TIE-2 Protein, Mouse (sf9, His-GST)

Cat. No.:	HY-P73436
Synonyms:	Angiopoietin-1 receptor; CD202b; hTIE2; p140 TEK; Tie2; VMCM
Species:	Mouse
Source:	Sf9 insect cells
Accession:	Q02858 (Q770-A1122)
Gene ID:	21687
Molecular Weight:	Approximately 68 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM Tris, 500 mM NaCl, pH 8.0, 10% Glycerol. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background

TIE-2 protein, a tyrosine-protein kinase, acts as a cell-surface receptor for ANGPT1, ANGPT2, and ANGPT4, orchestrating a comprehensive range of processes critical for angiogenesis, endothelial cell survival, proliferation, migration, adhesion, and cell spreading, as well as the maintenance of vascular quiescence. Beyond its essential role in embryonic angiogenesis and heart development, TIE-2 plays a vital role in post-natal hematopoiesis. Its function post-birth involves context-dependent activation or inhibition of angiogenesis. In quiescent vessels, ANGPT1 oligomers recruit TIE-2 to cell-cell contacts, fostering complex formation with neighboring TIE-2 molecules and preferential activation of the phosphatidylinositol 3-kinase and AKT1 signaling cascades, leading to vascular stability. Conversely, in migrating endothelial cells lacking cell-cell adhesions, ANGPT1 recruits TIE-2 to contacts with the extracellular matrix, activating focal adhesion complexes, PTK2/FAK, and downstream kinases MAPK1/ERK2 and MAPK3/ERK1, stimulating sprouting angiogenesis. ANGPT1-triggered TIE-2 signaling involves receptor dimerization and autophosphorylation at specific tyrosine residues, serving as binding sites for scaffold proteins and effectors. Modulation by ANGPT2, which competes for the same binding site, and formation of heterodimers with TIE1, as well as proteolytic processing yielding a soluble extracellular domain, further regulate TIE-2 signaling. The soluble extracellular domain functions as a decoy receptor for angiopoietins, influencing signaling dynamics. TIE-2

	phosphorylates DOK2, GRB7, GRB14, PIK3R1, SHC1, and TIE1, underscoring its intricate role in finely tuning a myriad of cellular responses.

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