3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Insulin-like Growth Factor- I (E3R) human
recombinant, expressed in *E. coli*

Product Number **I2656**
Storage Temperature 2–8 °C

Synonyms: IGF-1 (E3R)

Product Description

Insulin-like Growth Factor-I (E3R) is produced from a DNA sequence encoding a 70 amino acid human analog of the Insulin-like Growth Factor expressed in *E. coli*. A substitution is made replacing the Arg for a Glu at the 3 position of the protein sequence. The apparent MW of IGF-I (E3R) is 7.6 kDa. There is a significant increase in the potency of IGF-I (E3R) compared to IGF-I *in vitro* and *in vivo*, because IGF-I (E3R) 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 progenitorcells.[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]

In biological systems, IGF-I is usually bound to insulin-like growth factor-binding proteins (IGFBPs), which modulate the transport and delivery of IGF-I to cell receptors.[5] The N-terminal portion of the IGF-I has been found to be involved in the binding of IGFBPs.[6-8] Modification of the N-terminus by replacing the glutamic acid with an arginine at position 3, to give IGF-I (E3R), decreases IGFBP binding and increases potency.[7,8]

IGF-I (E3R) is supplied as 25 μg of protein lyophilized from sterile-filtered 0.1 M acetic acid.

IGF-I (E3R) activity is measured by its ability to stimulate protein synthesis in L6 rat myoblasts and to stimulate ^{3}H-thymidine incorporation in CEF (chick embryo fibroblast) cells.

Precautions and Disclaimer

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

Preparation Instructions

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

Storage/Stability

Store at 2– 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.

References

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