

ACK1 Protein, Human (sf9, GST)

Cat. No.:	HY-P75542
Synonyms:	Activated CDC42 kinase 1; Tyrosine kinase non-receptor protein 2; TNK2
Species:	Human
Source:	Sf9 insect cells
Accession:	Q07912-1 (G110-W476)
Gene ID:	10188
Molecular Weight:	Approximately 62 kDa

PROPERTIES

Biological Activity	The specific activity was determined to be ≥ 4 nmol/min/mg using synthetic Abl peptide (EAIYAAPFAKKK) as substrate.
Appearance	Solution.
Formulation	Supplied as a 0.2 μ m filtered solution of 20 mM Tris, 500 mM NaCl, pH 7.4, 10% glycerol, 0.5 mM EDTA, 0.5 mM PMSF, 0.5 mM TCEP.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
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

ACK1 Protein, a non-receptor tyrosine-protein and serine/threonine-protein kinase, plays a multifaceted role in cell physiology, influencing cell spreading, migration, survival, growth, and proliferation by transducing extracellular signals to cytosolic and nuclear effectors. It phosphorylates AKT1, AR, MCF2, WASL, and WWOX, impacting various cellular processes. Involved in trafficking and clathrin-mediated endocytosis, ACK1 binds to epidermal growth factor receptor (EGFR) and clathrin, regulating ligand-induced EGFR degradation and contributing to EGFR accumulation at early endosomes' limiting membrane. As a downstream effector of CDC42, ACK1 mediates CDC42-dependent cell migration through BCAR1 phosphorylation. In brain development and adult synaptic function, ACK1 may play a role. Activating AKT1 by phosphorylating it on 'Tyr-176,' ACK1 also phosphorylates AR on 'Tyr-267' and 'Tyr-363,' promoting its recruitment to androgen-responsive enhancers (AREs). Additionally, ACK1 phosphorylates WWOX on 'Tyr-287' and MCF2, enhancing its guanine nucleotide exchange factor (GEF) activity towards Rho family proteins. Furthermore, ACK1 contributes to the control of AXL receptor levels. In cancer, ACK1 confers metastatic properties and promotes tumor growth by negatively regulating tumor suppressors such as WWOX and positively regulating pro-survival factors including AKT1 and AR, showcasing its intricate involvement in oncogenic processes. Additionally, ACK1 phosphorylates WASP, further

underscoring its diverse signaling capabilities.

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

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