Trefoil Factor 3 Rat E. coli

Product Data Sheet

Type: Recombinant
Source: E. coli
Species: Rat
Other names: TFF3, Intestinal trefoil factor, P1.B, ITF, Polypeptide P1.B, TFI

Cat. No.:
RD372160100 (0.1 mg)

Description

Total 68 AA. MW: 7.7 kDa (calculated). C-terminal flag-tag. 9 extra AA (1 AA N-terminal, 8 AA C-terminal). UniprotKB acc.no. Q03191

Introduction to the Molecule

Trefoil factor 3 (TFF3, also known as intestinal trefoil factor) belongs together with TFF1 and TFF2 to a small group of mucin-associated peptides. TFF3 contains seven cysteine residues, six of which form disulfide bonds to create a characteristic three-leafed structure. Due to its compact structure, TFF3 is extremely resistant toward acids, proteolytical cleavage or heat degradation. Monomeric form of TFF3 consists of 60 amino acids and has 6.7 kDa, while the dimer (13.1 kDa) consists of 118 amino acids. TFF3 is expressed mainly in gastrointestinal tract, in the mucous cells of the small and large intestine, where it maintains the integrity of mucous layer and in cooperation with mucins protects the gastrointestinal epithelial cells against various injurious agents. However, TFF3 was also detected in salivary glands, posterior pituitary gland and in the inner ear. Secretion of TFF3 is triggered by the presence of certain inflammation mediators and neurotransmitters. Studies showed that oral administration of TFF3 in rats protects gastric mucosa from damage. Over-expression of TFF3 occurs at the sites of damage of the gastrointestinal tract, e.g. peptic ulcer or inflammatory bowel disease. Patients suffering from these diseases have increased levels of TFF3 in serum. TFF3 was reported to be over-expressed also in patients with various neoplasms including intestinal, pancreatic and prostate carcinomas. On the contrary, its expression decreases in thyroid follicular carcinomas. In vitro studies showed that in breast cancer cells, expression of TFF3 is regulated by the level of estrogen. Recent study with human and rodent pancreatic islet beta-cells has demonstrated that TFF3 overexpression increases their proliferation. Both major forms of diabetes involve a decline in islet beta-cells mass and their controlled expansion would have great potential utility for treatment of this diseases. Another study with rats has shown that urinary TFF3 protein levels were markedly reduced in response to renal tubular injury, while his levels did not respond to nonrenal toxicants.

Research topic

Energy metabolism and body weight regulation, Oncology, Renal disease, Sepsis

Amino Acid Sequence

MQEFVGLSPS QCMVPANVRV DCGYPTVTSE QCNNRGCCFD SSIPNVPWCF KPLQETECT**F DYKDDDDK**

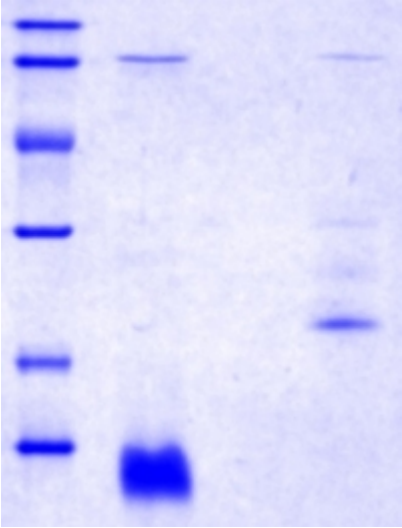
Source

E. coli

Purity

Purity as determined by densitometric image analysis: >95%

SDS-PAGE gel



14% SDS-PAGE separation of Rat TFF3:

1. M.W. marker - 14, 21, 31, 45, 66, 97 kDa
2. reduced and heated sample, 5µg / lane
3. empty lane
4. non-reduced and non-boiled sample, 5µg / lane

Endotoxin

< 1.0 EU/µg

Formulation

Filtered (0.4 µm) and lyophilized in 0.5 mg/mL in 20mM TRIS, 50mM NaCl, pH 7.5

Reconstitution

Add 200µl of deionized water to prepare a working stock solution of 0.5 mg/ml and let the lyophilized pellet dissolve completely. Product is not sterile! Please filter the product by an appropriate sterile filter before using it in the cell culture.

Shipping

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

Storage, Stability/Shelf Life

Store the lyophilized protein at -80°C. The 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 week.

Quality Control Test

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

Applications

ELISA, Western blotting

Note

This product is intended for research use only.

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