

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human ALK-7 protein		
	Human ACVR1C (Leu26-Glu113) Accession # P24394.1	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Leu26		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	36 kDa		

SPECIFICATIONS

SDS-PAGE	51-62 kDa, under reducing conditions
Activity	Bioassay data are not available.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 250 µg/mL in water.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Transforming growth factor beta (TGF-β) superfamily ligands exert their biological activities via binding to heteromeric receptor complexes of two types (I and II) of serine/threonine kinases. Type II receptors are constitutively active kinases that phosphorylate type I receptors upon ligand binding. In turn, activated type I kinases phosphorylate downstream signaling molecules including the various smads. Transmembrane proteoglycans, including the type III receptor (betaglycan) and endoglin, can bind and present some of the TGF-β superfamily ligands to type I and II receptor complexes and enhance their cellular responses. Seven type I receptors (also termed activin receptor like kinase (ALK)) and five type II receptors have been isolated from mammals. ALK -2, -3, -4, -5, and -6 are also known as Activin R1A, BMPR-1A, Activin R1B, TGF-β R1, and BMPR-1B, respectively, reflecting their ligand preferences. ALK-7 is also known as Activin receptor type-1C, ACTR-1C, and ACVR1C. It shares with other type I receptors a cysteine-rich domain with conserved cysteine spacing in the extracellular region, and a glycine and serine rich domain (the GS domain) preceding the kinase domain. It is primarily expressed in the central nervous system, pancreatic islets, and adipose tissue. ALK-7 known ligands, such as Nodal, Activin B, and growth differentiation factor (GDF), can activate Smads and other signaling pathways which regulate cell proliferation, differentiation, and apoptosis in various cells. It has also been shown that orphan ligand, Activin C, signals through activin receptor-like kinase 7. Meanwhile, in mature murine adipocytes, Activin E invoked a SMAD2/3 response via ALK7, like Activin C.

References:

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5. Goebel, E. *et al.* (2022) *eLife* **11**:e78197.
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