# ARG54151
# anti-ZAP70 antibody

Package: 100 µl
Store at: -20°C

## Summary

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|---|---|
| Product Description | Mouse Monoclonal antibody recognizes ZAP70 |
| Tested Reactivity | Hu |
| Tested Application | IP, WB |
| Host | Mouse |
| Clonality | Monoclonal |
| Isotype | IgG2b |
| Target Name | ZAP70 |
| Species | Human |
| Immunogen | Purified recombinant human ZAP-70 protein fragments expressed in E.coli. |
| Conjugation | Un-conjugated |
| Alternate Names | STD; SRK; STCD; 70 kDa zeta-chain associated protein; Tyrosine-protein kinase ZAP-70; TZK; Syk-related tyrosine kinase; ZAP-70; EC 2.7.10.2 |

## Application Instructions

Application table

| Application | Dilution |
|---|---|
| IP | Assay-dependent |
| WB | 1:1000 |

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| Application Note | * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist. |
| Observed Size | 70 kDa |

## Properties

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| Form | Liquid |
| Purification | Affinity purified |
| Buffer | PBS (pH 7.4), 0.02% Sodium azide and 50% Glycerol |
| Preservative | 0.02% Sodium azide |
| Stabilizer | 50% Glycerol |
| Concentration | 1.5 mg/ml |
| Storage instruction | For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use. |
| Note | For laboratory research only, not for drug, diagnostic or other use. |

## Bioinformation

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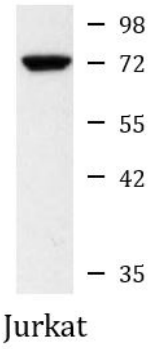
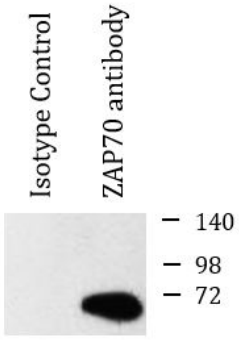
| Database links | GeneID: 7535 Human<br><br>Swiss-port # P43403 Human |
| Gene Symbol | ZAP70 |
| Gene Full Name | zeta-chain (TCR) associated protein kinase 70kDa |
| Background | Tyrosine kinase that plays an essential role in regulation of the adaptive immune response.Regulates motility,adhesion 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). |
| 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). [UniProt] |
| Research Area | Controls and Markers antibody; Immune System antibody; Signaling Transduction antibody; SyK / Zap70 Pathway antibody |
| Calculated Mw | 70 kDa |
| PTM | 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.<br>Ubiquitinated in response to T cell activation. Deubiquitinated by OTUD7B. |
| Cellular Localization | 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. |

## Images




ARG54151 anti-ZAP70 antibody WB image

Western blot: Jurkat cell lysate stained with ARG54151 anti-ZAP70 antibody at 1:1000 dilution.




ARG54151 anti-ZAP70 antibody IP image

Immunoprecipitation: Jurkat cell lysates were immunoprecipitated and stained with ARG54151 anti-ZAP70 antibody.