

## Leptin, Human

**Cat. No.:** Z02962-200

**Size:** 200.0 ug

**Synonyms:** Obesity protein (OB)

### Description:

Human Leptin plays a key role in regulating energy intake and energy expenditure, including appetite and metabolism. It is one of the most important adipose derived hormones. The Ob (Lep) gene (Ob for obese, Lep for leptin) is located on chromosome 7 in humans. It is manufactured primarily in the adipocytes of white adipose tissue, and the level of circulating leptin is directly proportional to the total amount of fat in the body. Leptin acts on receptors in the hypothalamus of the brain where it inhibits appetite by (1) counteracting the effects of neuropeptide Y (a potent feeding stimulant secreted by cells in the gut and in the hypothalamus); (2) counteracting the effects of anandamide (another potent feeding stimulant that binds to the same receptors as THC), and (3) promoting the synthesis of  $\alpha$ -MSH, an appetite suppressant. This appetite inhibition is long-term, in contrast to the rapid inhibition of eating by cholecystokinin (CCK) and the slower suppression of hunger between meals mediated by PYY3-36. The absence of leptin (or its receptor) leads to uncontrolled food intake and resulting obesity.

### Amino Acid Sequence:

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00001 VPIQVKVQDDT KTLIKTIVTR INDISHTQSV SSKQKVTGLD  
00041 FIPGLHPILT LSKMDQTLAV YQQILTSMPS RNVIQISNDL  
00081 ENLRDLLHVL AFSKSchLPW ASGLETLDSL GGVLEASGYS  
00121 TEVVALSRLQ GSLQDMLWQL DLSPGC
```

**Source:** *E. coli*

**Species:** Human

**Biological Activity:** Fully biologically active when compared to standard. The ED<sub>50</sub> as determined by a chemotaxis bioassay using human Leptin R transfected BaF3 murine proB cells is less than 2 ng/ml, corresponding to a specific activity of  $> 5.0 \times 10^5$  IU/mg.

**Molecular Weight:** Approximately 16.0 kDa, a single non-glycosylated polypeptide chain containing 146 amino acids.

**Formulation:** Lyophilized from a 0.2  $\mu$ m filtered concentrated solution in PBS, pH 7.4.

**Appearance:** Sterile Filtered White lyophilized (freeze-dried) powder.

**Reconstitution:** We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at  $\leq -20$  °C. Further dilutions should be made in appropriate buffered solutions.

**Purity:**  $> 97$  % by SDS-PAGE and HPLC analyses.

**Endotoxin Level:** Less than 1 EU/ $\mu$ g of rHuLeptin as determined by LAL method.

**Storage:** This lyophilized preparation is stable at 2-8 °C, but should be kept at -20 °C for long term storage, preferably desiccated. Upon reconstitution, the preparation is stable for up to one week at 2-8 °C. For maximal stability, apportion the reconstituted preparation into working aliquots and store at -20 °C to -70 °C. Avoid repeated freeze/thaw cycles.