

Active Recombinant Human TGFBR1 Protein (27-126aa), C-hlgG-His tagged

Cat. No. TGFBR1-02H Lot. No. (See product label)

SPECIFICATION

Product Overview	Recombinant human TGFBR1 (27-126aa), fused to hlgG-His-tag at C-terminus, was expressed in insect cell and purified by using conventional chromatography techniques.
Species	Human
Source	Insect Cells
ProteinLength	27-126aa
Description	Transmembrane serine/threonine kinase forming with the TGF-beta type II serine/threonine kinase receptor, TGFBR2, the non-promiscuous receptor for the TGF-beta cytokines TGFB1, TGFB2 and TGFB3. Transduces the TGFB1, TGFB2 and TGFB3 signal from the cell surface to the cytoplasm and is thus regulating a plethora of physiological and pathological processes including cell cycle arrest in epithelial and hematopoietic cells, control of mesenchymal cell proliferation and differentiation, wound healing, extracellular matrix production, immunosuppression and carcinogenesis. The formation of the receptor complex composed of 2 TGFBR1 and 2 TGFBR2 molecules symmetrically bound to the cytokine dimer results in the phosphorylation and the activation of TGFBR1 by the constitutively active TGFBR2. Activated TGFBR1 phosphorylates SMAD2 which dissociates from the receptor and interacts with SMAD4. The SMAD2-SMAD4 complex is subsequently translocated to the nucleus where it modulates the transcription of the TGF-beta-regulated genes.

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This constitutes the canonical SMAD-dependent TGF-beta signaling cascade. Also involved in non-canonical, SMAD-independent TGF-beta signaling pathways. For instance, TGFBR1 induces TRAF6 autoubiquitination which in turn results in MAP3K7 ubiquitination and activation to trigger apoptosis. Also regulates epithelial to mesenchymal transition through a SMAD-independent signaling pathway through PARD6A phosphorylation and activation.

Form	Liquid
Bio-activity	Measured by its binding ability in a functional ELISA with Mouse CD105. The ED50 range $\leq 2 \mu\text{g/mL}$.
Molecular Mass	38 kDa (342aa)
AA Sequence	< ADL> LLPGATALQCFCHLCTKDNFTCVTDGLCFVSVTETTDKVIHNSMCIAEIDLIP RDRPFVCAPSSKTGSVTTTYCCNQDHCNKIELPTTVKSSPGLGPVEL< VEPKSCDK THTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYV DGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTI SKAKGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYK TTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPGKH HHHHH>
Endotoxin	< 1.0 EU/ μg of the protein by the LAL method.
Purity	> 90% by SDS-PAGE
Applications	SDS-PAGE, Bioactivity
Notes	For research use only. This product is not intended or approved for human, diagnostics or veterinary use.

Storage	Can be stored at +2 to +8 centigrade for 1 week. For long term storage, aliquot and store at -20 to -80 centigrade. Avoid repeated freezing and thawing cycles.
Concentration	0.5 mg/mL (determined by absorbance at 280nm)
Storage Buffer	Phosphate-Buffered Saline (pH 7.4) containing 10% glycerol
GENE INFORMATION	
Gene Name	TGFBR1 transforming growth factor, beta receptor 1 [Homo sapiens (human)]
Official Symbol	TGFBR1
Synonyms	TGFBR1; transforming growth factor, beta receptor 1; transforming growth factor, beta receptor I (activin A receptor type II like kinase, 53kD); TGF-beta receptor type-1; activin A receptor type II like kinase; 53kDa; ACVRLK4; ALK 5; tbetaR-I; TGF-beta receptor type I; TGF-beta type I receptor; activin receptor-like kinase 5; transforming growth factor beta receptor I; serine/threonine-protein kinase receptor R4; activin A receptor type II-like kinase, 53kD; activin A receptor type II-like kinase, 53kDa; transforming growth factor-beta receptor type I; activin A receptor type II-like protein kinase of 53kD; transforming growth factor, beta receptor I (activin A receptor type II-like kinase, 53kD); AAT5; ALK5; MSSE; SKR4; ALK-5; LDS1A; LDS2A; TGFR-1;
Gene ID	7046
mRNA Refseq	NM_004612
Protein Refseq	NP_004603
MIM	190181

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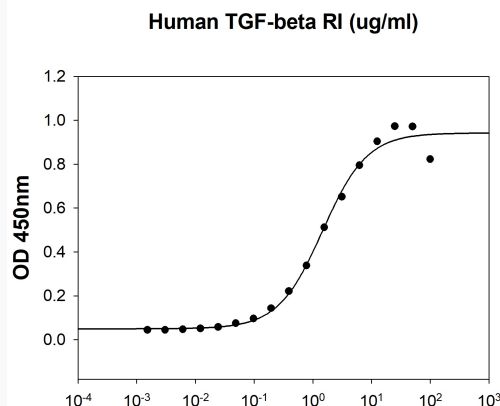
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UniProt ID

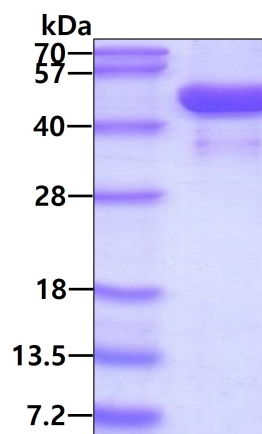
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Biological Activity



Mouse CD105 is coated at 10 µg/mL (100 µL/well) can bind Human TGF-beta RI/ALK-5. The ED50 range ≤ 2 µg/mL.

SDS-PAGE



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3 µg by SDS-PAGE under reducing condition and visualized by coomassie blue stain

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