

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human IBSP/Sialoprotein II protein Phe17-Gln317, with a C-terminal 10-His tag Accession # AAC95490
N-terminal Sequence Analysis	Phe17
Predicted Molecular Mass	34.7 kDa

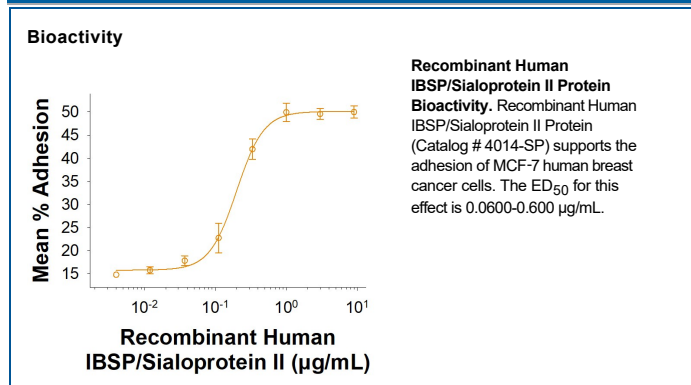
SPECIFICATIONS

SDS-PAGE	75-90 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of the MCF-7 human breast cancer cells. The ED ₅₀ of this effect is 0.0600 - 0.600 µg/mL
Endotoxin Level	<1.0 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 MES and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 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.

DATA



BACKGROUND

IBSP (integrin-binding sialoprotein; also BSP or bone sialoprotein (II)) is a 55 - 75 kDa, secreted, variably glycosylated, monomeric noncollagenous member of the SIBLING family of extracellular matrix (ECM) proteins (1 - 3). It is principally associated with the early stages of bone mineralization. BSP is synthesized as a 317 amino acid (aa) precursor that contains a 16 aa signal sequence and a 301 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 $\alpha_v\beta_3$ integrin-binding site (aa 286 - 288) and two potential hydroxyapatite (HAp) nucleation domains (aa 76 - 83 and 151 - 158) (3, 4, 8 - 11). HAp formation requires a BSP nucleation site composed of at least eight consecutive glutamic acid residues and, likely, a contribution from a BSP-associated co-nucleator (10, 12). BSP is highly glycosylated, sulfated, and phosphorylated. Phosphorylation may impact HAp growth, while carbohydrate may regulate cell adhesion (1, 3, 13). Mature human BSP is 70%, 72%, 78%, and 72% aa identical to porcine, rat, canine, and mouse BSP, respectively. BSP is synthesized by megakaryocytes/platelets, osteoblasts, osteocytes, odontoblasts, osteoclasts, and bone marrow stromal cells (14 - 17).

References:

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