

Human Leptin Protein

Catalog Number: 10221-HNAE



Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

LEPD; OB; OBS

Protein Construction:

A DNA sequence encoding the mature form of human Leptin (NP_000221.1) (Val 22-Cys 167) was expressed, with an additional Met.

Source: Human

Expression Host: E. coli

QC Testing

Purity: > 98 % as determined by SDS-PAGE

Bio Activity:

Immobilized Human Leptin(Cat:10221-HNAE) at 2 µg/mL (100 µL/well) can bind Human Leptin Receptor (His & hFc Tag)(Cat:10322-H03H), the EC₅₀ of Human Leptin Receptor (His & hFc Tag)(Cat:10322-H03H) is 70-420 ng/mL.

Endotoxin:

Please contact us for more information.

Predicted N terminal: Met

Molecular Mass:

The recombinant human leptin consists of 147 amino acids and predicts a molecular mass of 16 kDa. The apparent molecular mass of rhLEP is approximately 13 kDa in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Stability & Storage:

Samples are stable for twelve months from date of receipt at -20°C to -80°C.

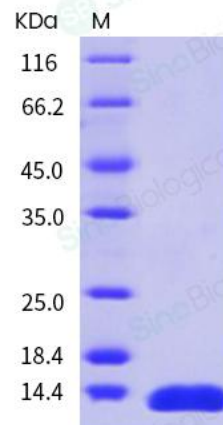
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Leptin is one of the most important hormones secreted by adipocytes, as an adipokine that modulates multiple functions including energy homeostasis, thermoregulation, bone metabolism, endocrine, and pro-inflammatory immune responses. The circulating leptin levels serve as a gauge of energy stores, thereby directing the regulation of energy homeostasis, neuroendocrine function, and metabolism. Recent studies suggest that leptin is physiologically more important as an indicator of energy deficiency, rather than energy excess, and may mediate adaptation by driving increased food intake and directing neuroendocrine function to conserve energy, such as inducing hypothalamic hypogonadism to prevent fertilization. One of these functions is the connection between nutritional status and immune competence. The adipocyte-derived hormone Leptin has been shown to regulate the immune response, innate, and adaptive response, both in normal and pathological conditions. Thus, Leptin is a mediator of the inflammatory response. Leptin has a dual effect on bone, acting by two independent mechanisms. As a signal molecule with growth factor characteristics, leptin can stimulate osteoblastic cells and inhibit osteoclast formation and activity, thus promoting osteogenesis. However, as a molecule that stimulates sympathetic neurons in the hypothalamus, leptin indirectly inhibits bone formation. This inhibitory effect of leptin mediated by activation of the sympathetic nervous system can be abrogated by the application of blood pressure-reducing beta-blockers, which also inhibit receptors of hypothalamic adrenergic neurons. Leptin appears to regulate some features defining Alzheimer's disease (AD) at the molecular and physiological level. Leptin can stimulate mitogenic and angiogenic processes in peripheral organs. Because leptin levels are elevated in obese individuals and excess body weight has been shown to increase breast cancer risk in postmenopausal women. Furthermore, a recent report clearly shows that targeting leptin signaling may reduce mammary carcinogenesis.

References

1. Surmacz E. (2007) Obesity hormone leptin: a new target in breast cancer? *Breast Cancer Res.* 9(1): 301.
2. Wodarski K, *et al.* (2009) Leptin as a modulator of osteogenesis. *Ortop Traumatol Rehabil.* 11(1): 1-6.
3. Tezapsidis N, *et al.* (2009) Leptin: a novel therapeutic strategy for Alzheimer's disease. *J Alzheimers Dis.* 16(4): 731-40.