

## Recombinant Human LR3 IGF-I/IGF-1

### Information

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|---------------------|---|
| Accession #         | P05019  |
| Alternate Names     | IBP1; IGF1; IGF-1; IGF1A; IGFI; IGF-I; IGF-IA; IGF-IB; insulin-like growth factor 1 (somatomedin C)   |
| Source              | Human embryonic kidney cell, HEK293-derived human IGF-I/IGF-1 protein   |
| Protein sequence    | Gly49-Ala118 (Glu51Arg)   |
| M.Wt                | 7.6 kDa   |
| Appearance          | Solution protein.   |
| Stability & Storage | Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 3 years from date of receipt, -20 to -70 °C as supplied.  |
| Concentration       | 0.2 mg/mL   |
| Formulation         | Dissolved in sterile PBS buffer.  |
| Reconstitution      | We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers. |
| Biological Activity | Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. The EC50 for this effect is 0.2-1.0 ng/mL.                               |
| Shipping Condition  | Shipping with dry ice.  |
| Handling            | Centrifuge the vial prior to opening.   |
| Usage               | For Research Use Only! Not to be used in humans.  |

### Quality Control

|           |  |
|-----------|--|
| Purity    | > 95%, determined by SDS-PAGE.                       |
| Endotoxin | <0.010 EU per 1 ug of the protein by the LAL method. |

### Description

Insulin-like Growth Factor I (IGF-I), also known as Somatomedin C, is the dominant effector of Growth Hormone (GH) and is structurally homologous to Proinsulin. Human IGF-I is synthesized as two precursor isoforms with N- and alternative C-terminal propeptides [1]. These isoforms are differentially expressed by various tissues [1]. The 7.6 kDa mature IGF-I is identical between isoforms and is generated by proteolytic removal of the N- and C-terminal regions. Mature human IGF-I shares 94% and 96% amino acid (aa) sequence identity with the mouse and rat orthologs, respectively [2]. GH stimulates the production of IGF-I in most tissues [3]. Hepatocytes produce circulating IGF-I, while local IGF-I is produced by many other tissues in which it has paracrine effects [1]. IGF-I induces the proliferation, migration, and differentiation of a wide variety of cell types during

development and postnatally [4, 5]. IGF-I regulates glucose, fatty acid, and protein metabolism, steroid hormone activity, and cartilage and bone metabolism [6-11]. It plays an important role in muscle regeneration and tumor progression [1, 12, 13]. IGF-I binds IGF-I R, IGF-II R, and the Insulin Receptor, although its effects are mediated primarily by IGF-I R [14]. IGF-I also binds with strong affinity to IGF binding proteins (IGFBPs), which regulate the availability and biological activities of IGF-I [15, 16]. Long R3 IGF-I (LR3 IGF-I) is a 9.2 kDa synthetic analog of IGF-I that is generated by modifying the aa sequence for mature human IGF-I. These modifications include the substitution of an Arg for Glu at position 3 of the mature IGF-1 sequence and the addition of a thirteen aa N-terminal extension, which is derived from methionyl porcine Growth Hormone [17].

## Reference

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