Recombinant Human Growth Hormone
Catalog Number: 1067-GH

DESCRIPTION

Source	*E. coli*-derived Phe27-Phe217, with an N-terminal Met Accession # CAA23779.1
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	22 kDa

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using Nb2-11 rat lymphoma cells. Gout, P.W. *et al.* (1980) Cancer Res. **40**:2433. The ED_{50} for this effect is 0.025-0.1 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Tris and NaCl with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Growth hormone (GH), also known as somatotropin, is a member of a family of growth factors that includes prolactin, placental lactogens, proliferins, and somatolactin (1, 2). It is synthesized primarily by somatotropes in the anterior pituitary and is stored in secretary granules. The pulsatile release of GH into circulation is regulated by the concerted actions of the hypothalamic hormones - GH-releasing hormone (GHRH) and somatostatin (SST) - as well as by signals from the periphery - ghrelin (3) and leptin (4). The human GH cDNA encodes a 217 amino acid (aa) residue precursor protein with a 26 aa putative signal peptide. By alternative splicing, at least four isoforms of GH have been identified (5).

Human GH is a pleiotropic cytokine that exerts its biological actions by binding to the transmembrane GH receptor, which is present in many cell types (1, 2). GH stimulates the liver and other tissues to produce IGF-1, which regulates growth and metabolism. GH has also been shown to have direct effects on growth that is independent of IGF-1. GH, directly or indirectly via IGF-1, can act on B cells, T cells, NK cells, macrophages and neutrophils to exert immunomodulatory activities (6). In addition, GH can act directly on various cell types to induce lipolysis, lactation, amino acid uptake and protein synthesis (1, 2, 6).

References:
1. Goffin, V. *et al.* (1996) Endocrine Rev. **17**:385.
2. Le Roith, D. *et al.* (2001) Endocrine Rev.*,* **22**:53.
3. Kojima, K. *et al.* (1999) Nature, **402**:656.
4. Tannenbaum, G. *et al.* (1998) Endocrinol. **139**:3871.
5. Welniak, L.A. *et al.* (2002) J. Leukoc. Biol. **71**:381.