

ACK1 Protein, Human, Recombinant (GST)

General Information

Synonyms:	ACK-1;ACK1;p21cdc42Hs;ACK;tyrosine kinase, non-receptor, 2
Protein Construction:	A DNA sequence encoding the amino acid (Gly 110-Trp 476) of human ACK1 isoform 1 (NP_005772.3) was expressed with the GST tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	Q07912-1
Molecular Weight:	68 kDa (predicted); 62 kDa (reducing conditions)

QC Testing

Biological Activity:	The specific activity was determined to be > 4 nmol/min/mg using synthetic Abl peptide (EAIYAAPFAKKK) as substrate.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 20 mM Tris, 500 mM NaCl, pH 7.4, 10% glycerol, 0.5 mM EDTA, 0.5 mM PMSF, 0.5 mM TCEP.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	Proteins are shipped with blue ice.

Protein Background

ACK1 (also known as ACK, TNK2, or activated Cdc42 kinase) is a structurally unique non-receptor tyrosine kinase that is expressed in diverse cell types. This downstream effector of CDC42 mediates CDC42-dependent cell migration via phosphorylation of BCAR1. The ACK1 protein may be involved in a regulatory mechanism that sustains the GTP-bound active form of Cdc42Hs and which is directly linked to a tyrosine phosphorylation signal transduction pathway. ACK1 integrates signals from plethora of ligand-activated receptor tyrosine kinases (RTKs), for example, MERTK, EGFR, HER2 and PDGFR to initiate intracellular signaling cascades. It binds to both poly- and mono-ubiquitin and regulates ligand-induced degradation of EGFR. ACK1 transduces extracellular signals to cytosolic and nuclear effectors such as the protein kinase AKT/PKB and androgen receptor (AR), to promote cell

survival and growth. ACK1 participates in tumorigenesis, cell survival, and migration. Gene amplification and overexpression of ACK1 were found in many cancer types such as those of the lung and prostate. Recently, four somatic missense mutations of ACK1, which occur in the N-terminal region, the C-lobe of the kinase domain, and the SH3 domain, were identified in cancer tissue samples.

Reference

Mahajan K, et al. (2010) Shepherding AKT and androgen receptor by Ack1 tyrosine kinase. *J Cell Physiol.* 224(2): 327-33.

Chua BT, et al. (2010) Somatic mutation in the ACK1 ubiquitin association domain enhances oncogenic signaling through EGFR regulation in renal cancer derived cells. *Mol Oncol.* 4(4): 323-34.

Prieto-Echague V, et al. (2010) Cancer-associated mutations activate the nonreceptor tyrosine kinase Ack1. *J Biol Chem.* 285(14): 10605-15.

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