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Product Information

**MONOCLONAL ANTI-LEPTIN (OB),
CLONE LEP-13
Mouse Ascites Fluid**

Product Number **L 3160**

Product Description

Monoclonal Anti-Leptin (OB) (mouse IgG1 isotype) is derived from the LEP-13 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a recombinant human leptin. The isotype is determined using Sigma Immuno-Type Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2). Monoclonal Anti-Leptin (OB) may be used for the localization of leptin using various immunochemical assays such as ELISA and immunoblot.

Monoclonal Anti-Leptin reacts specifically with human leptin. The product may be used in ELISA and immunoblotting (16 kDa). By RIA, weak cross-reactivity has been observed with the mouse leptin.

Leptin (also known as OB, the product of the ob gene) is a 16 kDa, 146 amino acid residue, non-glycosylated polypeptide,[1] secreted by the mature adipocyte. It is strongly expressed in white adipose tissue and is absent or expressed at extremely low levels in other tissues. The human leptin molecule is translated as a 167 amino acid residue polypeptide, with the first 21 amino acid residues cleaved as a signal peptide. Human leptin is 85% identical to mouse leptin and 84% identical to rat leptin, while mouse and rat exhibit a 96% identity in their leptin molecules.[1] Leptin is hypothesized to be a “satiety factor”, because the absence of this factor was associated with hyperphagia and obesity in ob/ob mice. It appeares that leptin is involved in appetite regulation, due to the fact that leptin injection into ob/ob mice reduces their food intake and ultimately their body weight. Studies, however, have demonstrated that its effects must be more complicated than simple appetite suppression. For example, lean mice when injected with leptin lose considerable weight, yet only marginally reduce their appetite. In addition, human obesity is often associated with increased blood leptin levels, suggesting that either a leptin insensitivity (“leptin resistance”) develops, or that leptin’s effects are more diverse than the simple description of “satiety factor” would warrant.[2] Leptin acts through discrete receptors and distant targets to create a feedback loop for body weight regulation. With respect to the “satiety center”, or target of leptin action, the hypothalamus has received a great deal of attention. The ventromedial hypothalamus, as well as the hypothalamic arcuate and dorsomedial nuclei, are all involved in leptin’s effect. Indeed, high-affinity leptin-binding receptors have been detected in the hypothalamus, however variants are also reported in the liver, kidney and insulin-producing pancreatic β-cells. The leptin system has also been proposed to contribute to early hematopoiesis, since at least in the mouse, a novel hematopoietin receptor found on very primitive hematopoietic cell populations has been tentatively identified as being a leptin receptor isoform.[3] A monoclonal antibody reacting specifically with leptin may be a useful tool in nutritional physiology and obesity research, by enabling the detection and measurement of leptin secretion and levels in normal situations and in disorders of body weight.

Reagents

The product is provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
A minimum working dilution of 1:1,000 is determined by immunoblotting using a recombinant human leptin.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

1. Zhang, Y., et al., Nature, **372**, 425 (1994).
2. Filer, J.S., Proc. Natl. Acad. Sci. USA, **94**, 4242 (1997).
3. Cioffi, J.A., et al., Nature Med., **2**, 585 (1996).

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