family kinases following antigen receptor activation. Plays a role in lymphocyte activation. 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 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). Subunit Structure: Interacts with CD247/CD3Z; this interaction docks ZAP70 at the stimulated TCR (PubMed:1423621, PubMed:7659156, PubMed:26783323). Interacts with NFAM1 (PubMed:15143214). Interacts with adapter protein SLA; this interaction negatively regulates T-cell receptor signaling (PubMed:10449770). Interacts with FCRL3 (PubMed:12051764, PubMed:19843936). Interacts with VAV1 (PubMed:9151714). Interacts with CBL; this interaction promotes ubiquitination, internalization and subsequent degradation of CD247/CD3Z (PubMed:10449770, PubMed:10078535). Identified in a complex with CBL and UBE2L3 (PubMed:10966114). Interacts with SHB (PubMed:12084069). Interacts with adapter protein SLA2; this interaction negatively regulates T-cell receptor signaling. Interacts with CBLB. Interacts (via SH2 domains) with RHOH; this interaction regulates ZAP70 subcellular localization. Interacts with DEF6 (By similarity). Interacts (ubiquitinated form) with OTUD7B and UBASH3B (PubMed:26903241). 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. Ubiquitinated in response to T cell activation. Deubiquitinated by OTUD7B. Similarity: Composed of 2 N-terminal SH2 domains and a C-terminal kinase domain. The tandem SH2 domains bind to the doubly phosphorylated tyrosine-based activation motif (ITAM) of CD247/CD3Z and the non-canonical phosphorylated tyrosine-based activation motif (TAM) of RHOH (By similarity). The interdomain B located between the second SH2 and the kinase domain contains 3 tyrosines (Tyr-292, Tyr-315, Tyr-319) that are phosphorylated following TCR activation. These sites have been implicated in binding to other signaling molecules including CBL or VAV1. Thus, ZAP70 can also function as a scaffold by recruiting additional factors to the stimulated TCR complex. Belongs to the protein kinase superfamily. Tyr protein kinase family. SYK/ZAP-70 subfamily.

NCBI AND UNIPROT INFORMATION

NCBI GI #	31455611
NCBI GeneID	7535
NCBI Accession #	NP_001070.2
NCBI GenBank Nucleotide #	NM_001079.3
UniProt Accession #	P43403; Q6PIA4; Q8IXD6; Q9UBS6; A6NFP4
Molecular Weight	Observed: 70 kDa Predicted: 70 kDa
NCBI Official Full Name	tyrosine-protein kinase ZAP-70 isoform 1
NCBI Official Synonym Full Names	zeta chain of T cell receptor associated protein kinase 70
NCBI Official Symbol	ZAP70

NCBI Official Synonym Symbols	SRK; STD; TZK; STCD; IMD48; ADMIO2; ZAP-70
NCBI Protein Information	tyrosine-protein kinase ZAP-70
UniProt Protein Name	Tyrosine-protein kinase ZAP-70
UniProt Gene Name	**ZAP70**
UniProt Synonym Gene Names	SRK

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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