

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived
Met1-Gln324, with a C-terminal 6-His tag
Accession # NP_032344

N-terminal Sequence Analysis Phe17

Predicted Molecular Mass 34.9 kDa

SPECIFICATIONS

SDS-PAGE 70-90 kDa, reducing conditions

Activity Measured by the ability of the immobilized protein to support the adhesion of the MCF-7 human breast cancer cells.
When 5 x 10⁴ cells/well are added to recombinant mouse IBSP coated plates (3 µg/mL with 100 µL/well), approximately 60-80% will adhere after 30 minutes at 37 °C.
Optimal concentration depends on cell type as well as the application or research objectives.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 200 µg/mL in PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

IBSP (integrin-binding sialoprotein; also BSP or bone sialoprotein II) is a 55 - 75 kDa, secreted, variably glycosylated, monomeric non-collagenous member of the SIBLING family of extracellular matrix (ECM) proteins (1 - 3). It is principally associated with the early stages of bone mineralization. Mouse BSP is synthesized as a 324 amino acid (aa) precursor that contains a 16 aa signal sequence and a 308 aa mature region (4 - 6). The mature segment is divided into a basic N-terminus (aa 17 - 62), a central region (aa 63 - 233), and an acidic C-terminus (aa 234 - 317) (7). Functional segments associated with the mature molecule include a type I collagen binding domain (aa 19 - 46), two non-RGD cell binding sites (aa 30 - 57 and 261 - 281), an RGD α_vβ₃ integrin-binding site (aa 286 - 288) and two regions that are potential hydroxyapatite (HAp) nucleation domains (aa 76 - 83 and 151 - 158) (3, 4, 8 - 12). HAp formation requires a BSP nucleation site composed of at least eight consecutive glutamic acid residues and, likely, a contribution from a BSP-associated conucleator (10, 13). BSP is highly glycosylated, sulfated and phosphorylated. Phosphorylation promotes HAp nucleation, while carbohydrate may regulate cell adhesion (1, 3, 14). Interaction with integrins stimulates cell migration and survival, and has been implicated in bone metastasis of cancers, especially those of breast and prostate (15). Mature mouse BSP shares 90% aa 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 (16 - 19).

References:

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