

ITK Protein, Human (sf9, GST)

Cat. No.:	HY-P74796
Synonyms:	Tyrosine-protein kinase ITK/TSK; IL-2-inducible T-cell kinase; ITK; EMT; LYK
Species:	Human
Source:	Sf9 insect cells
Accession:	Q08881 (R352-L620)
Gene ID:	3702
Molecular Weight:	Approximately 57.7 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Solution
Formulation	Supplied as 0.22 μ m filtered solution in 50mM Tris, 150mM NaCl, 25% glycerol, 0.5mM PMSF, 0.5 mM TCEP, 0.1mM EDTA, 0.5mM GSH (pH 7.5).
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background

ITK protein, a crucial tyrosine kinase, plays an indispensable role in the regulation of the adaptive immune response by orchestrating the development, function, and differentiation of conventional T-cells and nonconventional NKT-cells. Upon activation of the T-cell receptor (TCR) by antigen-presenting cells (APC), a phosphorylation cascade ensues, leading to the recruitment of ITK to the cell membrane in close proximity to the stimulated TCR receptor. Subsequently, ITK undergoes phosphorylation by LCK, resulting in its autophosphorylation and full activation. Once activated, ITK phosphorylates PLCG1, activating this lipase and initiating the cleavage of its substrates. This process triggers the release of calcium from the endoplasmic reticulum into the cytoplasm, facilitating the translocation of the nuclear activator of activated T-cells (NFAT) into the nucleus for transcriptional regulation. Additionally, ITK phosphorylates essential adapter proteins like the linker for activation of T-cells/LAT protein and LCP2, recruiting a myriad of signaling molecules, including VAV1, ultimately leading to lymphokine production, T-cell proliferation, and differentiation. ITK is crucial for TCR-mediated calcium response in gamma-delta T-cells and may play a role in modulating the transcriptomic signature in the Vgamma2-positive subset of immature gamma-delta T-cells. Furthermore, ITK phosphorylates TBX21 at 'Tyr-530,' mediating its interaction with GATA3. This multifaceted involvement underscores the pivotal role of ITK in shaping diverse facets of the adaptive immune

response.

Caution: Product has not been fully validated for medical applications. For research use only.

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