

IGF-I/IGF-1 Protein, Human (G49-A118)

Cat. No.:	HY-P70788
Synonyms:	Insulin-Like Growth Factor I; IGF-I; Mechano Growth Factor; MGF; Somatomedin-C; IGF1; IBP1
Species:	Human
Source:	E. coli
Accession:	P05019-1 (G49-A118)
Gene ID:	3479
Molecular Weight:	Approximately 9.0 kDa

PROPERTIES

AA Sequence	G P E 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
Biological Activity	Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. The ED ₅₀ for this effect is 1.706 ng/mL, corresponding to a specific activity is 5.86×10 ⁵ units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM NaAc-HAC, pH 4.5.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in 50 mM HAC. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	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.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	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 activation of intrinsic tyrosine kinase activity, autophosphorylating tyrosine residues in the beta subunit. This activation
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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.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA