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:

Measured by its binding ability in a functional ELISA . 1. Immobilized human Leptin at 1.25 μg/ml (100 μl/well) can bind human Leptin receptor Fc chimera with a linear range of 0.032-4.0 μg/ml . 2. Immobilized human Leptin at 5 μg/ml (100 μl/well) can bind human Leptin receptor his with a linear range of 0.032-4.0 μg/ml.

Endotoxin:

Please contact us for more information.

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

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

Storage:

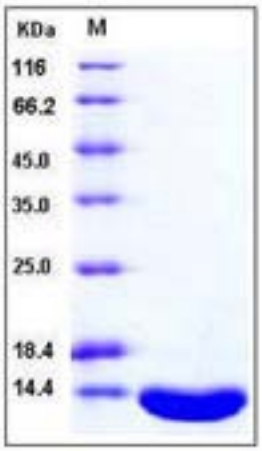
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

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 converse 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 is able to stimulate osteoblastic cells and to inhibit osteoclast formation and activity, thus promoting osteogenesis. However, as a molecule which stimulates sympathetic neurons in the hypothalamus, leptin indirectly inhibits bone formation. This inhibitory effect of leptin mediated by activation of sympathetic nervous system can be abrogated by application of blood pressure-reducing beta-blockers, which also inhibit receptors of hypothalamic adrenergic neurons. Leptin appears to regulate a number of 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.