

IGF-I/IGF-1 Protein, Mouse (N-His)

Cat. No.:	HY-P70698A
Synonyms:	IGF1; IGF-1; insulin-like growth factor 1; Insulin-like growth factor I; Somatomedin C; somatomedin-C
Species:	Mouse
Source:	E. coli
Accession:	P05017 (G49-A118)
Gene ID:	16000
Molecular Weight:	Approximately 10 kDa

PROPERTIES

AA Sequence	G P E T L C G A E L V D A L Q F V C G P R G F Y F N K P T G Y G S S I 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 T K A 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 3.972-6.159 ng/mL, corresponding to a specific activity is 1.623×10 ⁵ - 2.517×10 ⁵ units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 50 mM Tris-HCL, 300 mM NaCl, 200 mM arginine, pH 8.0.
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 ddH ₂ O. 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 IGF-I/IGF-1 protein, akin to insulin in structure and function, demonstrates significantly heightened growth-promoting activity. As a physiological regulator, it may govern [1-14C]-2-deoxy-D-glucose (2DG) transport and glycogen synthesis in osteoblasts, effectively stimulating glucose transport in bone-derived osteoblastic (PyMS) cells at markedly lower concentrations than insulin. Additionally, IGF-I may contribute to synapse maturation and Ca(2+)-dependent exocytosis, crucial for sensory perception of smell in the olfactory bulb. Acting as a ligand for IGF1R, it binds to the alpha subunit, triggering the activation of intrinsic tyrosine kinase activity, which leads to autophosphorylation of tyrosine residues in the beta subunit. This initiation sets off a cascade of downstream signaling events, activating the PI3K-AKT/PKB and Ras-MAPK
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pathways. IGF-I also forms essential ternary complexes with integrins (ITGAV:ITGB3 and ITGA6:ITGB4) and IGFR1 for comprehensive IGF1 signaling, influencing the phosphorylation and activation of IGFR1, MAPK3/ERK1, MAPK1/ERK2, and AKT1. Moreover, it interacts with SH2D3C isoform 2, highlighting its diverse molecular engagements.

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

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