

Recombinant Mouse ZAP70 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51424

Size: 10ug, 100ug

Protein Name: Tyrosine-protein kinase ZAP-70 (EC 2.7.10.2) (70 kDa zeta-chain associated protein) (Syk-related tyrosine kinase)

Synonym: Zap70, Srk, Zap-70

UniProt ID: P43404

UniProt Link: www.uniprot.org/uniprotkb/P43404/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 618 AA

Molecular Weight: 70 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MPDPA AHL PFFYGSISR AEAE EHLKLAGMADGLFLLRQCLRSLGGYVLSLVHDVRFHHFPIERQLNG
TYA IAGGKAHCGPAELCQFYSDPDGLPCNLRKPCNRPPGLEPQPGVFDCLRDAMVRDYVRQTWK
LEGDALEQAIISQAPQVEKLIATTAHERMPWYHSSLTREEAERKLYSGQQTDGKFLLRPRKEQGTYA
LSLVYGKTVYHYLISQDKAGKYCIPEGTKFDTLWQLVEYLKADGLIYRLKEVCPNSSASA AVAAPT
LPAHPSTFTQPQRRVDTLNSDGYTPEPARLASSTDKPRPMPMDTSVYESPYSDPEELKDKKFLKR
ENLLVADIELGCGNFGSVRQGVYRMKKQIDVAIKVLKQGTEKADKDEMMREAQIMHQLDNPYIVRL
IGVCQAEALMLVMEMAGGGPLHKFLLGKKEEIPVSNVAELLHQVAMGMKYLEEKNFVHRDLAARNV
LLVNRHYAKISDFGLSKALGADDSYYTARSAGKWPLKWYAPECINFRKFSSRSDVWSYGVTMWEAF
SYGQKPYYKKMGPEVLDFIKQGKRMECPPECPPEMYALMSDCWIYKWEDRPDLTVEQRMRYNY
SLASRAEGPPQCEQVAEAACG

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Tyrosine-protein kinase ZAP-70 (EC 2.7.10.2) (70 kDa zeta-chain associated protein) (Syk-related tyrosine kinase) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein 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 series of phosphorylations lead to the recruitment of ZAP70 to the phosphorylated TCR components CD3E and CD247/CD3Z through ITAM motif at the plasma membrane (PubMed:10952314). 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-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).

Subcellular Localization: Cytoplasm. Cell membrane; Peripheral membrane protein. Note=In quiescent T-lymphocytes, ZAP70 is cytoplasmic. Upon TCR activation, it is recruited at the plasma membrane by interacting with CD3Z. Colocalizes together with RHOF in the immunological synapse. RHOF is required for its proper localization to the cell membrane and cytoskeleton fractions in the thymocytes.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.