

**DESCRIPTION**

<b>Source</b>	<i>Spodoptera frugiperda</i> , Sf 21 (baculovirus)-derived mouse TGF-beta RI/ALK-5 protein		
	Mouse TGF-β RI (Ala21-Glu121) & (Thr22-Glu121) Accession # BAA05023.1	IEGRMD	Human IgG <sub>1</sub> (Pro100-Lys330)
	N-terminus		C-terminus
<b>N-terminal Sequence Analysis</b>	Ala21 & Thr22		
<b>Structure / Form</b>	Disulfide-linked homodimer		
<b>Predicted Molecular Mass</b>	37.5 kDa (monomer)		

**SPECIFICATIONS**

<b>SDS-PAGE</b>	40-50 kDa, under reducing conditions.
<b>Activity</b>	Measured by its binding ability in a functional ELISA. When Recombinant Mouse Endoglin/CD105 Fc Chimera Protein (Catalog # 1320-EN) is immobilized at 2.00 μg/mL (100 μL/well), Recombinant Mouse TGF-β RI/ALK-5 Fc Chimera (Catalog # 587-RIB) binds with an ED <sub>50</sub> of 2.00-15.0 μg/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 μg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Supplied as a 0.2 μm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Shipping</b>	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> <li>• 6 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after opening.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after opening.</li> </ul>

**DATA**

<p><b>Binding Activity</b></p> <p><b>Recombinant Mouse TGF-β RI/ALK-5 Fc Chimera Protein Binding Activity.</b> Measured by its binding ability in a functional ELISA. When Recombinant Mouse Endoglin/CD105 Fc Chimera Protein (Catalog # 1320-EN) is immobilized at 2.00 μg/mL (100 μL/well), Recombinant Mouse TGF-β RI/ALK-5 Fc Chimera Protein (Catalog # 587-RIB) binds with an ED<sub>50</sub> of 2.00-15.0 μg/mL.</p>	<p><b>SDS-PAGE</b></p> <p><b>Recombinant Mouse TGF-beta RI/ALK-5 Fc Chimera Protein SDS-PAGE.</b> 2 μg/lane of Recombinant Mouse TGF-beta RI/ALK-5 Fc Chimera Protein (Catalog # 587-RIB) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 40-50 kDa and 80-100 kDa, respectively.</p>
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**BACKGROUND**

TGF-β RI, also called ALK-5, is an approximately 55 kDa type I transmembrane serine/threonine receptor kinase (1, 2). It contains a cysteine-rich extracellular domain (ECD), a transmembrane helix, and a C-terminal cytoplasmic kinase domain (3). Within the cytoplasmic domain there is also a short, conserved regulatory sequence known as the GS region that is N-terminal to the kinase domain (1). Within the ECD, mouse TGF-β RI shares 98% and 90% amino acid sequence identity with rat and human TGF-β RI, respectively. In the presence of TGF-β, TGF-β RI forms a complex with, and is phosphorylated by, TGF-β RII (1). Phosphorylated TGF-beta RI can then transiently bind and phosphorylate Smad2 and Smad3 (2, 4-6). These phosphorylated Smads form heteromeric complexes with Smad4, translocate to the nucleus, and regulate target gene transcription (2, 4-6). TGF-β RI is likely important during development, since mice deficient for TGF-β RI die at midgestation with severe defects in vascular development of the yolk sac and placenta, and an absence of circulating red blood cells (7). Furthermore, TGF-β RI appears to be involved in proper lymphatic network development (8). Mutations in TGF-beta RI have been identified in pancreatic, colorectal, ovarian, and head and neck cancers (9).

**References:**

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