

# Adiponectin

## FOR THE MEASUREMENT OF SERUM ADIPONECTIN CONCENTRATIONS

### Test Highlights

- Adiponectin concentration inversely correlates with body mass index (BMI).
- Low adiponectin concentration increases the risk of type 2 diabetes.

### Clinical Background

- Adiponectin (Acrp30, adipoQ, apM1, gelation-binding protein) is a 247 amino acid fat hormone produced by adipocytes that is present in high concentration relative to other hormones (~0.01 percent of the total plasma protein).<sup>1</sup> Adiponectin is composed of a N-terminal collagen-like domain and a C-terminal globular domain. In addition, adiponectin exists in trimers, hexamers, and multimers in the blood.
- Recent studies have shown an inverse correlation between body mass index (BMI) and adiponectin values. Lower levels of adiponectin correlate with an increased risk of heart disease, type 2 diabetes, and metabolic syndrome.<sup>1,2,3</sup>

### Indications for Ordering

- Adiponectin testing is indicated for patients at risk for heart disease, metabolic syndrome, type 2 diabetes, and obesity.
- Overnight fasting is required; please see the ARUP Laboratory Test Directory for specimen collection information.

### Interpretation

- The kit used for measuring adiponectin has not been FDA approved. For low values, other tests for heart disease, metabolic syndrome, and type 2 diabetes are recommended.<sup>3</sup>
- Troglitazone increases the concentration of adiponectin in the blood.<sup>4</sup>
- Adiponectin exists in higher order structures; however, this kit only measures the concentration of adiponectin and does not measure the proportion of the protein in trimers, hexamers, and oligomers.

### Limitations

The ELISA kit uses full-length adiponectin for standards; therefore, the test is not recommended for accurate measurement of the globular domain of adiponectin.

### Methodology

Serum is pre-treated to denature adiponectin. The concentration of adiponectin in the pre-treated sample is determined by enzyme-linked immunosorbent assay (ELISA) (B-bridge International, Inc., Sunnyvale, CA). This kit is for research use only and is not FDA approved.

### References

1. Meier U and Gressner AM. Endocrine regulation of energy metabolism: review of pathobiochemical and clinical chemical aspects of leptin, ghrelin, adiponectin, and resistin. *Clin Chem* 2004; 50:1511–25.
2. Morales A, et al. Adiponectin and leptin concentrations may aid in discriminating disease forms in children and adolescents with type 1 and type 2 diabetes. *Diabetes Care* 2004; 27:2010–43.
3. Nakamura Y, et al. Implications of plasma concentrations of adiponectin in patients with coronary artery disease. *Heart* 2004; 90:528–33.
4. Phillips SA, et al. Modulation of circulating and adipose tissue adiponectin levels by anti diabetic therapy. *Diabetes* 2003; 52:667–74.

## Test Information

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Adiponectin

For specific collection, transport, and testing information, refer to the ARUP website at [www.aruplab.com](http://www.aruplab.com).

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at [www.arupconsult.com](http://www.arupconsult.com).