

Insulin-like Growth Factor-I (Long R-3): Human Recombinant Protein from E.coli

Catalog Number:	1013-1E-IGF
Product Specification:	Insulin-like Growth Factor-I (Long R-3): Human Recombinant Protein from E.coli. (<i>Synonym: SOMATOMEDIN C</i>)
Species:	Human
Expression System	E. coli
N-Terminal Analysis	Met-Phe-Pro-Ala-Met
Purity (by SDS-PAGE):	95%
Molecular Weight:	9.1 kDa Predicted
Endotoxin Level:	<1.0 EU per 1µg of protein (by Limulus Amoebocyte Lysate Test)
Size:	<input type="checkbox"/> 100 µg <input type="checkbox"/> 1 mg
Biological Activity:	ED ₅₀ = <1 ng/ml in a cell proliferation assay using murine BALBC 3T3 cells.
Specific Activity:	1.0 × 10 ⁶ IU/mg.
Applications:	WB, ELISA, Cell culture
Formulation:	Prepared in 100mM acetic acid. Filtered (0.22 µm) & lyophilized.
Reconstitution:	Reconstitute at 100 µg/mL in 100mM acetic acid.
Storage:	Store lyophilized and reconstituted proteins at -20°C for Long Term and at 4°C for < 2weeks. Avoid repeated freezing/thawing cycles.

Related Product(s):

1013-1K-IGF

Insulin-like Growth Factor-I: Human IGF-I ELISA Kit,

Background:

Insulin-like growth factors I and II, also known as Somatomedin C and somatomedin A, respectively, are members of the insulin family of polypeptide growth factors. Their functions include mediation of growth hormone action, stimulation of growth of cultured cells, stimulation of Insulin-like growth factors I and II, also known as Somatomedin C and somatomedin A,

respectively, are members of the insulin family of polypeptide growth factors. Their functions include mediation of growth hormone action, stimulation of growth of cultured cells, stimulation of the action of insulin, and involvement in development and growth. They appear to be autocrine regulators of cell proliferation. Unlike most other peptide hormones, IGF I and IGF II circulate in plasma tightly bound to specific binding proteins (IGFBPs). Levels of IGF1 decrease in serum during aging and correlates positively to changes in forearm and femoral neck bone mineral density. High levels of circulating IGF1 pose a risk of breast cancer in premenopausal women and a similar association exists for prostate cancer. Recombinant human IGF1 has been successfully used for treating extreme insulin resistance in Mendenhall syndrome.

Human insulin-like growth factor (IGF)-I is a basic globular polypeptide of 70 amino acids, containing six cysteine residues that form three disulphide bonds: Cys6-Cys48, Cys18-Cys6 and Cys47-Cys52. The oxidative folding of IGF-I in vitro results in two folding isomers of IGF-I. The two main products present at equilibrium are those of the native disulphide arrangement and an alternative disulphide arrangement of Cys6-Cys47, Cys18-Cys6' and Cys48-Cys52. This is due to the fact that mature IGF-I does not contain sufficient information in its amino acid sequence to determine uniquely the native globular structure. However, the extended form, referred to as '**Long-IGF-I**' analogue contains a 13-amino-acid N-terminal fusion protein which imparts a steric constraint at a crucial point in folding, thus allowing native disulphide bonds to form efficiently. The human fusion protein-analogue of IGF-I with (Met-Phe-Pro-Ala-Met- Pro-Leu-Ser-Ser-Leu-Phe-Val-Asn [Glu³ →Arg³]) is 83 amino acid analog that has a Glu³→Arg mutation. Human Long-R3-IGF-I is significantly more potent than human IGF-I in vitro. The enhanced potency is due to the markedly decreased binding of human Long-R3-IGF-I to IGF binding proteins which normally inhibit the biological actions of IGFs.

References:

1. Milner JS et al (1995) Mutations in the B-domain of insulin-like growth factor-I influence the oxidative folding to yield products with modified biological properties. *Biochem. J.* (1995) 308, 865-871.
2. Francis. et al. 1992 Novel recombinant fusion protein analogues of insulinlike growth factor (IGF)-I indicate the relative importance of IGF-binding protein and receptor binding for enhanced biological potency. *J Mol Endocrinol* 8:213–223.
3. Rinderknecht, E.; Humbel, R. E. (1978) The amino acid sequence of human insulin-like growth factor I and its structural homology with proinsulin. *J. Biol. Chem.* 253: 2769-2776.
4. Rotwein, P.; Pollock, K. M.; Didier, D. K.; Krivi, G. G (1986) Organization and sequence of the human insulin-like growth factor I gene: alternative RNA processing produces two insulin-like growth factor I precursor peptides. *J. Biol. Chem.* 261: 4828-4832.
5. Sussenbach, J. S.; Steenbergh, P. H.; Holthuisen, P (1992) Structure and expression of the human insulin-like growth factor genes. *Growth Regul.* 2: 1-9.

Disclaimer: This product is for R&D use only, not for drug, household, or other uses. Dilutions and other information provided are recommendations only; the purchaser must determine the suitability of the product(s) for their particular use. Alamo[®] Laboratories Inc (Alamo[®] Labs) warrants that its product(s) conform to the information contained in this and other Alamo[®] Laboratories Inc publications. If the "Terms and conditions of Sale" are acceptable to you, then you may open the container(s) containing the product and, through such act of opening a container(s), will have shown your acceptance to "Terms and conditions of Sale". If the terms and conditions are not acceptable to you, then please return the container(s) unopened to Alamo[®] Labs for a complete refund of your payment.