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ProductInformation

Activin AB
Human, Recombinant
Expressed in CHO cells

Product Number **A 1604**

Product Description

Recombinant Human Activin AB is produced from a DNA sequence encoding human Activin βA chain and human βB chain.[1] Activin AB is expressed in CHO (Chinese Hamster Ovary) cells. Recombinant human mature Activin AB, generated by the proteolytic removal of the propeptides, is a disulfide-linked heterodimer of the mature human Activin βA chain and mature human Activin βB chain. Based on N-terminal sequencing, the βA chain starts at Gly 311 and the βB chain starts at Gly 293. The A and B monomers of recombinant human Activin AB have the same apparent molecular mass of approximately 14 kDa in SDS-PAGE under reducing conditions.

Activins, members of the TGF-β superfamily, were originally purified from gonadal fluids as proteins that stimulated pituitary follicle stimulating hormone (FSH) release. Activins have a wide range of biological activities including mesoderm induction,[2, 3] neural cell differentiation, bone remodeling, hematopoiesis, and reproductive physiology. Activins influence erythropoiesis and the potentiation of erythroid colony formation, oxytocin secretion, paracrine, and autocrine regulation.[4] Activins 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.[5] Five β subunits have been cloned (mammalian β_A, β_B, β_C, β_E, and *Xenopus* β_D). The nomenclature reflects the subunit composition of the proteins: activin A (β_A-β_A), activin B (β_B-β_B), activin AB (β_B-β_A), inhibin A (α-β_A), and inhibin B (α-β_B). Activin A, activin B, and activin AB are present in gonadal tissues and are biologically active proteins.

The mature human βA subunit is 100% identical to mouse βA, while human and mouse βB subunits share 98% amino acid sequence identity. Mature βA and βB subunits share less than 80% amino acid identity. Similar to other TGF-β family members, activins exert their biological activities through the effects of the heterodimeric complex composed of two membrane spanning serine-threonine kinases designated activin type I and type II receptors.[6] Activin type I and type II receptors are distinguished by the level of sequence homology of their kinase domains and other structural and functional features. Activins bind directly to activin receptor type II, this complex then associates with activin receptor type I and initiates signal transduction.[7]

Reagent

Activin AB is supplied as approximately 5 µg of protein lyophilized from a 0.2 µm filtered solution in 35% acetonitrile and 0.1% trifluoroacetic acid (TFA) containing 0.25 mg bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using 0.2 µm filtered phosphate buffered saline (PBS) containing 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 10 µg/ml.

Storage/Stability

Prior to reconstitution, store at –20 °C. Reconstituted product may be stored at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots. Avoid repeated freezing and thawing.

Product Profile

Activin AB is measured by its ability to induce hemoglobin expression in K562 leukemic cells.[8]

Endotoxin: < 1.0 EU (endotoxin unit)/µg cytokine as determined by the LAL method.

References

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