

Human Leptin

FOR MEASUREMENT OF HUMAN LEPTIN CONCENTRATION

Clinical Background

- Obesity is a common health disorder. Human leptin, the 167 amino acid protein hormone of the ob gene, is secreted by adipose tissue and circulates in the blood in proportion to the amount of body fat.
- Leptin levels generally correlate with the body mass index (BMI). As BMI increases, the leptin level also increases. Leptin is used for body mass and energy expenditure, but is also involved as a regulatory molecule in lipid metabolism, hematopoiesis, insulin action, reproductive function, immune function, and angiogenesis.
- In approximately 5 percent of the population, leptin level does not reflect BMI.

Indications for Ordering

The patient is overweight or obese; leptin levels may be associated with BMI in these individuals. As leptin increases, the amount of body adipose tissue also increases.

Interpretation

The reference interval for adult males is 0.5–12.7 ng/mL. For adult females, the interval is 3.9–30.0 ng/mL.

Limitations

Please use serum only.

Methodology

This assay is a direct (sandwich) ELISA, based sequentially on:

- Capturing human leptin from a rabbit-based, immobilized, polyclonal, anti-human leptin antibody.
- Binding a biotinylated monoclonal antibody to the captured human leptin.
- Binding streptavidin-horseradish peroxidase to the immobilized biotinylated antibodies.
- Quantifying bound streptavidin-horseradish peroxidase with the substrate 3,3',5,5'-tetramethylbenzidine. The enzyme activity is then measured.

References

1. Drew JE. Molecular mechanisms linking adipokines to obesity-related cancer: focus on leptin. *Proc Nutr Soc* 2011;21:1–6.
2. Klempel MC and Varady KA. Reliability of leptin, but not adiponectin, as a biomarker for diet-induced weight loss in humans. *Nutr Rev* 2011;69(3):145–54.
3. Katsiki N, et al. Effect of various treatments on leptin, adiponectin, ghrelin and neuropeptide Y in patients with type 2 diabetes mellitus. *Expert Opin Ther Targets* 2011;15(4):401–20.
4. Kumar KK, Tung S, Iqbal J. Bone loss in anorexia nervosa: leptin, serotonin, and the sympathetic nervous system. *Ann N Y Acad Sci* 2010;1211:51–65.

Test Information

0070263 **Leptin**

For specific collection, transport, and testing information, refer to the ARUP website at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at www.arupconsult.com.

AUTHOR

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