

## LR3 IGF-I/IGF-1 Protein, Human (83a.a, E51R)

<b>Cat. No.:</b>	HY-P70783
<b>Synonyms:</b>	Long R3 IGF-I; Insulin-like growth factor I; MGF; Somatomedin-C; IBP1
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	P05019-1 (G49-A118, E51R, with a 13 amino acid extension peptide at the N terminal)
<b>Gene ID:</b>	3479
<b>Molecular Weight:</b>	Approximately 11.0 kDa

### PROPERTIES

<b>AA Sequence</b>	M F P A M P L S S L    F V N G P R T L C G    A E L V D A L Q F V    C G D R G F Y F N K P T G Y G S S S R R    A P Q T G I V D E C    C F R S C D L R R L    E M Y C A P L K P A K S A
<b>Biological Activity</b>	Measured in a cell proliferation assay using MCF-7 cells. The ED <sub>50</sub> for this effect is 0.38-2.174 ng/mL.
<b>Appearance</b>	Lyophilized powder
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution of 20 mM NaAc-HAc, 4% Mannitol, pH 4.5 or 50 mM Tris-HCL, 300 mM NaCl, pH 8.0.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	The LR3 IGF-I/IGF-1 protein, structurally and functionally akin to insulin, boasts significantly heightened growth-promoting activity compared to its counterpart. Positioned as a potential physiological regulator, LR3 IGF-I may govern [1-14C]-2-deoxy-D-glucose (2DG) transport and glycogen synthesis in osteoblasts, demonstrating effective stimulation of glucose transport in bone-derived osteoblastic (PyMS) cells even at markedly lower concentrations than insulin. Its multifaceted roles extend to potential involvement in synapse maturation and the Ca(2+)-dependent exocytosis essential for sensory perception of smell in the olfactory bulb. Operating as a ligand for IGF1R, LR3 IGF-I binds to the alpha subunit, initiating the
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activation of intrinsic tyrosine kinase activity, autophosphorylating tyrosine residues in the beta subunit. This activation triggers a cascade of downstream signaling events leading to the activation of the PI3K-AKT/PKB and Ras-MAPK pathways. Further, LR3 IGF-I forms crucial ternary complexes with integrins (ITGAV:ITGB3 and ITGA6:ITGB4) and IGFR1, essential for comprehensive IGF1 signaling, influencing the phosphorylation and activation of IGFR1, MAPK3/ERK1, MAPK1/ERK2, and AKT1. It also exhibits diverse molecular interactions, including with SH2D3C isoform 2.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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