Adiponectin Murine Hi-5 Insect cells

Product Data Sheet

Type: Recombinant
Source: Hi-5 Insect cells
Species: Murine
Other names: Adipocyte C1q and collagen domain-containing protein, Adipocyte complement-related 30 kDa protein, ACRP30, Adipose most abundant gene transcript 1 protein, apM-1, Gelatin-binding protein, ADIPOQ, ACDC, APM1, GBP28

Cat. No.:

RBG20053005	(5 µg)
RBG20053025	(25 µg)
RBG20053100	(100 µg)

Description

Adiponectin is an adipose-derived secreted protein containing 236 amino acid residues. It is relatively abundant in humans and rodents, accounting for about 0.01% of total plasma protein. The circulating levels of adiponectin are decreased under conditions of obesity, insulin resistance, and type II diabetes. Disruption of adiponectin in mice causes insulin resistance and neointimal formation. Conversely, administration of recombinant adiponectin suppresses hepatic glucose production, and reverses insulin resistance associated with both lipoatrophy and obesity. The protective role of adiponectin is attributed to its anti-inflammatory properties (e.g. ability to suppress expression of TNF-alpha and class A scavenger receptor in macrophages). Recombinant adiponectin is a multimeric glycoprotein containing amino acids Val-21 to Asn-247 of the adiponectin precursor protein fused to an N-terminal histidine tag. Monomeric glycosylated adiponectin migrates at an apparent molecular weight of approximately 35.0 kDa by SDS PAGE analysis under reducing conditions. The calculated molecular weight of Recombinant Murine Adiponectin is 25.8 kDa.

Introduction to the Molecule

Adiponectin, also referred to as Acrp30, AdipoQ and GBP-28, is a recently discovered 244 aminoacid protein, the product of the *apM1* gene, which is physiologically active and specifically and highly expressed in adipose cells. The protein belongs to the soluble defence collagen superfamily; it has a collagen-like domain structurally homologous with collagen VIII and X and complement factor C1q-like globular domain. Adiponectin forms homotrimers, which are the building blocks for higher order complexes found circulating in serum. Together, these complexes make up approximately 0.01% of total serum protein. Adiponectin receptors AdipoR1 and AdipoR2 have been recently cloned; AdipoR1 is abundantly expressed in skeletal muscle, whereas AdipoR2 is predominantly expressed in the liver. Paradoxically, adipose tissue-expressed adiponectin levels are inversely related to the degree of adiposity. Adiponectin concentrations correlate negatively with glucose, insulin, triglyceride concentrations, liver fat content and body mass index and positively with high-density lipoprotein-cholesterol levels, hepatic insulin sensitivity and insulin-stimulated glucose disposal. Adiponectin has been shown to increase insulin sensitivity and decrease plasma glucose by increasing tissue fat oxidation. Of particular interest is that low adiponectin serum levels predict type 2 diabetes independent of other risk factors. Adiponectin also inhibits the inflammatory processes of atherosclerosis suppressing the expression of adhesion and cytokine molecules in vascular endothelial cells and macrophages, respectively. This adipokine plays a role as a scaffold of newly formed collagen in myocardial remodelling after ischaemic injury and also stimulates angiogenesis by promoting cross-talk between AMP-activated protein kinase and Akt signalling in endothelial cells. Low serum adiponectin levels are found in patients with coronary artery disease. Moreover, high circulating levels of adiponectin are associated with decreased risk of myocardial infarction, independent of other factors. Altogether, adiponectin has the potential to become a clinically relevant parameter to be measured routinely in subjects at risk for type 2 diabetes, atherosclerosis and the metabolic syndrome.

Research topic

Animal studies, Chronic renal failure, Coronary artery disease, Diabetology - Other Relevant Products, Energy metabolism and body weight regulation

Amino Acid Sequence

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RGHHHHHHHH VTTTEELAPA LVPPPKGTCA GWMAGIPGHP GHNGTPGRDG RDGTPGEKGE KGDAGLLGPK GETGDVGMTG
AEGPRGFPGT PGRKGEPGEA AYVYRSAFSV GLETRVTVPN VPIRFTKIFY NQQNHYDGST GKFYCNIPGL YYFSYHITVY
MKDVKVSLFK KDKAVLFTYD QYQEKNVDQA SGSVLLHLEV GDQVWLQVYG DGDHNGLYAD NVNDSTFTGF LLYHDTN
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Source

Hi-5 Insect cells

Purity

95%

Biological Activity

Determined by a cytotoxic assay using M1 cells. The ED_{50} for this effect is 4.0-6.0 µg/ml.

Storage, Stability/Shelf Life

-20°C

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