Vaspin Human E. coli

Product Data Sheet

Type: Recombinant
Source: E. coli
Species: Human
Other names: Visceral adipose-specific serpin, Serpin A12, Visceral adipose tissue-derived serine protease inhibitor, OL-64, SERPINA12

Cat. No.:
RD172097100 (0.1 mg)

Description

Total 408 AA. MW: 46.7 kDa (calculated). UniProtKB acc.no. Q8IW75. N-terminal His-tag, 14 extra AA (highlighted). The AA sequence is identical to UniProtKB/Swiss-Prot entry Q8IW75.

Introduction to the Molecule

Visceral adipose tissue - derived serpin A12 (vaspin), also named OL-64, an adipocytokine, is structurally a member of the serine protease family. Serpins are the most diverse family of protease inhibitors. Their typical structural feature is the core domain composed from 3 beta-sheets and 9 alpha-helixes. The inhibitory activity of vaspin has not been described up to now, but its reactive site loop is typical for this proteinase family. Human Vaspin protein is composed of 395 amino acids and has a molecular weight of approximately 45.2 kDa and predicted pI 9.26. The cDNA was first isolated from white adipose tissue of Otsuka Long-Evans Tokushima Fatty (OLETF) rats. Vaspin mRNA expression is specific for visceral adipose tissues and it is also found circulating in the serum. The level of serum vaspin increased with age up to the peak of obesity, body weight and insulin resistance in OLETF rats and decreases with worsening of diabetes. Vaspin expression is missing in the diabetes-resistant lean rats, LETO, in comparison to OLEFT rats, animal model of metabolic syndrome. Expression was also absent in the subdermal, brown fatty tissue and other non-adipose tissues in OLEFT rats. These findings lead to the conclusion that the target tissue for insulin sensitising effect of vaspin is white adipose tissue. In humans, elevated serum concentration of vaspin is associated with obesity and impaired insulin sensitivity. In patients with type 2 diabetes the correlation between increased vaspin levels and BMI and decreased insulin sensitivity has not been observed. Vaspin expression decreased when diabetes worsened and its levels normalised when insulin or pioglitazone was administered. Gender differences in vaspin serum levels have been found in separate studies by two different authors. The low levels of vaspin in serum seem to be typical for lean subjects and athletes with long-term physical training. On the other hand, serum vaspin concentration increased in overweight people after they lost weight because of increased exercise. This paradox has been explained by the fact that serum vaspin level is differentially regulated in the non-active resting state and after exercise.

Research topic

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

Amino Acid Sequence

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MRGSHHHHHH GMASLKPSFS PRNYKALSEV QGWKQRMAAK ELARQNMDLG FKLLKKLAFY NPGRNIFLSP LSISTAFSML
CLGAQDSTLD EIKQGFNFRK MPEKDLHEGF HYIIHELTQK TQDLKLSIGN TLFIDQRLQP QRKFLEDAKN FYSAETILTN
FQNLEMAQKQ INDFISQKTH GKINNLIENI DPGTVMLLAN YIFFRARWKH EFDPNVTKEE DFFLEKNSSV KVPMMFRSGI
YQVGYDDKLS CTILEIPYQK NITAIFILPD EGKLKHLEKG LQVDTFSRWK TLLSRRVVDV SVPRLHMTGT FDLKKTLSYI
GVSKIFEEHG DLTKIAPHRS LKVGEAVHKA ELKMDERGTE GAAGTGAQTL PMETPLVVKI DKPYLLLIYS EKIPSVLFLG
KIVNPIGK
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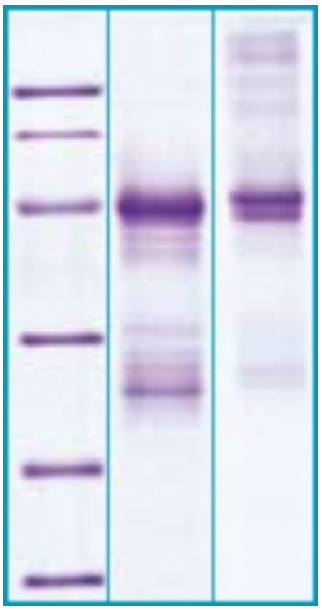
Source

E. coli

SDS-PAGE gel



12% SDS-PAGE separation of Human Vaspin
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

Filtered (0.4 µm) and lyophilized from 0.5 mg/ml in 20mM Tris buffer, 150mM NaCl, pH 7.5

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 -20°C. Lyophilized protein remains stable until the expiry date when stored at -20°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.

Applications

Western blotting

Note

This product is intended for research use only.

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