Sialoprotein II, Bone (IBSP) Active Protein

PRODUCT OVERVIEW

Product Name	Sialoprotein II, Bone (IBSP), Active Protein
Full Product Name	Sialoprotein II, Bone, Recombinant, Mouse (Bone Sialoprotein 2, Bone Sialoprotein II, BSP II, Cell-binding Sialoprotein, Integrin-binding Sialoprotein, IBSP, BNSP)
Product Gene Name	IBSP active protein
Form/Format	Supplied as a lyophilized powder from PBS. Reconstitute with sterile PBS.
Purity/Purification	Highly Purified ~90% (SDS-PAGE, reducing conditions)
Preparation and Storage	Lyophilized powder may be stored at -20 degree C. Stable for 12 months at -20 degree C. Reconstitute with sterile PBS, 0.02% sodium azide. Aliquot to avoid repeated freezing and thawing. Store at -20 degree C. Reconstituted product is stable for 12 months at -20 degree C. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap. Further dilutions can be made in assay buffer.
Molecular Weight	~35kD
Chromosome Location	Chromosome: 4; NC_000004.11 (88720702..88733601). Location: 4q21.1
OMIM	147563
3D Structure	ModBase 3D Structure for P21815
Active Protein Note	Protein activity can be an ambiguous term. Please refer to the data sheet or inquire with Technical Support to determine the definition of activity for this product.
Activity	Measured by the ability of the immobilized protein to support the adhesion of the MCF-7 human breast adenocarcinoma cells. When 5x10e4 cells/well are added to recombinant mouse IBSP coated plates (3ug/ml with 100ul/well), approximately 60-80% will adhere after 30 minutes at 37 degree C.
Endotoxin Level	1EU/1ug (LAL)
Product Categories/Family for IBSP active protein	Molecular Biology; MB-Extracellular Matrix Proteins
Application Notes for IBSP active protein	SDS-PAGE: 70-90kD, reducing conditions
Related Product Information for IBSP active protein	IBSP (integrinbinding sialoprotein; also BSP or bone sialoprotein II) is a 5575kD, secreted, variably glycosylated, monomeric noncollagenous member of the SIBLING family of extracellular matrix (ECM) proteins. It is principally associated with the early stages of bone mineralization. Mouse BSP is synthesized as a 324aa precursor that contains a 16aa signal sequence and a 308aa mature region. The mature segment is divided into a basic Nterminus (aa17-62), a central region (aa63233), and an acidic Cterminus (aa234317). Functional segments associated with the mature molecule include a type I collagen binding domain (aa1946), two nonRGD cell binding sites (aa3057 and 261281), an RGD alpha-v-b-3 integrinbinding site (aa286288) and two regions that are potential hydroxyapatite (HAp) nucleation domains (aa7683 and 151158). HAp formation requires a BSP nucleation site composed of at least eight consecutive glutamic acid residues and, likely, a contribution from a BSPassociated conucleator BSP is highly glycosylated, sulfated and phosphorylated. Phosphorylation promotes HAp nucleation, while carbohydrate may regulate cell adhesion. Interaction with integrins stimulates cell migration and survival, and has been implicated in bone metastasis of cancers, especially those of breast and prostate. Mature mouse BSP shares 90ª identity with rat, 70% with human, 67% with canine, equine and porcine, and 64% with bovine BSP, respectively. BSP is synthesized by megakaryocytes/platelets, osteoblasts, osteocytes, odontoblasts, osteoclasts and bone marrow stromal cells.

Other Notes	Small volumes of IBSP active protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for IBSP purchase	MBS636831 is an active protein targeting IBSP. Also known as Sialoprotein II, Bone, Recombinant, Mouse (Bone Sialoprotein 2, Bone Sialoprotein II, BSP II, Cell-binding Sialoprotein, Integrin-binding Sialoprotein, IBSP, BNSP).

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for IBSP. It may not necessarily be applicable to this product.

NCBI GI #	338084
NCBI GeneID	3381
NCBI Accession #	AAC95490.1
UniProt Primary Accession #	P21815
UniProt Related Accession #	P21815
NCBI Official Full Name	sialoprotein
NCBI Official Synonym Full Names	integrin-binding sialoprotein
NCBI Official Symbol	IBSP
NCBI Official Synonym Symbols	BSP; BNSP; SP-II; BSP-II
UniProt Protein Name	Bone sialoprotein 2
UniProt Synonym Protein Names	Bone sialoprotein II; BSP II; Cell-binding sialoprotein; Integrin-binding sialoprotein
Protein Family	Bone sialoprotein
UniProt Gene Name	IBSP
UniProt Synonym Gene Names	BNSP; BSP II
UniProt Entry Name	SIAL_HUMAN
NCBI Protein Information	bone sialoprotein 2; BSP II; bone sialoprotein II; cell-binding sialoprotein
NCBI Summary for IBSP	The protein encoded by this gene is a major structural protein of the bone matrix. It constitutes approximately 12% of the noncollagenous proteins in human bone and is synthesized by skeletal-associated cell types, including hypertrophic chondrocytes, osteoblasts, osteocytes, and osteoclasts. The only extraskeletal site of its synthesis is the trophoblast. This protein binds to calcium and hydroxyapatite via its acidic amino acid clusters, and mediates cell attachment through an RGD sequence that recognizes the vitronectin receptor. [provided by RefSeq, Jul 2008]
UniProt Comments for IBSP	Sialoprotein-2: Binds tightly to hydroxyapatite. Appears to form an integral part of the mineralized matrix. Probably important to cell-matrix interaction. Promotes Arg-Gly-Asp-dependent cell attachment. Protein type: Secreted, signal peptide; Secreted; Cell adhesion; Motility/polarity/chemotaxis Chromosomal Location of Human Ortholog: 4q21.1 Cellular Component: extracellular space; membrane; extracellular region Biological Process: osteoblast differentiation; extracellular matrix organization and biogenesis; biomineral formation; cell adhesion
Research Articles on IBSP	**1.** IBSP mRNA is over expressed in carotid atheroma plaque (3.74 fold, p = 1.41E-09) in an intraindividual comparison.

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