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Product Information

Insulin-like Growth Factor Binding Protein-5
human, recombinant
expressed in mouse NSO cells

Catalog Number **I8529**
Storage Temperature –20 °C

Synonym: IGFBP-5

Product Description

Insulin-like Growth Factor Binding Protein-5 (IGFBP-5) is produced from a DNA sequence encoding the human IGFBP-5 protein[1] fused to the signal peptide of CD33. Based on N-terminal sequencing, recombinant IGFBP-5 has Glu^{28} at the amino terminus. Mature human IGFBP-5, a 245 amino acid protein, has a calculated molecular mass of ~28 kDa. Due to glycosylation, the recombinant protein migrates as a 34 kDa protein under reducing conditions.

Insulin-like growth factor binding protein-5 is a member of the superfamily of insulin-like growth factor (IGF) binding proteins, which includes six high-affinity IGF binding proteins (IGFBP) and at least four low-affinity binding proteins referred to as IGFBP related proteins (IGFBP-rP). The IGFBP members are cysteine-rich proteins with conserved cysteine residues, clustered in the amino and carboxy-terminal regions of the molecule.

IGFBPs hold a central position in IGF ligand-receptor interactions through influences on both the bioavailability and distribution of IGFs in the extracellular environment.[2] IGFBPs will either inhibit or enhance the biological activities of IGF or act in an IGF-independent manner. Post-translational modification of IGFBPs, including phosphorylation and proteolysis, will modify the affinities of the binding proteins for IGF and may indirectly regulate IGF actions. IGFBP-5 potentiates the effect on DNA synthesis of IGF-I.[3] Cell surface association of IGFBP-5 also mediates its ability to potentiate IGF actions.[3]

Insulin-like growth factor binding protein-5 is expressed in multiple tissue cells including fibroblasts, myoblasts, and osteoblasts. It is the predominant IGFBP found in bone extracts. IGFBP-5 has a strong affinity for calcium phosphate, allowing it to bind to bone cells. When bound to the extracellular matrix, IGFBP-5 is protected from proteolysis and potentiates IGF activity, but when it is soluble, IGFBP-5 is cleaved to a biologically inactive 21 kDa fragment.

This recombinant product is lyophilized from a 0.2 μm filtered solution in 30% acetonitrile and 0.1% TFA.

Insulin-like growth factor binding protein-5 (IGFBP-5) is measured by its ability to inhibit the biological activity of recombinant human IGF-I or recombinant human IGF-II on MCF-7 cells.[4]

The ED_{50} for this effect is typically 0.5–1.5 μg/mL in the presence of 14 ng/ml recombinant human IGF-II.

The ED_{50} is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: > 90% (SDS-PAGE, visualized by silver stain)

Endotoxin level: <0.1 ng/μg protein
[LAL (Limulus amebocyte lysate) method]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) to prepare a stock solution of ≥100 μg/mL.

Storage/Stability

Store the product at –20 °C.

Upon reconstitution, store at 2–8 °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.

References

1. Keifer, M. et al., Biochem. Biophys. Res. Commun., **176**, 219-225 (1991).
2. Kelley, K.M. et al., Int. J. Biochem. Cell Biol., **28**, 619-637 (1996).
3. Jones, J.I., and Clemmons, D.R., Endocr. Rev., **16**, 3-34 (1995).
4. Karey, K.P., and Sirbasku, D.A., Cancer Research, **48**, 4083-4092 (1988).

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