TGFBR1/ALK-5 Protein, Mouse (HEK293, Fc)

Cat. No.:	HY-P72454
Synonyms:	TGF-beta receptor type-1; ALK-5; SKR4; TbetaR-I; AAT5
Species:	Mouse
Source:	HEK293
Accession:	Q64729 (L30-E125)
Gene ID:	21812
Molecular Weight:	40-60 kDa

PROPERTIES

AA Sequence	L Q C F C H L C T K D N F T C E T D G L C F V S V T E T T D K V I H N S M C I A E I D L I P R D R P F V C A P S S K T G A V T T T Y C C N Q D H C N K I E L P T T G P F S E K Q S A G L G P V E
Biological Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human TGF-beta RII is immobilized at 1 μg/mL (100 μL/well), it binds Recombinant Human TGF-beta RI in the presence of TGF-beta 1. The concentration of rhTGF-beta RI that produces 50% of the optimal binding response is approximately 0.835 μg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4.
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. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	TGFBR1, a transmembrane serine/threonine kinase, forms a complex with the TGF-beta type II serine/threonine kinase receptor, TGFBR2, constituting the specific receptor for TGF-beta cytokines, including TGFB1, TGFB2, and TGFB3. This receptor complex plays a crucial role in transducing signals from the cell surface to the cytoplasm, thereby regulating a diverse range of physiological and pathological processes. These include inducing cell cycle arrest in epithelial and hematopoietic cells, controlling mesenchymal cell proliferation and differentiation, influencing wound healing, extracellular

matrix production, immunosuppression, and participating in carcinogenesis. The assembly of the receptor complex, consisting of two TGFBR1 and two TGFBR2 molecules symmetrically bound to the cytokine dimer, leads to the constitutive activation of TGFBR1 by the catalytically active TGFBR2. Activated TGFBR1 phosphorylates SMAD2, causing its dissociation from the receptor and subsequent interaction with SMAD4. The resulting SMAD2-SMAD4 complex translocates to the nucleus, where it modulates the transcription of TGF-beta-regulated genes, initiating the canonical SMAD-dependent TGF-beta signaling cascade. Additionally, TGFBR1 is involved in non-canonical, SMAD-independent TGF-beta signaling pathways. For instance, it induces TRAF6 autoubiquitination, leading to MAP3K7 ubiquitination and activation, triggering apoptosis. Moreover, TGFBR1 regulates epithelial to mesenchymal transition through a SMAD-independent signaling pathway involving PARD6A phosphorylation and activation.

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