Recombinant Human Activin AB protein Active

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0037
Alternative Names: Activin beta A beta B heterodimer
Molecular Formula: **UniProtKB:**
βA C600H911N173O174S13/ **P08476**
βB C615H910N178O177S12 **P09529**
p.I: 6.8

Molecular Weight:
Activin AB is a disulfide linked heterodimer of subunits βA / βB . βA Single chain, containing 116 aa (13.7 kDa) and βB single chain, 123 amino residues (14kDa). Recombinant human Activin AB contains a His-tag at the N-terminal end.

Sequence:
βA:GLECDGKVNICCKKQFFVSFKDIGWNDWIIAPSGYHAN
YCEGECPSHIAGTSGSSLSFHSTVINHYRMRGHSPFANLK
SCCVPTKLRPMSMLYYDDGQNIIKKDIQNMIVEECGCS

βB:GLECDGRTNLCCRQQFFIDFRLIGWNDWIIAPTGYYGN
YCEGSCPAYLAGVPGSASSFHTAVVNQYRMRGLNPGTVN
SCCIPTKLSTMSMLYFDDEYNIVKRDVPNMIVEECG

Formulation:

Lyophilized from a Tris HCl 0.05M buffer pH 7.4.

Description:
Activins are homodimers or heterodimers of the various β subunit isoforms, belonging to the TGFβ family. Mature Activin AB has two chains of 116 and 123 amino acids residues (βA-βB). Activin exhibits a wide range of biological activities, including mesoderm induction, neural cell differentiation, bone remodelling, haematopoiesis, and reproductive physiology. Activins plays a key role in the production and regulation of hormones such as FSH, LH, GnRH and ACTH. Inhibins /Activins are proteins that are formed by the dimerization of two subunits, i. e. an α with either βA –inhibin A- or βB - inhibin B. The subunits βA and βB can also form homodimers or heterodimers calleds activins: Activin A (βAβA), Activin B (βBβB) and Activin AB (βAβB). The activin gene family comprises the additional, but poorly characterized members activin βC, βD, and βE.
- As with other members of the super-family, Activins interact with two types of cell surface trans-membrane receptors (Types I and II) which have intrinsic serine/threonine kinase activities in their cytoplasmic domains, Activin type 1 receptors, ACVR1, ACVR1B, ACVR1C and Activin type 2 receptors, ACVR2A, ACVR2B.
- The development of assays distinguishing between different forms of activins and inhibins, along with knock-in and knock-out models, have provided evidence that the betaA- and betaB-subunits have independent and separate roles physiologically. Additionally, evaluation of ligand-receptor interactions indicates significant differences in receptor affinity between activin isoforms, as well as between inhibin isoforms.

Available sizes: 50 µg
Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =1.56
Purity > 97% by SDS-PAGE gel
Endotoxin Level : < 0.04 EU / µg protein (LAL method)

Source:
Human recombinant protein expressed in *Nicotiana benthamiana* . It is produced by transient expression in non-transgenic plants and is purified by sequential chromatography (FPLC). This product contains no animal–derived components or impurities. Animal Free product.

Reconstitution Recommendation:
Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentration the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application and cell lines.

Storage and Stability:
This lyophilized preparation is stable at 2-8º C for short term, long storage it should be kept at -20ºC. Reconstituted protein should be stored in working aliquots at –20°C. Repeated freezing and thawing is not recommended.

References:
-Chen, Y. G. et al., 2006. Activin signalling and its role in regulation of cell proliferation, apoptosis, and carcinogenesis. Exp. Biol. Med. (Maywood), 231 (5): 534-44.
-Bamberger, C. et al., 2005. Activin controls skin morphogenesis and wound repair predominantly via stromal cells and in a concentration-dependent manner via keratinocytes. Am. J. Pathol., 167 (3): 733–47.
-Phillips, D. J. et al., 1999. A sensitive and specific in vitro bioassay for activin using a mouse plasmacytoma cell line, MPC-11. J. of Endocrinology, 162: 111-116.
-Vale, W. et al., 1990. The inhibin / Activin family of hormones and growth factors. In Peptide Growth Factors and their Receptors: Handbook of Experimental Physiology, 95: 211-248. Eds. M Sporn & A Roberts. Berlin: Springer-Verlag.

Product(s) expressed through a transient plant system are intrinsically Animal-free

Applications:

Cell culture, Western Blot

For R+D purposes only. Purchaser must determine the suitability of the product for their particular use.

Upon this protein has not been tested in a particular technique this not necessarily excludes its use in such procedures.

Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with coomassie blue. (Fig. 1)

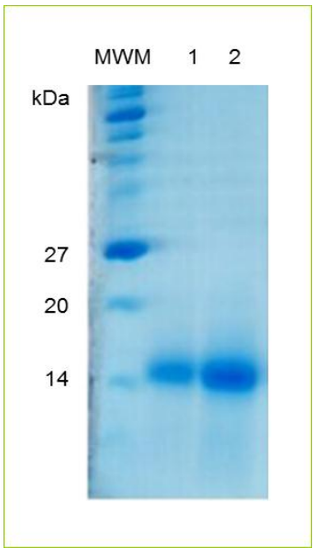


Figure 1.- SDS-PAGE analysis of human recombinant Activin AB. Lane MWM: molecular weight marker (kDa). Lane1: 1 µg and lane 2: 2 µg of human recombinant Activin AB.

Serological Identification:

The protein was analysed by Dot-blot with specifics antibodies (Fig. 2)

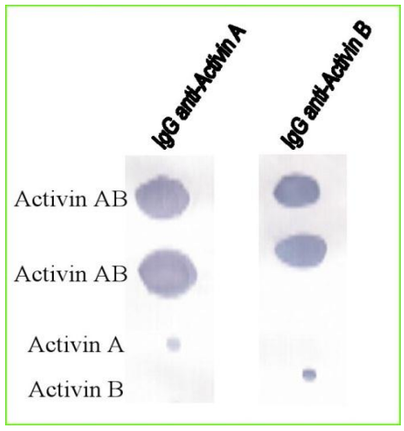
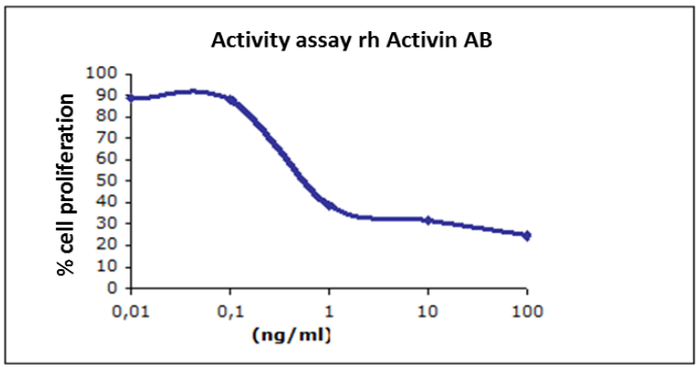


Figure 2.- Serological identification. Dot-blot analysis of human recombinant Activin AB, Activin A and Activin B with specifics antisera.

Biological Activity:

The biological activity of Activin AB is measured by its ability to inhibit mouse plasmacytoma cell line (MPC-11) cells

EC50 <5ng/mL are required to stimulate a half-maximal response at cytokine saturation. Note: Since applications vary, each investigator should titrate the reagent to obtain optimal results.



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