BioVendor - Laboratorní medicína a.s.
Karásek 1767/1
621 00 Brno-Řečkovice a Mokrá Hora

Date of issue: 14.09.2018

PRODUCT DATASHEET

Follistatin Human E. coli

Cat. No.: RD172168100
Type: Recombinant protein
Size: 0.1 mg
Source: E. coli
Species: Human

Description

Total 325 AA. MW: 36.00 kDa (calculated). UniProtKB acc.no. P19883. N-Terminal His-tag, 10 extra AA (highlighted).

Other names

FS, Activin-binding protein, FST

Introduction to the molecule

Follistatin (FST) was originally isolated from ovarian follicular fluid as a protein capable of inhibiting FSH release from pituitary cells in a manner similar to inhibin. Cloning and sequencing showed it to be a monomeric glycosylated protein unrelated to inhibin and its mode of action became clear with the demonstration of its ability to specifically bind activin. FST is encoded by a single gene which gives rise to various alternative splicing, glycosylation and proteolytic cleavage variants. Two main variants of FST are encoded through alternative splicing at the carboxyl-terminus. A 288-residue molecule (FST288) terminates after the third FST domain, whereas a 315-residue form is extended by an extra exon to include a highly acidic 27-residue "tail." Both are capable of binding activin, although according to some reports the affinity of FST288 may be higher than that of FST315. FST is produced and plays a regulatory role in gonads, pituitary gland, pregnancy membranes, liver and kidney. FST also circulates in blood in the human and most likely in other mammals as well. The data obtained so far indicate that FST315 is the major FST isoform in the peripheral circulation, whereas FST in follicular fluid is predominately processed. Nearly all FST in circulation is bound to activin. FST315 is the major circulating FST isoform but is undetectable in follicular fluid samples aspirated from normal women or women with polycystic ovary syndrome. On the other hand, ovarian FST does not contribute appreciably to circulating FST levels during follicular development. The purification of FST from gonadal sources indicated that it also has biological functions within the gonad. Some studies on FST gene expression and protein production provided information suggesting possible function of this protein within the ovary. In almost all follicles, free-FST was always in excess of activin, suggesting that in follicular fluid, all activin is bioneutralized, consistent with the concept of activin activity being suppressed as follicles develop. FST level increases in the third trimester, with a dramatic increase in the final month, and disappears postpartum. FST has been identified also in seminal plasma, where it is still present after vasectomy. Immunoreactive FST, together with activin ßA were present in Leydig and Sertoli cells, and FST was demonstrable in epithelial cells of the seminal vesicle and prostate. Taken together, these findings suggest that activin-A is secreted by the testis, whereas the prostate makes a significant contribution to FST levels in seminal plasma. FST plays a role also in bone metabolism. During endochondral bone formation, activin:FST ratios fluctuate in correlation with chondrocyte maturation and bone cell development. Taken together with the identification of activin receptors on osteoblasts, these observations suggest that activin, and its regulation by FST, has a role in bone repair processes.

Research topic

Bone and cartilage metabolism, Oncology, Reproduction

Amino Acid sequence

MKHHHHHHAS GNCWLRQAKN GRCQVLYKTE LSKEECCSTG RLSTSWTEED VNDNTLFKWM IFNGGAPNCI PCKETCENVD CGPGKKCRMN KKNKPRCVCA PDCSNITWKG PVCGLDGKTY RNECALLKAR CKEQPELEVQ YQGRCKKTCR DVFCPGSSTC VVDQTNNAYC VTCNRICPEP ASSEQYLCGN DGVTYSSACH LRKATCLLGR SIGLAYEGKC IKAKSCEDIQ CTGGKKCLWD FKVGRGRCSL CDELCPDSKS DEPVCASDNA TYASECAMKE AACSSGVLLE VKHSGSCNSI SEDTEEEEED EDQDYSFPIS SILEW

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Endotoxin
< 1.0 EU/µg

Formulation:

Filtered (0,4 µm) and lyophilized in 0.5 mg/mL in 20mM TRIS, 20mM NaCl, pH 7.5

Reconstituion:
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 week.

Quality control
BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

LAL to determine quantity of endotoxin.

Applications
ELISA, Western blotting

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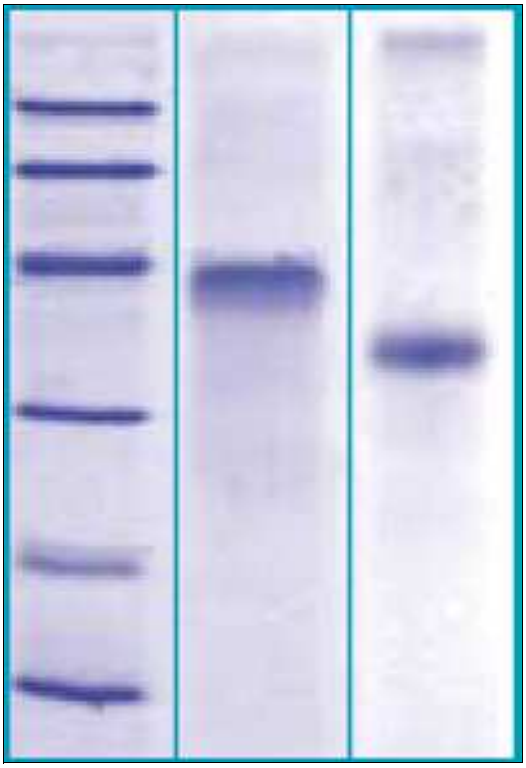

14% SDS-PAGE separation of Human Follistatin
1. M.W. marker – 97, 66, 45, 31, 21, 14 kDa
2. reduced and boiled sample, 5µg/lane
3. non-reduced and non-boiled sample, 5µg/lane

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