

Omentin Human E. coli

Product Data Sheet

Type: Recombinant	Cat. No.:	
Source: E. coli	RD172100025	(0.025 mg)
Species: Human	RD172100100	(0.1 mg)
Other names: Intelectin-1, ITLN-1, Intestinal lactoferrin receptor, Galactofuranose-binding lectin, Endothelial lectin HL-1, Omentin, INTL, ITLN, LFR, UNQ640/PRO1270		

Description

Total 294 AA. MW: 32.7 kDa (calculated). N-terminal His-tag, 14 extra AA (highlighted). The AA sequence is identical to UniProtKB/Swiss-Prot entry Q8WWA0 (AA19-298).

Introduction to the Molecule

Omentin (intelectin-1, intestinal lactoferrin receptor, endothelial lectin HL-1, galactofuranosebinding lectin) is newly identified secretory protein that is highly and selectively expressed in visceral adipose tissue relative to subcutaneous adipose tissue (adipokine). The mature omentin is secretory glycoprotein consisting of 295 amino acids and 1-linked oligosaccharides, and its basic structural unit is a 120-kDa homotrimer in which 40-kDa polypeptides are bridged by disulfide bonds. Omentin has been identified in other tissue at lower expression levels such as Paneth cells, endothelial cells, and visceral adipose stromal-vascular cells. A homolog of omentin has been identified that shares 83% amino acid identity with omentin and was referred to as omentin 2. The two omentin genes, omentin 1 and omentin 2, are localized adjacent to each other in chromosomal region, which has been previously linked to type 2 diabetes in several populations. To determine the impact of obesity-dependent insulin resistance on the regulation of two omentin isoforms, gene expression and plasma levels were measured in lean, overweight, and obese subjects. Omentin-1 was shown to be the major circulating isoform in human plasma. Lean subjects had significantly higher omentin-1 plasma levels than obese and overweight subjects. In addition, higher plasma omentin-1 levels were detected in women compared with men. Plasma omentin-1 levels were inversely correlated with BMI, waist circumference, leptin levels, and insulin resistance as measured by homeostasis model assessment and positively correlated with adiponectin and HDL levels. In summary, decreased omentin-1 levels are associated with increasing obesity and insulin resistance. An independent experiment reported that the addition of recombinant omentin-1 in vitro did not affect basal glucose uptake but did enhance insulin-stimulated glucose uptake in both subcutaneous and omental human adipocytes. Omentin-1 increased Akt phosphorylation in the absence and presence of insulin and may regulate insulin action. A recent study of women with the polycystic ovary syndrome (PCOS) found significantly reduced omentin-1 mRNA expression and protein levels in adipose tissue in overweight PCOS women. In addition, significantly lower plasma omentin-1 levels were detected in these women.

Research topic

Diabetology - Other Relevant Products, Energy metabolism and body weight regulation, Reproduction

Amino Acid Sequence

MRGSHHHHHH **GMA**STDEANT YFKEWTCSSS PSLPRSCKEI KDECPSAFDG LYFLRTENGV IYQTFCDMTS GGGGWTLVAS
VHENDMRGKC TVGDRWSSQQ GSKAVYPEGD GNWANYNTFG SAEAATSDDY KNPYYDIQA KDLGIWHVPN KSPMQHWRNS
SLLRYRTDTG FLQTLGHNLF GIYQKYPVKY GEGKCWTDNG PVIPVVYDFG DAQKTASYYS PYGQREFTAG FVQFRVFNNE
RAANALCAGM RVTGCNTEHH CIGGGGYFPE ASPQQGDFS GFDWSGYGTH VGYS

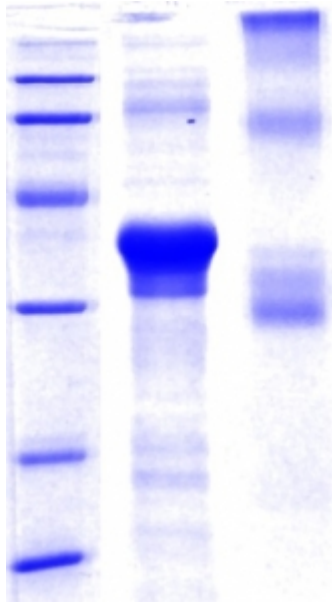
Source

E. coli

Purity

Purity as determined by densitometric image analysis: >90%

SDS-PAGE gel



- 12% SDS-PAGE separation of Human Omentin
1. M.W. marker - 14, 21, 31, 45, 66, 97 kDa
 2. reduced and heated sample, 5 μ g/lane
 3. non-reduced and non-heated sample, 5 μ g/lane

Endotoxin

< 1.0 EU/ μ g

Formulation

Filtered (0.4 μ m) and lyophilized in 0.5 mg/mL in 20 mM Tris, 50mM NaCl , pH 8.0

Reconstitution

Add deionized water to prepare a working stock solution of approximately 0.5 mg/mL and let the lyophilized pellet dissolve completely. Filter sterilize your culture media/working solutions containing this non-sterile product before using in cell culture.

Shipping

At ambient temperature. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life

Store lyophilized protein at -80°C. Lyophilized protein remains stable until the expiry date when stored at -80°C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at -80°C for long term storage. Reconstituted protein can be stored at 4°C for a limited period of time; it does not show any change after one week at 4°C.

Quality Control Test

- BCA to determine quantity of the protein.
- SDS PAGE to determine purity of the protein.
- LAL to determine quantity of endotoxin.

Applications

Western blotting

Note

This product is intended for research use only.

References to this Product

- Kazama K, Okada M, Yamawaki H. *A novel adipocytokine, omentin, inhibits monocrotaline-induced pulmonary arterial hypertension in rats.* Biochem Biophys Res Commun. 2014 Sep 12;452 (1):142-6
- Kazama K, Okada M, Yamawaki H. *Adipocytokine, omentin inhibits doxorubicin-induced H9c2 cardiomyoblasts apoptosis through the inhibition of mitochondrial reactive oxygen species.* Biochem Biophys Res Commun. 2015 Feb 20;457 (4):602-7
- Kazama K, Usui T, Okada M, Hara Y, Yamawaki H. *Omentin plays an anti-inflammatory role through inhibition of TNF-alpha-induced superoxide production in vascular smooth muscle cells.* Eur J Pharmacol. 2012 Jul 5;686 (1-3):116-23
- Yamawaki H, Tsubaki N, Mukohda M, Okada M, Hara Y. *Omentin, a novel adipokine, induces vasodilation in rat isolated blood vessels.* Biochem Biophys Res Commun. 2010 Mar 19;393 (4):668-72

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