Product Data Sheet

Product Name: Growth Hormone (1-43), human
Cat. No.: GP10024

Chemical Properties

Cas. No.			
Formula	$C_{240}H_{358}N_{62}O_{67}S_1$	M.Wt	5216.2
Solubility		Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Protocol

Cell experiment: [1]

Cell lines	FDC-P1 cells
Preparation method	The solubility of this peptide in sterile water is >10 mM. Stock solution should be splited and stored at -80°C for several months.
Reaction Conditions	IC50: 2 μM

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Applications	The in vitro bioactivity of the hGH fragment was tested by its activity against GH-responsive FDC-P1 cell lines expressing full-length human (h), mouse (m), or rabbit (r) GH receptors (GHR). Recombinant hGH 1-43 stimulated proliferation of FDC-P1-hGHR cells with half-maximal effect at approximately 2000 nM. It had minimal effect on cells expressing mGHR or rGHR.

Animal experiment:

Animal models	
Dosage form	
Applications	
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

References:

[1] Rowlinson S W, Waters M J, Lewis U J, et al. Human growth hormone fragments 1-43 and 44-191: in vitro somatogenic activity and receptor binding characteristics in human and nonprimate systems. Endocrinology, 1996, 137(1): 90-95.

Background

Growth Hormone (1-43), human ($C_{240}H_{358}N_{62}O_{67}S_1$), a peptide with the sequence H2N-FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKY

S-OH, MW= 5216.2. Growth hormone (GH or HGH), also known as somatotropin or somatropin, is a peptide hormone that stimulates growth, cell reproduction and regeneration in humans and other animals. It is a type of mitogen which is specific only to certain kinds of cells. Growth hormone is a 191-amino acid, single-chain polypeptide that is synthesized, stored, and secreted by somatotropic cells within the lateral wings of the anterior pituitary gland.Growth hormone is used as a prescription drug in medicine to treat children's growth disorders and adult growth hormone deficiency(1). Effects of growth hormone on the tissues of the body can generally be described as anabolic (building up). Like most other protein hormones, GH acts by interacting with a specific receptor on the surface of cells.Because polypeptide hormones are not fat-soluble, they cannot penetrate cell membranes. Thus, GH exerts some of its effects by binding to receptors on target cells, where it activates the MAPK/ERK pathway(2).Through this mechanism GH directly stimulates division and multiplication of chondrocytes of cartilage.GH also stimulates, through the JAK-STAT signaling pathway,the production of insulin-like growth factor 1 (IGF-1, formerly known as somatomedin C), a hormone homologous to proinsulin(3).The liver is a major target organ of GH for this process and is the principal site of IGF-1 production. IGF-1 has growth-stimulating effects on a wide variety of tissues. Additional IGF-1 is generated within target tissues, making it what

appears to be both an endocrine and an autocrine/paracrine hormone. IGF-1 also has stimulatory effects on osteoblast and chondrocyte activity to promote bone growth.

Figure1 the structures of Growth Hormone

Figure 2 Mechanisms of Growth Hormone regulaltion

Ref:

1. Powers M (2005). "Performance-Enhancing Drugs". In Leaver-Dunn D, Houglum J, Harrelson GL. *Principles of Pharmacology for Athletic Trainers*. Slack Incorporated. pp. 331–332.

2. Binder G, Wittekindt N, Ranke MB (February 2007). "Noonan Syndrome: Genetics and Responsiveness to Growth Hormone Therapy". *Horm Res* **67** (Supplement 1): 45–49.

3. Actions of Anterior Pituitary Hormones: Physiologic Actions of GH". Medical College of Georgia. 2007.