



Product Information

Monoclonal Anti-Activin B

Clone 146807

Purified Mouse Immunoglobulin

Product Number **A 0729**

Product Description

Monoclonal Anti-Activin B (mouse IgG1 isotype) is produced from the 146807 hybridoma resulting from the fusion of a mouse myeloma with B cells obtained from a mouse immunized with purified, CHO cell-derived, recombinant human Activin B. The antibody is purified by Protein G affinity chromatography.

Monoclonal Anti-Activin B recognizes human activin B by immunoblotting and ELISA.

Activins and inhibins, members of the TGF- β superfamily, were originally purified from gonadal fluids as proteins that stimulated or inhibited, respectively, pituitary follicle stimulating hormone (FSH) release. 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.¹ Five β subunits have been cloned (mammalian β_A , β_B , β_C , β_E , and *Xenopus* β_D). 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_B - β_A), inhibin A (α - β_A), and inhibin B (α - β_B).

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 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.⁵

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.⁶

Reagent

Monoclonal Anti-Activin B is supplied as approximately 500 μ g of antiserum lyophilized from a 0.2 μ m filtered solution of phosphate buffered saline and 5% trehalose.

Preparation Instructions

To one vial of lyophilized powder, add 1 mL of 0.2 μ m filtered phosphate buffered saline to produce a 0.5 mg/ml stock solution of antibody.

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 at -20 °C. Avoid repeated freezing and thawing. Do not store in frost-free freezer.

Product Profile

For immunoblotting, a working antibody concentration of 1-2 μ g/ml is recommended. The detection limit for recombinant human activin B is approximately 0.5 ng/lane and 1 ng/lane under non-reducing and reducing conditions, respectively. By immunoblotting, the antibody shows approximately 20% cross-reactivity with recombinant human Inhibin B and no cross-reactivity with recombinant human activin A or recombinant mouse activin A.

For ELISAs, a working antibody concentration of 0.5 - 1.0 µg/ml is recommended. The detection limit for recombinant human activin B is approximately 0.1 ng/well. By ELISA, the antibody did not cross-react with recombinant human inhibin B or recombinant human activin A.

Note: In order to obtain the best results in various techniques and preparations we recommend determining the optimal working dilutions by titration.

Endotoxin: < 0.1 EU (endotoxin units)/µg antibody as determined by the LAL (Limulus amoebocyte lysate) method.

References

1. Sporn, M.B., and Roberts, A.B., eds. Peptide Growth Factors and Their Receptors, Heidelberg, Springer-Verlang. Vol.II, pp 217-235 (1991).
2. Vale, W. et al., The inhibin/activin family of hormones and growth factors. In: Peptide Growth Factors and their Receptors. Sporn, M., Roberts, A., eds., Berlin, Springer-Verlang. pp 211-248 (1990).
3. Smith, J., et al., Expression of a *Xenopus* homolog of Brachyury (T) is an immediate-early response to mesoderm induction. *Cell*, **67**, 79-87 (1991).
4. Ying, S.Y., et al., Activins and activin receptors in cell growth. *Proc. Soc. Exp. Biol. Med.*, **214**, 114-122 (1997).
5. Woodruff, T.K., Regulation of cellular and system function by activin. *Biochem. Pharmacol.*, **55**, 953-963 (1998).
6. Shoji, H., et al., Identification and characterization of a PDZ protein that Interacts with activin type II receptors. *J. Biol. Chem.*, **275**, 5485-5492 (2000).

KAA 10/04

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.