ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Recombinant Purified Mouse Acrp30 (adipocyte complement-related protein of 30 kDa) Protein, Trimeric form

Cat # ACRP310-TR-5	Mouse recombinant purified Acrp30/Adiponectin protein, Trimeric	**SIZE**:	5 ug
Cat # ACRP310-TR-10	Mouse recombinant purified Acrp30/Adiponectin protein, Trimeric	**SIZE**:	10 ug

Acrp30 (**adipocyte complement-related protein of 30 kDa**), also known as AdipoQ, APM1, Adiponectin, Gelatin binding protein 28 kDa/GBP28 or adipocyte most abundant gene transcript) was identified as a novel adipocyte-specific synthesized and secreted protein with structural resemblance to complement factor C1q. Like adipsin, Acrp30 secretion is induced ~10-fold during adipocyte differentiation. Plasma levels are reduced in obese humans, and low levels are associated with insulin-resistance. Treatment of db/db mice with TZD increased Acrp30 levels. Acrp30 (mouse 247 aa, rat human 244 aa; chromosome 3q27) consists of a predicted NT-signal sequence 91-14 aa), followed by a 27-aa unique region, and then by 22 perfect Gly-X-Pro or Gly-X-X collagen like repeats, and a globular segment at the C-terminus. Structurally, but at the sequence level, Acrp30 resembles other collagen-like and globular domain proteins (lung surfactant protein and hepatocytes mannan-binding proteins). Acrp30 is proteolytically cleaved at 104 aa to generate the **globular Acrp30 (gAcrp30).** Administration of gAcrp30 into mice fed a diet high in fat and sugar caused substantial weight loss. Full length Acrp30 was less potent than gAcrp30.

In the circulation, adiponectin is predominantly present as several characteristic oligomeric complexes (2). The basic building block of the adiponectin complex is a trimer or low molecular weight (LMW) oligomer, which is formed via hydrophobic interactions within its globular domain. Two trimers self-associate to form a disulfide-linked hexamer or middle molecular weight (MMW) oligomer, which further assembles into a bouquet-like high molecular weight (HMW) multimeric complex that consists of 12–18 monomers. Several conserved lysine residues (K68, K71, K80, and K104) within the collagenous domain of adiponectin are modified by hydroxylation and glycosylation. These three oligomeric forms were differentially glycosylated, with the HMW oligomer having the highest carbohydrate content. Disruption of hydroxylation and glycosylation by substitution of the four conserved lysines with arginines selectively abrogated the intracellular assembly of the HMW oligomers in vitro as well as in vivo. Replacement of cysteine 39 with alanine (C39A) can only form trimer but not hexamer or HMW for. Different oligomeric complex of adiponectin activates different signaling pathways and exerts distinct functions on its target tissues. Clinical studies have also demonstrated that T2DM and coronary heart disease are associated with selective reduction of the HMW oligomeric adiponectin. Interestingly, two rare missense mutations (G84R and G90S) identified in T2DM patients can form trimers and hexamers, but lack the capacity to form the HMW complex.

Sources of antigen

Trimeric form of adiponectin (C39A) was expressed in HEK293 cells stably transfected with pchAd-Fvector encoding FLAG epitope-tagged mouse adiponectin. Recombinant adiponectin – Trimeric form was purified using anti-FLAG M2 affinity gel and FLAG peptides were removed by an extensive wash with an excessive volume of saline. Highly sensitive matrix-assisted laser desorption/ionization time of flight (MALDI-TOF) mass-spectrometric analysis confirmed that FLAG peptide was not detectable in the protein solution. Purity (>95%).

Form & Storage of Antigen

The protein is supplied in PBS, pH 7.4 in lyophilized form. It is recommended to use the protein immediately after reconstitution to avoid protein losses due to non-specific binding to the tube. Alternatively, PBS + 0.1% protease-free BSA can be used to reconstitute the protein, sterile filter, and storing the stock in small aliquots at -20oC to -70oC and avoid freeze thaw.

Biological activity: ED50= 3-8.5 µg/mL, as determined by its ability to inhibit proliferation of HASMCs induced by HB EGF.

Recommended applications

In vitro, ex vivo and in vivo activity analysis, binding assay or ELISA.

Storage

Short-term: unopened, vials for 1-4 weeks at 4oC.

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.

Shipping: 4oC for solutions and room temp for lyophilized items.

General References: (1) Scherer PE et al (1995) JBC 270, 26746; Hu E et al (1996) JBC 271, 10697; Das K et al (2001) BBRC 280, 1120; Fruebis J et al (2001) PNAS 98, 2005; Maeda K et al (1996) BBRC 221, 286, Schaffler A et al (1998) BBA 1399, 187; Schaffler A et al (1999) BBRC 260, 416; (2) Pajvani UB (2003) JBC 278, 9073; Tsao TS (2002) JBC 277, 29359; Wang Y (2004) Proteomics 4, 3933; (Yokota et al (2000) Blood 96, 1723

This product is for In vitro research use only.

Antibodies to Acrp30 and purified proteins

Acrp30 and gACRP30 ELISA Kits

ACRP310-TR-5-10 70808A

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