

Product Information

ANTI-ACTIVIN RECEPTOR IA Developed in Goat, Affinity Isolated Antibody

Product Number **A 2205**

Product Description

Anti-Activin Receptor IA is developed in goat using a purified recombinant human activin receptor IA extracellular domain expressed in *Sf* insect cells as immunogen. Affinity isolated antigen specific antibody is obtained from goat anti-activin receptor IA antiserum by immuno-specific purification which removes essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to the peptide.

Anti-Activin Receptor IA recognizes recombinant human activin receptor IA by various immunochemical techniques including immunoblotting and ELISA. The antibody exhibits approximately 10 % cross-reactivity with recombinant human activin receptor IIA and recombinant human activin receptor IIB.

Activin, a disulfide-linked dimeric protein is secreted by Sertoli¹ cells in the testis and granulosa cells in the ovary. In early studies, this peptide was thought to be an inhibin and not recognized as a unique compound.^{2,3} Activins and inhibins are members of the TGF- β superfamily due to amino acid homology with respect to the conservation of 7 of the 9 cysteine residues common to all TGF- β forms.³ 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.⁴ Five β subunits have been cloned (mammalian β_A , β_B , β_C , β_E , and *Xenopus* β_D).³ 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^{5,6}, neural cell differentiation, bone remodeling, hematopoiesis, and reproductive physiology. Activin-A is involved in growth and differentiation of several tissues from different species.^{1,2,6,7} This protein also plays a key role in the production and regulation of hormones such as FSH, LH, GnRH, and ACTH. Activin influences erythropoiesis and the potentiation of erythroid colony formation, oxytocin secretion, paracrine, and autocrine regulation.²

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 type I and type II receptors.⁸ 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. To date, seven type I and five type II activin receptors have been cloned from mammals, including activin receptor IA, activin receptor IIA, activin receptor IB, and activin receptor IIB. In addition, two splice variants of activin receptor IIA and five splice variants of activin receptor IIB have been reported.⁹

Type I activin receptors do not bind directly to activin but will associate with the type II receptor-activin complex and initiate signal transduction.¹⁰ Activin receptor IA is highly conserved and will also bind to form signaling complexes with the BMP-2/7-bound BMPR-II. Human, mouse, and bovine type IA activin receptors share greater than 98 % homology.

Reagent

Anti-Activin Receptor IA is supplied as approximately 100 μ g of antiserum lyophilized from a 0.2 μ m filtered solution in phosphate buffered saline (PBS).

Preparation Instructions

To one vial of lyophilized powder, add 1 ml of phosphate-buffered saline (PBS) to produce 0.1 mg/ml stock solution of antibody.

Storage/Stability

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

Product Profile

For immunoblotting, a working concentration of 0.1 μ g/ml to 0.2 μ g/ml detects human activin receptor IA at approximately 5 ng/lane under reducing and non-reducing conditions.

For ELISAs, a working concentration of 0.5 µg/ml to 1.0 µg/ml detects human activin receptor IA.

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

Endotoxin: <10 ng/mg antibody determined by the LAL method.

References

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