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ProductInformation

BONE MORPHOGENETIC PROTEIN RECEPTOR II (BMPR-II)/Fc Chimera
Human, Recombinant
Expressed in mouse NSO cells

Product Number **B 3430**

Product Description

Bone Morphogenetic Protein Receptor II (BMPR-II)/Fc Chimera is produced from the DNA sequence encoding the signal peptide from CD33 (Met 1 - Met 17) joined with Ala 26 - IIe 151 from the extracellular domain of human BMPR-II. [1] Human BMPR-II, a disulfide-linked homodimeric protein, is fused to the carboxy-terminal 6X histidine-tagged Fc region of human IgG1 by a polypeptide linker. As a result of glycosylation, the recombinant human BMPR-II migrates as an approximately 65 to 75 kDa protein in SDS-PAGE under reducing conditions. Human and mouse BMPR-II are highly conserved and share 97 % amino acid sequence identity.

Bone Morphogenetic Proteins (BMP) are members of the TGF-β superfamily of cytokines that affect bone and cartilage formation. [2, 3, 4] Similar to other TGF-β family proteins, BMPs are highly conserved across animal species. Mature BMPs are 30-38 kDa proteins that assume a TGF-β-like cysteine knot configuration. Unlike TGF-β, BMPs do not form latent complexes with their propeptide counterparts. Most BMPs are homodimers, but bioactive natural heterodimers have been reported. Recently it was found that lovostatin (Mevinolin, Sigma Product M 2147), widely used for lowering cholesterol, also increases bone formation by turning on a gene (bmp-2) that promotes local bone formation. [5] BMPs are involved in embryogenesis and morphogenesis of various tissues and organs. They create an environment conducive for bone marrow development by stimulating the production of specific bone matrix proteins and altering stromal cell and osteoclast proliferation. [6, 7] In addition to stimulating ectopic bone and cartilage development, BMPs may be an important factor in the development of the viscera. BMPs regulate the growth, differentiation, chemotaxis, proliferation, and apoptosis of various cell types, including mesenchymal cells, epithelial cells, hematopoietic cells, and neuronal cells. [2, 8] BMPs also appear to be responsible for normal dorsal/ventral patterning and can found in tissues that induce bone or cartilage growth, such as demineralized bone and urinary epithelium.

Cellular responses to BMPs are mediated by the formation of hetero-oligomeric complexes of the type I and type II serine/threonine kinase receptors [9] which play significant roles in BMP binding and signaling. Bone Morphogenetic Protein Receptor II (BMPR-II), a type II serine/threonine kinase, is required for the signal transduction of theTGF-β family cytokines. BMP receptors include the type I receptors, BMPR-1A and BMPR-1B (50-55 kDa), and the type II receptor BMPR II (70-80 kDa). These receptors are also closely related to the activin receptors ACV R1 and ACV R2. BMPR-II binds BMP-2, BMP-4 and BMP-7 weakly without the presence of a type I receptor. The binding can be facilitated by the presence of a type I receptor. BMPR-II is widely expressed in fetal and adult tissues.

Reagent

Recombinant Human Bone Morphogenetic Protein Receptor II (BMPR-II)/Fc Chimera is supplied as approximately 100 µg of protein lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS).

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 µg/ml.

Storage/Stability

Store at –20 °C. Upon reconstitution, store at 2 °C to 8 °C for one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

Product Profile

Recombinant Human Bone Morphogenetic Protein Receptor II/Fc Chimera lacks BMP antagonist activity. It is should be used as a control for anti-BMPR-II antibodies.

Purity: > 97 % as determined by SDS-PAGE, visualized by silver stain.

Endotoxin level is < 0.1 ng/µg protein as determined by the LAL (Limulus amebocyte lysate) method.

References

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KAA 05/01