



Adiponectin

Risk marker for type-2-diabetes and arteriosclerosis

Adipose tissue is not only an energy reservoir but in addition serves as an endokrin organ which releases proportional to the amount of fat cells free fatty acids and proteins, so called **adipokines**. Adipokines include proteins such as TNF α (tumor necrosis factor α), leptin, resistin and adiponectin - molecules which regulate body weight and fat deposits in response to appetite and energy conversion. Moreover, adipokines influence endothelial cell function as well as insulin sensitivity in various target tissues (muscle-, liver-, and fat cells).

Adipositas is well accepted as the underlying cause of the meanwhile worldwide epidemic of type-2-diabetes.

Adiponectin properties

- Promoting insulin sensitivity
- Reducing plasma triglycerid levels by increasing the oxidative degradation of fatty acids in muscle cells
- Reducing the plasma glucose level by raising the insulin sensitivity in muscle cells
- Protecting from arteriosclerosis by regulating artery calcification

Indications

- Prevention of type-2-diabetes and associated cardiovascular diseases
A low adiponectin level is a prognostic marker for the establishment of insulin resistance and the extent of arteriosclerosis.
- Control of diabetes therapy success by monitoring rising adiponectin concentrations.

Protective factor from fat tissue

Adiponectin is synthesized exclusively by white fat cells and promotes the oxidation and degradation of triglycerides in the liver and in muscles. However, when fat deposits are full, adiponectin is down-regulated and plasma triglycerid levels rise in response.

Since adiponectin promotes insulin sensitivity, a reduced adiponectin concentration paves the way for insulin resistance in target tissues which finally leads to type-2-diabetes. The effect of some anti-diabetes drugs is therefore based on increasing adiponectin as insulin sensitizer (reduces blood sugar level without raising insulin concentrations).

Adiponectin does not only exhibit a protective effect on fat metabolism but also on the cardiovascular system by inhibiting arteriosclerosis (Luo et al., 2009). The protein regulates vascular calcification via the p38 signal transduction pathway and low adiponectin levels correlate with a higher degree of arteriosclerosis.

Adiponectin total

Matrix	Serum, plasma
Sample volume	25 μ L
Test principle	ELISA
Cat. No.	K 6250

References

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Beltowski J (2003) Med Sci Monit 9: RA55-61 (Review)
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Distribuito in ITALIA da
Li StarFish S.r.l.
Via Cavour, 35
20063 Cernusco S/N (MI)
telefono 02-92150794
fax 02-92157285
info@listarfish.it
www.listarfish.it