

BGLAP Protein, Mouse (His-SUMO)

Cat. No.:	HY-P72103
Synonyms:	Bglap; Osteocalcin; Bone Gla protein; BGP; Gamma-carboxyglutamic acid-containing protein
Species:	Mouse
Source:	E. coli
Accession:	P86546 (Y50-I95)
Gene ID:	12096
Molecular Weight:	Approximately 24 kDa

PROPERTIES

AA Sequence	Y L G A S V P S P D P L E P T R E Q C E L N P A C D E L S D Q Y G L K T A Y K R I Y G I T I
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm solution of 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>The BGLAP protein, in its carboxylated form, stands as a major organic constituent within the bone matrix, representing 1-2% of the total bone protein. In this carboxylated state, it serves as a negative regulator of bone formation, crucial for limiting bone formation while preserving the processes of bone resorption and mineralization. Notably, the carboxylated form exhibits strong binding affinity to apatite and calcium. Conversely, the uncarboxylated form functions as a hormone secreted by osteoblasts, exerting regulatory influence over diverse cellular processes. This includes its role in energy metabolism, where it acts as a hormone promoting pancreatic beta-cell proliferation, insulin secretion, insulin sensitivity, and energy expenditure. Moreover, the uncarboxylated osteocalcin hormone functions as a key player in male fertility by promoting testosterone production in the testes through its interaction with the G protein-coupled receptor GPRC6A. Additionally, it acts as a regulator of brain development, crossing the blood-brain barrier to initiate signaling responses that prevent neuronal apoptosis in the hippocampus, stimulate the synthesis of monoamine neurotransmitters, and inhibit gamma-aminobutyric acid (GABA) synthesis. Importantly, maternal osteocalcin, which crosses the placenta during</p>
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pregnancy, plays a crucial role in fetal brain development.

Caution: Product has not been fully validated for medical applications. For research use only.

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