

Product Information

INSULIN-LIKE GROWTH FACTOR-II (Δ 1-6)

Human, Recombinant
Expressed in *E. coli*

Product Number **I 2781**

Product Description

Insulin-like Growth Factor-II (Δ 1-6) is produced from a DNA sequence encoding a 61 amino acid analog of human Insulin-like Growth Factor expressed in *E. coli*. This analog represents an IGF-II in which the first six N-terminal amino acids of the protein have been deleted. The protein has been purified by chromatography. The apparent MW of IGF-II (Δ 1-6) is 6.7 kDa. There is a significant increase in the potency of IGF-II (Δ 1-6) compared to IGF-II *in vitro* and *in vivo* because IGF-II (Δ 1-6) has decreased binding to IGF binding proteins (IGFBPs) which are present in serum, other body fluids and conditioned media of cultured cells.

IGF-I and II are closely related polypeptides from a common ancestor.^{1,2} IGF-I is a single chain polypeptide of 70 amino acid residues cross-linked by three disulfide bridges.¹ IGF-I, which is identical to somatomedin C,³ is under the control of pituitary growth hormone.⁴ IGF-I is mitogenic for a variety of cells including fibroblasts, osteoblasts, smooth muscle cells, fetal brain cells, neuroglial cells and erythroid progenitor cells.⁴ To control cell proliferation and differentiation, IGF-I regulates specific events in the G1 phase of the animal cell cycle.⁴ IGF-I stimulates myoblast differentiation and myotubal formation.⁴ IGF-I has insulin-like effects, such as stimulation of glucose consumption in adipose tissue, and displays homology to proinsulin.¹

IGF-II plays important roles in mammalian growth, fetal cell division and differentiation.⁵ Human IGF-II consists of 67 amino acids and shares similar structural features with IGF-I, including a 62% sequence homology.⁶ In addition to the insulin receptor, IGF-II binds to two forms of IGF receptors (the type I and type II receptors), both of which are widely distributed in different tissues and cultured cells.^{5,7} The type 1 receptor mediates most of the effects of both IGF-I and -II. The type 2 receptor is involved in IGF-II degradation. IGF binding proteins may serve to localize these growth factors to their receptors as well as regulate their activities.⁸⁻¹¹

Reagent

IGF-II (Δ 1-6) is supplied as 25 μ g of protein lyophilized from sterile-filtered 0.1 M acetic acid.

Preparation Instructions

Reconstitute the contents of the vial using either 100 mM acetic acid or 10 mM HCl. For stock solutions of less than 1 mg/ml, carrier protein (such as bovine serum albumin) should be added to a final concentration of 0.1 mg/ml to 1 mg/ml.

Storage/Stability

Store at 2 °C to 8 °C. Upon reconstitution, store at -20 °C to -80 °C in working aliquots for up to three months. More dilute solutions are less stable at -20 °C. Do not store in a frost-free freezer.

Product Profile

IGF-II (Δ 1-6) activity is measured by its ability to stimulate ³H-thymidine incorporation in CEF (chick embryo fibroblast) cells.

It is also measured by its ability to bind to the IGF-II receptor in L6 rat myoblasts.

Purity: >95 %, determined by HPLC

References

1. Rinderknecht, E., et al., *J. Biol. Chem.*, **253**, 2769-2776 (1978).
2. Rinderknecht, E., et al., *FEBS Lett.*, **89**, 283-286 (1978).
3. Klapper, D., et al., *Endocrinology*, **112**, 2215-2217 (1983).
4. Zumstein, P., et al., *J. Biol. Chem.*, **262**, 11252 – 11260 (1987).
5. O'Dell, S.D., and Day, I.N., *Int. J. Biochem. Cell Biol.*, **30**, 767-771 (1998).
6. Froesch, E., et al., *Ann. Rev. Physiol.*, **47**, 443-467 (1985).
7. Baxter, R., et al., *Adv. Clin. Chem.*, **25**, 49-115 (1986).

8. Francis, G.L., et al., J. Mol. Endocrinol., **8**, 213-223 (1992).
9. Francis, G.L., et al., Biochem. J., **293**, 713-719 (1993).
10. Conover, C.A., Endocr. J., 43, Suppl: S43-S48 (1996).
11. Jones, J.I., and Clemmons, D.R., Endocr. Rev., **16**, 3-34 (1995).

LLK 8/21/01

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.