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ProductInformation

Anti-Activin Receptor IIA
produced in goat, affinity isolated antiboy

Catalog Number **A8081**

Product Description

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

Anti-Activin Receptor IIA recognizes recombinant human activin receptor IIA by various immunochemical techniques including immunoblotting, immunohistochemistry, and ELISA. The antibody exhibits less than 2% cross-reactivity with recombinant human activin receptor I and recombinant human activin receptor IIB.

Activin, a disulfide-linked dimeric protein is secreted by Sertoli[1] cells in the testis and grandulosa 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] Recombinant soluble activin type II receptors bind activin with high affinity and are potent activin antagonists. Activin receptor IIA is highly conserved and will also bind inhibin, BMP-2, and BMP-7 with lower affinities. Human, mouse, and rat type II activin receptors share greater than 98 % amino acid sequence homology

Reagent

Supplied lyophilized from a 0.2 μm filtered solution in phosphate buffered saline containing 5% trehalose.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at −20 °C. Avoid repeated freezing and thawing.

Product Profile
Anti-Activin Receptor IIA has the ability to block receptor-ligand interaction. In this type of ELISA assay, the antibody (1 μg/mL to 3 μg/mL) will block 50% of the binding of 30 ng/mL recombinant human activin A to immobilized recombinant human activin receptor IIA/Fc chimera (100 μL of a 0.5 μg/mL solution coating each well) in a functional ELISA assay.

Immunoblotting: a working concentration of 0.1-0.2 μg/mL detects human activin receptor IIA at ~5 ng/lane under reducing and non-reducing conditions.

Indirect ELISAs: a working concentration of 0.5-1.0 μg/mL detects human activin receptor IIA.

Immunohistochemistry: a working concentration of ~15 μg/mL is recommended.

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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