

# Ob (mBA-147): sc-4913

## BACKGROUND

Although there is substantial evidence that body weight is physiologically regulated, the molecular basis of obesity is unknown. Five single-gene mutations in mice that result in an obese phenotype have been identified. The first such recessive obesity mutation, the obese mutation (Ob), was identified in 1950. Mutation of Ob results in profound obesity and type II diabetes as part of a syndrome that resembles morbid obesity in humans. It has been postulated that the Ob gene product may function as a component of a signaling pathway in adipose tissue that functions to regulate body fat depot size. The cloning and sequence analysis of the mouse Ob gene and its human homolog have been described. Ob encodes a 4.5 kDa adipose tissue-specific mRNA with a highly conserved 167 amino acid open reading frame. The predicted amino acid sequence is 84% identical between human and mouse and has the features of a secreted protein. A nonsense mutation in codon 105 has been found in the original congenic C57BL/6J Ob/Ob mouse strain. The gene encoding Ob maps to human chromosome 7q31.3.

## REFERENCES

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2. Friedman, J.M., Leibel, R.L., Siegel, D.S., Walsh, J., and Bahary, N. 1991. Molecular mapping of the mouse ob mutation. *Genomics* 11: 1054-1062.
3. Friedman, J.M. and Leibel, R.L. 1992. Tackling a weighty problem. *Cell* 69: 217-220.
4. Rink, T.J. 1994. In search of a satiety factor. *Nature* 372: 406-407.
5. Zhang, Y., Proenca, R., Maffel, M., Barone, M., Leopold, L., and Friedman, J.M. 1994. Positional cloning of the mouse obese gene and its human homologue. *Nature* 372: 425-431.
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## SOURCE

Ob (mBA-147) is produced in *E. coli* as 16 kDa biologically active protein corresponding to 147 amino acids of full length mature Ob of mouse origin.

## PRODUCT

Ob (mBA-147) is purified from bacterial lysates (>98%); supplied as 1000 µg purified protein.

## BIOLOGICAL ACTIVITY

Ob (mBA-147) is biologically active in the ob/ob mouse obesity model. The ob/ob mice were treated via intraperitoneal injection once daily at a dose of 5 µg ob/gm of body weight for 7 days. Significant effects on body weight, food consumption, and plasma glucose levels were observed to saline-treated controls.

## RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

## STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.