CTRP9A Human E. coli

Product Data Sheet

Type: Recombinant
Source: E. coli
Species: Human
Other names: CTRP9A, Complement C1q tumor necrosis factor-related protein 9, C1QTNF9,C1QTNF9A,UNQ6503/PRO21380

Cat. No.:
RD172180100 (0.1 mg)

Description

Total 324 AA. MW: 33,7 kDa (calculated). UniProtKB acc.no. P0C862. N-Terminal His-tag, 10 extra AA (highlighted).

Introduction to the Molecule

Complement C1q tumor necrosis factor-related protein 9 (C1q/TNF-related protein 9; CTRP9) is a highly conserved paralog of adiponectin. Of all the CTRP paralogs, CTRP9 shows the highest degree of amino acid identity to adiponectin in its globular C1q domain. CTRP9 protein exists in two isoforms, CTRP9A and CTRP9B. Although human CTRP9A and CTRP9B share 98% amino acid identity, they are encoded by distinct genes and are biochemically distinct. Human CTRP9A but not CTRP9B is expressed by adipose tissue. CTRP9B is expressed at very low levels in tissues. While CTRP9A is robustly secreted as a multimeric protein, CTRP9B requires physical association with CTRP9A or adiponectin for its secretion. CTRP9 is expressed predominantly in adipose tissue and females express higher levels of the transcript than males. Moreover, its expression levels in ob/ob mice changed in an agedependent manner, with significant up-regulation in younger mice. Adenovirus-mediated overexpression of CTRP9 in obese (ob/ob) mice significantly lowered serum glucose levels. CTRP9 is a secreted glycoprotein with multiple post-translational modifications in its collagen domain that include hydroxylated prolines and hydroxylated and glycosylated lysines. It is secreted as multimers (predominantly trimers) from transfected cells and circulates in the mouse serum with levels varying according to sex and metabolic state of mice. Furthermore, CTRP9 and adiponectin can be secreted as heterooligomers when cotransfected into mammalian cells, and in vivo, adiponectin/CTRP9 complexes can be reciprocally coimmunoprecipitated from the serum of adiponectin and CTRP9 transgenic mice. The functional role of the plasma CTRP9 in ischemic heart disease is unknown. Systemic delivery of CTRP9 reduces myocardial infarct size and apoptosis following ischemiareperfusion in mice. CTRP9 protects cardiomyocyte from apoptosis through activation of AMPactivated protein kinase (AMPK). CTRP9 prevents acute cardiac ischemic injury via an AMPKdependent mechanism. The data indicate that CTRP9 functions to attenuate neointimal formation following vascular injury through its ability to inhibit vascular smooth muscle cell (VSMC) growth via cAMPdependent mechanism, suggesting that the therapeutic approaches to enhance CTRP9 production could be valuable for prevention of vascular restenosis after angioplasty. CTRP9 is a novel vasorelaxive adipocytokine which may exert vasculoprotective effects via the AdipoR1/AMPK/eNOS dependent/NO mediated signaling pathway. The vasoactive potency of CTRP9 exceeded that of adiponectin by 3-fold. Cardiac expression of CTRP9, exceeds adiponectin by >100-fold, and is significantly reduced in high-fat diet-induced diabetic mice. In H9c2 cells, TNF-alpha strongly inhibited CTRP9 expression (>60 %), and significantly reduced peroxisome proliferator activated receptorgamma (PPAR?), a known transcription factor promoting adiponectin expression.

Research topic

Cardiovascular disease, Cytokines and chemokines and related molecules, Energy metabolism and body weight regulation

Amino Acid Sequence

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MKHHHHHHAS QDTCRQGHPG IPGNPGHNGL PGRDGRDGAK GDKGDAGEPG RPGSPGKDGT SGEKGERGAD GKVEAKGIKG
DQGSRGSPGK HGPKGLAGPM GEKGLRGETG PQGQKGNKGD VGPTGPEGPR GNIGPLGPTG LPGPMGPIGK PGPKGEAGPT
GPQGEPGVRG IRGWKGDRGE KGKIGETLVL PKSAFTVGLT VLSKFPSSDM PIKFDKILYN EFNHYDTAAG KFTCHIAGVY
YFTYHITVFS RNVQVSLVKN GVKILHTKDA YMSSEDQASG GIVLQLKLGD EVWLQVTGGE RFNGLFADED DDTTFTGFLL FSSP
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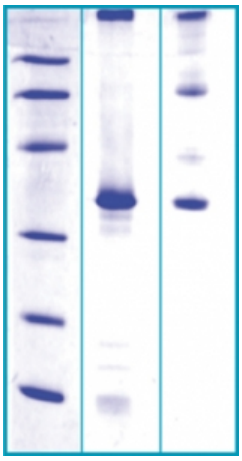
Source

E. coli

Purity

Purity as determined by densitometric image analysis: >95%

SDS-PAGE gel



14% SDS-PAGE separation of Human CTRP9A
1. M.W. marker - 14, 21, 31, 45, 66, 97 kDa
2. reduced and heated sample, 5µg / lane
3. non-reduced and non-heated sample, 5µg / lane

Formulation

0.2-0.6 mg/ml in 0.03M acetate buffer, pH=4.0 - filtered (0.4 µm), frozen

Reconstitution

Defrost at ambient temperature. Filter sterilize your culture media/working solutions containing this non-sterile product before using in cell culture.

Shipping

On ice.. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life

Store protein at -80°C. Protein remains stable until the expiry date when stored at -80°C. Avoid repeated freezing/thawing cycles.

Quality Control Test

BCA to determine quantity of the protein.
SDS PAGE to determine purity of the protein.

Applications

Western blotting

Note

This product is intended for research use only.

HEADQUARTERS: BioVendor Laboratorní medicína, a.s.	Karasek 1767/1	621 00 Brno CZECH REPUBLIC	Phone: +420-549-124-185 Fax: +420-549-211-460	E-mail: Web:	info@biovendor.com sales@biovendor.com www.biovendor.com
AUSTRIA: BioVendor GesmbH	Nußdorfer Straße 20/10	1090 Vienna AUSTRIA	Phone: +43-1-89090-25 Fax: +43-1-89090-2515	E-mail:	infoAustria@biovendor.com
GERMANY, SWITZERLAND: BioVendor GmbH	Otto-Hahn-Straße 16	34123 Kassel GERMANY	Phone: +49-6221-433-9100 Fax: +49-6221-433-9111	E-mail:	infoEU@biovendor.com
USA, CANADA AND MEXICO: BioVendor LLC	128 Bingham Rd. Suite 1300	Asheville, NC 28806 USA	Phone: +1-828-575-9250 +1-800-404-7807 Fax: +1-828-575-9251	E-mail:	infoUSA@biovendor.com