

General Information

Synonyms	IBP1; IGF1; IGF-1; IGF1A; IGF1; IGF-I; IGF-IA; IGF-IB; insulin-like growth factor 1 (somatomedin C)
Accession #	P05019
Source	Human embryonic kidney cell, HEK293-derived human IGF-I/IGF-1 protein
	Gly49-Ala118 (Glu51Arg)
Predicted Molecular weight	7.6 kDa

Components and Storage

Formulation	Solution protein. Dissolved in sterile PBS buffer. This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening.
Storage and Stability	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 12 months from date of receipt, -20 to -70 °C as supplied.
Shipping	Shipping with dry ice.

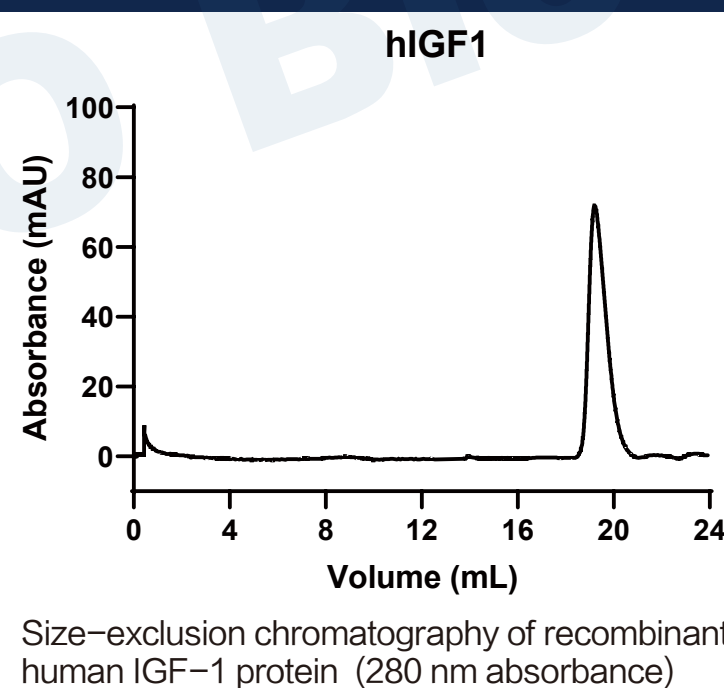
Quality

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

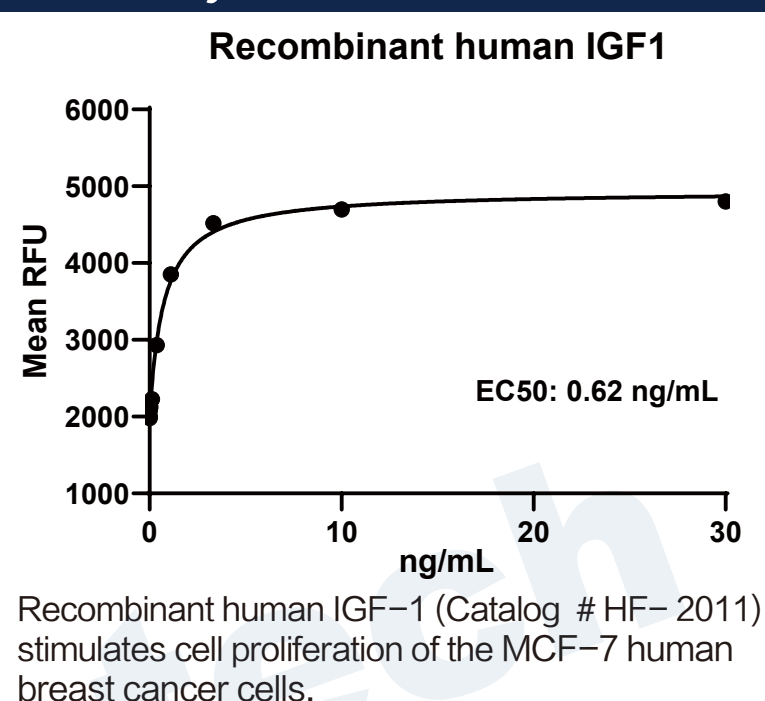
SDS-PAGE



Gel filtration



Bioactivity



Background

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

1. Philippou, A. et al. (2007) In Vivo 21:45.	10. Ling, P.R. et al. (1995) Am. J. Clin. Nutr. 61:116.
2. Sandberg-Nordqvist, A.C. et al. (1992) Brain Res. Mol. Brain Res. 12:275.	11. Sheng, M.H. et al. (2014) J. Bone Metab. 21:41.
3. Berryman, D.E. et al. (2013) Nat. Rev. Endocrinol. 9:346.	12. Samani, A.A. et al. (2007) Endocrine Rev. 28:20.
4. Guvakova, M.A. (2007) Int. J. Biochem. Cell Biol. 39:890.	13. Gallagher, E.J. et al. (2010) Endocr. Pract. 16:864.
5. Sadagurski, M. and M.F. White (2013) Endocrinol. Metab. Clin. North Am. 42:127.	14. LeRoith, D. and S. Yakar (2007) Nat. Clin. Pract. Endocrinol. Metab. 3:302.
6. Clemmons, D.R. (2006) Curr. Opin. Pharmacol. 6:620.	15. Denley, A. et al. (2005) Cytokine Growth Factor Rev. 16:421.
7. Bluher, S. et al. (2005) Best Pract. Res. Clin. Endocrinol. Metab. 19:577.	16. Duan, C. and Q. Xu (2005) Gen. Comp. Endocrinol. 142:44.
8. Garcia-Segura, L.M. et al. (2006) Neuroendocrinology 84:275.	17. Francis, G.L. et al. (1992) J. Mol. Endocrinol. 8:213.
9. Malemud, C.J. (2007) Clin. Chim. Acta 375:10.	

Contact us



Global www.epotobiotech.com service@epotobiotech.com

China No.10 Xinghuo Road, Pukou District, Nanjing China

TEL:+86 18652072210