Recombinant Human Activin B

Catalog Number: 11517-AB

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human Activin B protein Gly293-Ala407 Accession # P09529.2
N-terminal Sequence Analysis	Gly293
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

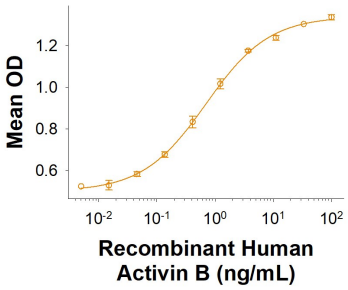
SDS-PAGE	10-13 kDa, under reducing conditions.
Activity	Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. Schwall, R.H. *et al.* (1991) Method Enzymol. **198**:340. The ED_{50} for this effect is 0.200-4.00 ng/mL.
Endotoxin Level	<0.10 EU per 1 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 Acetonitrile and TFA with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in 4 mM HCl.
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.

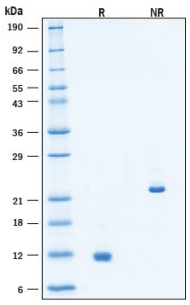
DATA

Bioactivity



Recombinant Human Activin B Protein Bioactivity. Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. The ED_{50} for this effect is 0.200-4.00 ng/mL.

SDS-PAGE



Recombinant Human Activin B Protein SDS-PAGE. 2 µg/lane of Recombinant Human Activin B Protein (Catalog # 11517-AB) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 10-13 kDa and 20-26 kDa, respectively.

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BACKGROUND

Activins and inhibins, members of the TGF-β superfamily, are disulfide-linked dimeric proteins that were originally purified from gonadal fluids as proteins that stimulated or inhibited, respectively, pituitary follicle stimulating hormone (FSH) release. These proteins have since been shown to have a wide range of biological activities including: mesoderm induction, neural cell differentiation, bone remodeling, hematopoiesis and reproductive physiology. Activins/inhibins are produced as precursor proteins with an amino-terminal propeptide that is cleaved to release the carboxy-terminal bioactive ligands. Activins are homodimers or heterodimers of the various β subunit isoforms, while inhibins are heterodimers of a unique α subunit and one of the various β subunits. Five β subunits (mammalian β_A, β_B, β_C, β_E and *Xenopus* β_D) have been cloned. The activin/inhibin nomenclature reflects the subunit composition of the proteins: activin A (β_A - β_A), activin B (β_B - β_B), activin AB (β_A - β_B), inhibin A (α - β_A) and inhibin B (α - β_B). At present, little is known about the contribution of the other β subunits to activin or inhibin formation and biology. At the amino acid sequence level, the mature human βB subunit is greater than 98% identical to mouse βB, while the human and mouse α subunits share approximately 80% identity. Similarly to other TGF-β family members, activins exert their biological activities through binding to the heterodimeric complex composed of two membrane spanning serine-threonine kinases designated as type I and type II. Two forms of activin receptor type I (Act RI-A and Act RI-B) and two forms of activin receptor type II (Act RII-A and Act RII-B) have been identified. Activin binds directly to Act RII, the complex then associates with Act RI and initiates signaling. Besides activins, Act RII has been shown to bind certain other TGF-β superfamily members. Inhibin A has been shown to bind with low-affinity to Act RII. The existence of a distinct inhibin-specific receptor and/or signal transduction pathway has been hypothesized.

References:

1. Woodruff, T.K. (1998) Biochemical Pharmacology **55**:953.
2. Ying, S.Y. *et al.* (1997) Proc. Soc. Exp. Biol. Med. **214**:114.

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