PRODUCT INFORMATION

Somatotropin Long Isoform (human, recombinant)

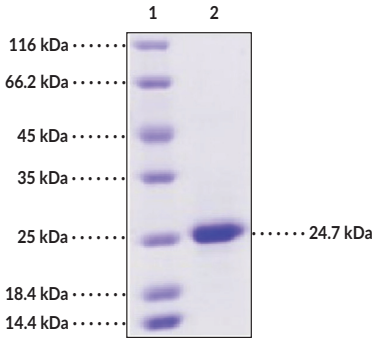
Item No. 32090

Overview and Properties

Synonyms: Growth Hormone 1, Pituitary Growth Hormone
Source: Recombinant human N-terminal His-tagged somatotropin expressed in *E. coli*
Amino Acids: 27-217
Uniprot No.: P01241
Molecular Weight: 24.7 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: ≥85% estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.4
Bioactivity: See figures for details

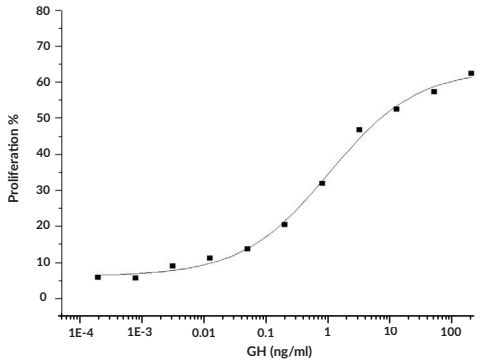
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: Somatotropin Long Isoform

SDS-PAGE Analysis of Somatotropin Long Isoform.



Ability of Somatotropin Long Isoform to promote proliferation of INS-1 cells. The EC_{50} value for this effect is typically 0.3-1.6 ng/ml.

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Description

Somatotropin is a circulating peptide hormone encoded by *GH1* in humans that has roles in growth, cellular proliferation and differentiation, muscle and bone anabolism, and lipolysis.[1] Alternative splicing of the *GH1* pre-mRNA produces one full-length 22 kDa isoform and a short-length 20 kDa isoform, which has reduced affinity for the somatotropin receptor.[2] Somatotropin contains a central hydrophobic core and a bundle of four α-helices that forms two somatotropin receptor binding sites.[3] It is synthesized and stored by somatotrophs in the anterior pituitary gland and is secreted episodically as a monomer or dimer in a circadian rhythm that peaks during night sleep.[2,3] Somatotropin production is induced by stimulation with growth hormone-releasing hormone, ghrelin, or sex steroids and inhibited by somatostatin, IGF-1, or glucocorticoid stimulation.[4] Binding of somatotropin to the somatotropin receptor, which is ubiquitously expressed, activates a variety of intracellular signal transduction pathways, including JAK-STAT, that lead to IGF-1, MAPK, PPARγ (Item No. 61700), or SIRPα signaling.[1,3,5] Decreased serum levels of somatotropin have been found in patients with dwarfism.[6] Increased somatotropin serum levels have been found in patients with acromegaly, a condition characterized by abnormal bone growth, and are positively correlated with early mortality.[6,7] Cayman's Somatotropin Long Isoform (human, recombinant) protein can be used for cell-based assay applications. This protein consists of 212 amino acids and has a calculated molecular weight of 24.7 kDa.

References

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2. Baumann, G.P. Growth hormone isoforms. *Growth Horm. IGF Res.* **19(4)**, 333-340 (2009).
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5. Fernández-Pérez, L., Flores-Morales, A., Guerra, B., *et al*. Growth hormone receptor signaling pathways and its negative regulation by SOCS2. *Mol. Endocrinol.* **20(2)**, 241-253 (2016).
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7. Kopchick, J.J., List, E.O., Kelder, B., *et al*. Evaluation of growth hormone (GH) action in mice: Discovery of GH receptor antagonists and clinical indications. *Mol. Cell Endocrinol.* **386(1-2)**, 34-45 (2014).

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