9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

IGF1 Human

IGF-1 Human Recombinant
GRF0162

Product Overview

Name	IGF1 Human
Description	
IGF-1 Human Recombinant	
Accession (Primary)	P01343
Synonyms	
Somatomedin C, IGF-I, IGFI, IGF1, IGF-IA MGF.	
Introduction	
The somatomedins, IGFs, comprise a family of peptides that play important roles in mammalian growth and development. IGF1 mediates many of the growth-promoting effects of GH. Early studies showed that GH did not directly stimulate the incorporation of sulfate into cartilage, but rather acted through a serum factor, termed 'sulfation factor,' which later became known as 'somatomedin. Three main somatomedins have been characterized: somatomedin C (IGF1), somatomedin A (IGF2; MIM 147470), and somatomedin B.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
The protein was lyophilized from a concentrated solution in PBS, pH 7.0.	
Stability	
Lyophilized IGF1 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution IGF1 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.	
Purity	
Greater than 97.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Amino acid sequence	
GPETLCGAEL VDALQFVCGD RGFYFNKPTG YGSSSRRAPQ TGIVDECCFR SCDLRRLEMY CAPLKPAKSA.	
Biological Activity	
The biological activity was determined by the cell proliferation assay using serum free human MCF-7 cells in 5.0 x 10 5	

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IU/mg.

Solubility

It is recommended to reconstitute the lyophilized IGF-1 in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

IGF stands for INS like growth factors, which are proteins that have a high similarity to INS. They are part of a complicated process that uses cells to communication with the physiologic environment around them. IGF′s complex system is often called the ‘axis′. This consists of: ● Two cell-surface receptors (IGF1R and IGF2R) ● Two ligands (IGF-1 and IGF-2) ● A family of six high-affinity IGF-binding proteins. ● Proteases. The Effect IGF Has On The Body Many unique tissue types express the IGF-1 receptor, and the effects can vary. It induces the survival of neurons, may catalyse skeletal muscle hypertrophy by inducing protein synthesis, and by blocking muscle atrophy. It works as a protector for cartilage cells, and may work to be an anabolic factor for the bones. When used in high concentrations, it can activate the INS receptor, and can even complement the effects that INS has on the body. Diseases And IGF Diseases and IGF are closely related, and a number of them can be affected. The INS IGF axis is thought to have an effect on aging, with an increased life span shown in fruit flies when used in studies. It is also important to note the crucial role that IGF plays in cancer and diabetes - IGF- 1 has been shown to stimulate growth in both prostate and breast cancer cells. The degree of risk that IGF-1 poses is up for debate, and many scientists are not in agreement. IGF has also shown to have the ability to decrease blood glucose levels, although not quite as effective as INS. How Was IGF Discovered? Investigators began studying the effects of biological substances on cells and tissues outside the body when IGFs were discovered. The name is self explanatory in the fact that IGF performs INS actions in some tissues, but is less potent than INS at decreasing blood sugar. Its fundamental action is to stimulate growth, whether that be within the epidermal growth factor or the nerve growth factor. What′s The Difference Between IGF-1 And IGF-2? The two types of IGF are IGF-1 and IGF-2. Although the names are similar, the specific actions that they take are different - they bind and activate completely difference receptors. The major actor in them both is the effect that they have on cell growth. Most of the actions of the pituitary GH are mediated by IGFs, but predominantly IGF-1. GH works to stimulate many tissues within the body, especially the liver which then secretes IGF-1. This then causes hypertrophy, or in layman's terms, an increase in cell size, as well as hyperplasia which is an increase in the number of cells. The IGF-1 concentration will increase during childhood and hit peak during puberty, but will then decrease afterwards, as does the hormone secretion itself. It has been proven that children and adults with a deficiency of the GH have low serum IGF-1 concentrations when put in comparison with others in the same age range. Patients who have conditions like acromegaly have been shown to have increased serum IGF-1 concentrations. The production of IGF-2 is less dependent on the secretion of GH than IGF-1, and is much less important for stimulating linear growth.

References

1. Title :Oestrogen-induced androgen insufficiency results in a reduction of proliferation and differentiation of spermatogonia in the zebrafish testis. Publication : Journal of Endocrinology (2009) 202, 287–297. Link : IGF1 prospec

publication Application: support spermatogenesis in an androgen-independent manner (Leal et al. 2006) 2. Title :Suppression of Anoikis by SKP2 Amplification and Overexpression Promotes Metastasis of Esophageal Squamous Cell Carcinoma . Publication :doi: 10.1158/1541-7786.MCR-08-0092 Mol Cancer Res January 2009 7; 12 Link : IGF1 Human prospec publication 3. Title :MECHANISMS OF BIOMATERIAL MEDIATED FIBROTIC RESPONSES AND STRATEGIES TO IMPROVE TISSUE REACTIONS TO BIOMATERIAL IMPLANTS. Publication :THE UNIVERSITY OF TEXAS AT ARLINGTON May 2010 Link : IGF-1 prospec publication 4. Title: Cancer-Associated Carbonic Anhydrases IX and XII: Effect of Growth Factors on Gene Expression in Human Cancer Cell Lines. Publication: Journal of Cancer Molecules 5(3): 73-78, 2010. Link: http://mupnet.com/JOCM%205(3)%2073-78.pdf

Precautions

IGF1 Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (P01343)

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References for protein:

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