ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Human Recombinant Leptin (Obese Protein)

□ **Cat #** LEP12-R-100	Human Recombinant (E.Coli) Purified Leptin Protein	□ **SIZE**: 100 ug
□ **Cat #** LEP12-R-1000	Human Recombinant (E.Coli) Purified Leptin Protein	□ **SIZE**: 1000 ug (1 mg)
□ **Cat #** LEP12-R-5000	Human Recombinant (E.Coli) Purified Leptin Protein	□ **SIZE**: 5000 ug (5 mg)

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.

Source and Properties of Leptin

Human Leptin is a 147 Amino acid residue, ~16 kDa, adipocyte derived, secreted protein (1). Human Leptin was cloned, expressed in E. Coli and purified (>95% by SDS-PAGE). Recombinant human leptin is 147 AA with 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/μg of Leptin. Human leptin is about 85% homologous with mouse Leptin. 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).

Biolgoical activity:

Recombinnatn purified human leptin protein has ED50, calculated by the leptin-dependant stimulation of Human OB-R transfected murine BaF3 indicator cells i 0.5-1.6 ng/ml.

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 instrucitons given below.

Leptin is not highly soluble when reconstitiute at pH 7. Therefore, leptin powder should be dissolved in water or in other buffers below the isoelecric point of the protein. Alternatively, it can be dissolved in 10 mM HCl. Lightly vortex and comlelty 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 4oC 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 (see an updated list at the web site).

Iida M et al 1998 Regulatory peptides 277, 77, 141-146

Tatsuya, Yamashita 1997 Diabetes. 46(6):1077-1080.

Related material available from ADI

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-TM-100	Human Leptin Triple Antagonist Protein
LEP22-QM-100	Human Leptin Quadruple Antagonist Protein
LEP23-TM-100	Mouse Leptin Triple Antagonist Protein
LEP24-TM-100	Rat Leptin Triple Antagonist Protein
LEP25-TM-100	Ovine Leptin Triple Antagonist Protein
LEP26-QM-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

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