

Product Specification Sheet

Rabbit Recombinant Leptin (Obese Protein)

Cat # LEP20-R-50

SIZE: 50 ug

Obesity, a common nutritional disorder, is associated with diabetes, hypertension, hyperlipidemia, cancer and many other health related problems. At least five genes, Obese (**ob**), diabetes (**db**), fat (**fat**), agouti yellow (**Ay**), and tubby (**tub**) have been linked to obesity. Recently, **Ob genes** (mouse and human) have been cloned. Obese gene encodes an adipocyte-tissue derived secreted **Ob protein/Leptin** (167 amino acid, ~16 kDa) that controls body weight homeostasis. Exogenous administration of recombinant Ob protein can reduce food intake and body weight. However, Ob protein had no effect in db/db mice suggesting a defect in leptin signaling mechanism. The **Obese receptors (Ob-R)** have now been cloned from mouse choroid plexus and it is expressed in several tissues including hypothalamus. The Ob-R has been shown to be a product of db gene that has long been thought to encode the receptor for a weight-controlling hormone. The Ob-R has at least 6 alternatively spliced forms with modifications at the amino and C-terminus (Fig 2). The Ob-R varies in length after Lysine889. The **Ob-Ra** represents the initially identified mouse Ob-R (short form, 894 AA). **Ob-Rb** displays ~78% homology to the human Ob-R (long form, 1165 AA). Expression of **Ob-Rb** and other forms have been detected in hypothalamus and other tissues. The soluble Ob-Re is found in adipose tissues, hypothalamus, heart, and testes. Ob-R is abnormally spliced in db/db mice and missing the cytoplasmic domain thought to be important for leptin signaling. Purified human Leptin (1-10 ug/gm of body weight; daily i.p injections for 14 days) has been shown to be biologically active in reducing body weight and food consumption in ob/ob and NZO mice (2).

Source and Properties of Leptin

Leptin is ~16 kDa, adipocyte derived, secreted protein (1). Rabbit Leptin was cloned, expressed in E. Coli and purified (>95% by SDS-PAGE). Recombinant Rabbit leptin (146-aa) has a predicted mol. Mass of ~16 kDa. The identity of protein has been confirmed by N-Terminal sequence analyses. Endotoxin level in the final preparation is less than 10 pg/ug of Leptin.

Purified leptin protein has <1% aggregates or dimers. The sequence of the first five N-terminal amino acids was determined and was found to be Ala-Val-Pro-Ile-Arg.

Biological activity:

Recombinant purified Rabbit leptin protein was tested by the leptin-dependant stimulation of Human OB-R transfected murine BaF3 indicator cells.

Form & Storage

Recombinant Leptin is supplied in either isotonic PBS solution (1 mg/ml or lot sp conc stated on the vial) or Lyophilized in 0.004 mM NaHCO₃ with no preservative. Reconstitute the vials following the instructions given below.

Leptin is not highly soluble when reconstituted at pH 7. Therefore, leptin powder should be dissolved in water or in other buffers below the isoelectric point of the protein. Alternatively, it can be dissolved in 10 mM HCl. Lightly vortex and completely mix the protein by mixing at room temp for 5-10 min. After complete dissolution, adjust pH with diluted (0.1-1N) NaOH to bring the pH to approx. 5.2. It may be desirable to add protease-free BSA or human serum albumin (0.1%) and solution sterile filtered. It is stable at 40C for 2-4 weeks and 3-6 months at -70oC. Avoid repeated freeze and thaw and store in suitable size aliquots.

General References:

(1)Zhang, Y et al (1994) Nature 372, 425-431; (2) Pelleymounter MA et al (1995) Science 269, 540.

List of publications using ADI Leptin (updates at the web site).

Iida M et al, 1998 Regulatory peptides 277, 77, 141-146
Tatsuya, Y, 1997 Diabetes. 46(6):1077-1080.

This product is for In vitro research use only. NOT FOR DRUG USE.

Related material available from ADI

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|---------------|---|
| LEP11-R-1000 | Mouse Recombinant Purified Leptin Protein |
| LEP14-R1000 | Human Recombinant Purified Leptin Protein |
| LEP14-S | Anti-Human Leptin Protein antiserum # 2 |
| LEP14-M | Monoclonal Anti-Human Leptin Protein |
| LEP14-R-1000 | Rat Recombinant Purified Leptin Protein |
| LEP14-R-50 | Ovine Recombinant Purified Leptin Protein |
| LEP15-R-50 | Bovine Recombinant Purified Leptin Protein |
| LEP16-R-50 | Porcine Recombinant Purified Leptin Protein |
| LEP17-R-50 | Horse Recombinant Purified Leptin Protein |
| LEP18-R-50 | Chicken Recombinant Purified Leptin Protein |
| LEP19-R-50 | Dog Recombinant Purified Leptin Protein |
| LEP20-R-50 | Rabbit Recombinant Purified Leptin Protein |
| LEP21-TR-100 | Human Leptin Triple Antagonist Protein |
| LEP22-QR-100 | Human Leptin Quadruple Antagonist Protein |
| LEP23-TR-100 | Mouse Leptin Triple Antagonist Protein |
| LEP24-TR-100 | Rat Leptin Triple Antagonist Protein |
| LEP25-TR-100 | Ovine Leptin Triple Antagonist Protein |
| LEP26-QR-100 | Ovine Leptin Quadruple Antagonist Protein |
| LEPBP11-S | Anti-Human Leptin binding Protein antiserum |
| LEPBP15-R-100 | Human Leptin binding Protein |
| LEPBP16-R-100 | Chicken Leptin binding Protein |

Antibodies to Leptin (OBRA/b receptors), Leptin ELISA kits
Antibodies to Adiponectin (Acrp30), Resistin etc.

LEP20-R-50

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