

## FAK1 Protein, Human (Sf9, GST)

<b>Cat. No.:</b>	HY-P701682
<b>Synonyms:</b>	PTK2; Focal adhesion kinase 1; FADK 1; Focal adhesion kinase-related nonkinase; FRNK; Protein phosphatase 1 regulatory subunit 71; PPP1R71; Protein-tyrosine kinase 2; p125FAK; pp125FAK
<b>Species:</b>	Human
<b>Source:</b>	Sf9 insect cells
<b>Accession:</b>	Q05397 (M1-H1052)
<b>Gene ID:</b>	5747
<b>Molecular Weight:</b>	

### PROPERTIES

<b>Appearance</b>	Solution.
<b>Formulation</b>	Supplied as a 0.22 µm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	Please use rapid thawing with running water to thaw the protein.
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Shipping with dry ice.

### DESCRIPTION

#### Background

FAK1, a non-receptor protein-tyrosine kinase, plays a pivotal role in governing diverse cellular processes such as cell migration, adhesion, spreading, actin cytoskeleton reorganization, focal adhesion and cell protrusion dynamics, cell cycle progression, proliferation, and apoptosis. Essential for early embryonic and placenta development, FAK1 is a key regulator of embryonic angiogenesis, cardiomyocyte migration and proliferation, as well as heart development. It also contributes to axon growth, neuronal cell migration, axon branching, and synapse formation in the nervous system. Furthermore, FAK1 plays a role in osteogenesis and osteoblast differentiation. Functioning in integrin signal transduction and downstream signaling of various growth factor receptors, G-protein coupled receptors (GPCR), EPHA2, netrin receptors, and LDL receptors, FAK1 forms multisubunit signaling complexes with SRC and SRC family members upon activation. This leads to the phosphorylation of additional tyrosine residues, creating binding sites for scaffold proteins, effectors, and substrates, ultimately regulating multiple signaling pathways. FAK1's influence extends to the activation of phosphatidylinositol 3-kinase, the AKT1 signaling cascade, MAP kinase signaling cascade, and guanine nucleotide exchange factors (GEFs) and GTPase-activating proteins (GAPs), modulating Rho family GTPases. It also mediates the activation of RAC1 via CAS family members. FAK1 exerts regulatory control over P53/TP53 activity, ubiquitination, and proteasomal degradation by recruiting the ubiquitin ligase MDM2. Additionally, it phosphorylates various substrates including NEDD9, SRC, ACTN1, ARHGEF7, GRB7, RET, WASL, PXN, STAT1, BCAR1, GIT2, and SHC1. The isoform 6 (FRNK) of FAK1 lacks a kinase domain, inhibiting FAK1 phosphorylation and signaling. Its increased expression limits the nuclear accumulation of LPXN and curtails its ability to

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enhance serum response factor (SRF)-dependent gene transcription.

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

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