

## Product Information

### Insulin-Like Growth Factor Binding

#### Protein-2 human

cell culture tested

recombinant, expressed in mouse NSO cells

Catalog Number **I5403**

Storage Temperature  $-20^{\circ}\text{C}$

Synonym: IGFBP-2

#### Product Description

A mature human recombinant form of insulin-like growth factor binding protein-2 is expressed in a mouse myeloma cell line, NSO. The cDNA sequence encodes the mature human IGFBP-2 protein sequence<sup>5</sup> and is fused to the signal peptide of CD33.

Insulin-like growth factor binding protein-2 is a member of the superfamily of insulin-like growth factor (IGF) binding proteins which include 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-terminal and the 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.<sup>1</sup> IGFBPs modulate the biological activities of IGF proteins and have intrinsic bioactivity, independent of their ability to bind IGF proteins.<sup>3</sup> IGFBP-2 exhibits a 2-10 fold higher affinity for IGF-II than for IGF-I.<sup>1</sup>

IGFBP-2 is expressed in multiple tissues during development. The highest expression level is found in the central nervous system. In adults, high expression levels are detected in the central nervous system and various reproductive tissues. Insulin-like growth factors (IGFs) and IGF binding proteins (IGFBPs) have important roles in cell growth and differentiation that include assessing growth-related abnormalities and risks of certain types of cancer.<sup>2</sup> Insulin-like growth factor II (IGF-II) plays a major role in adrenocortical tumorigenesis and IGFBP-2 is a regulator of IGF-II proliferative effects in this tumor system.<sup>3</sup>

#### Reagents

Lyophilized from a 0.2  $\mu\text{m}$  filtered solution in 20% acetonitrile with 0.1% TFA.

Purity:  $\geq 95\%$  (SDS-PAGE)

Endotoxin:  $< 0.1\text{ ng}/\mu\text{g}$  of IGFBP-2 (LAL)

Molecular Mass: The mature human recombinant form of insulin-like growth factor binding protein-2 contains 290 amino acid residues and has a calculated molecular mass of approximately 31 kDa.

Met 17 from the CD33 signal peptide is retained in the mature human recombinant IGFBP-2. In SDS-PAGE, the recombinant protein migrates as a 36 kDa protein under reducing and non-reducing conditions.

#### 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) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 25  $\mu\text{g}/\text{ml}$ .

#### Storage/Stability

Store at  $-20^{\circ}\text{C}$ . Upon reconstitution, store at  $2-8^{\circ}\text{C}$  for one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

#### Product Profile

The biological activity of IGFBP-2 is measured by its ability to inhibit the biological activity of rhIGF-II on MCF-7 cells in a cell proliferation assay.<sup>5</sup> The  $\text{ED}_{50}$  for this effect is typically 0.03-0.09  $\mu\text{g}/\text{ml}$  in the presence of 14  $\text{ng}/\text{ml}$  rhIGF-II.

## References

1. Kelly, K.M., et al., Insulin-like growth factor-binding proteins (IGFBPs) and their regulatory dynamics, *Int. J. Biochem. Cell Biol.*, **28**, 619-637 (1996).
2. Yu, H., et al., Insulin-like growth factors (IGF-I, free IGF-I and IGF-II) and insulin-like growth factor binding proteins (IGFBP-2, IGFBP-3, IGFBP-6 and ALS) in blood circulation, *J. Clin. Lab. Anal.*, **13**, 166-172 (1999).
3. Boule, N., et al., Increased levels of insulin-like growth factor II (IGF-II) and IGF-binding protein-2 are associated with malignancy in sporadic adrenocortical tumors, *J. Clin. Endocrinol. Metab.*, **83**, 1713-1720 (1998).
4. Agarwal, N., et al., Sequence analysis, expression and chromosomal localization of a gene, isolated from a subtracted human retina cDNA library, that encodes an insulin-like growth factor binding protein (IGFBP2), *Exp. Eye Res.*, **52**, 549-561 (1991).
5. Karey, K. P. and Sirbasku, D.A., Differential responsiveness of human breast cancer cell lines MCF-7 and T47D to growth factors and 17- $\beta$  estradiol, *Cancer Research*, **48**, 4083-4092 (1988).

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