PRODUCT INFORMATION

Follistatin (human, recombinant)

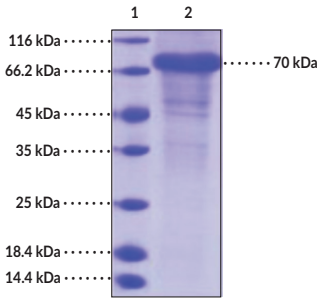
Item No. 31839

Overview and Properties

Synonyms:	Activin-binding Protein, FS, FSH-suppressing Protein, FST
Source:	Active recombinant C-terminal human IgG1 Fc-tagged follistatin expressed in HEK293 cells
Amino Acids:	30-344
Uniprot No.:	P19883
Molecular Weight:	61.7 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥85% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	See figures for details

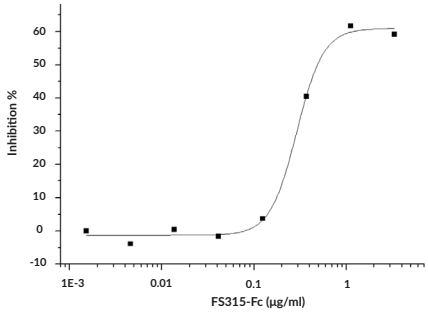
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: Follistatin

SDS-PAGE Analysis of Follistatin. This protein has a calculated molecular weight of 61.7 kDa. It has an apparent molecular weight of approximately 70 kDa by SDS-PAGE under reducing conditions due to glycosylation.



Ability of folistatin to neutralize Activin-mediated inhibition of MPC11 cell proliferation. The EC_{50} for this effect is typically 0.5-3 µg/ml in the presence of 10 ng/ml.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

Follistatin is a glycoprotein with roles in the reproductive system, as well as during development and in cell growth and differentiation.[1,2] It is composed of an N-terminal region, three 10-cysteine follistatin domains (FSDs), and a C-terminal segment.[3] Alternative splicing of *FST*, the gene encoding follistatin, generates two isoforms: FS-288 and FS-315, which differ in the length of the C-terminal region, and a third isoform, FS-303, is formed through proteolytic cleavage of FS-315.[1,3,4] Follistatin is ubiquitously expressed and primarily secreted but is found in the cytosol of certain cells.[2,4] It binds to proteins in the TGF-β superfamily, including activin, inhibin, and myostatin, and prevents them from interacting with their respective receptors. This inhibition of TGF-β family proteins leads to a wide variety of effects on inflammation, immunity, muscle formation, and cancer, among others.[1,5,6] Overexpression of *FST* in breast cancer cells *in vitro* reduces cell growth rate, and *FST* expression in breast cancer is associated with increased relapse-free survival.[6] *FST* gene therapy increases muscle mass and reduces knee inflammation in a mouse model of high-fat diet-induced obesity and surgically induced osteoarthritis.[7] Cayman's Follistatin (human, recombinant) protein can be used for ELISA and binding assay applications. This protein is a disulfide-linked homodimer. The reduced monomer, composed of follistatin (amino acids 30-344) fused to human IgG1 Fc at its C-terminus, consists of 556 amino acids and has a calculated molecular weight of 61.7 kDa. As a result of glycosylation, the monomer migrates at approximately 70 kDa by SDS-PAGE under reducing conditions.

References

1. Zhang, L., Liu, K., Han, B., *et al*. The emerging role of follistatin under stresses and its implications in diseases. *Gene* **639**, 111-116 (2018).
2. Phillips, D.J. and de Kretser, D.M. Follistatin: A multifunctional regulatory protein. *Front. Neuroendocrinol.* **19(4)**, 287-322 (1998).
3. Keutmann, H.T., Schneyer, A.L., and Sidis, Y. The role of follistatin domains in follistatin biological action. *Mol. Endocrinol.* **18(1)**, 228-240 (2004).
4. Kumar, T.R. Too many follistatins: Racing inside and getting out of the cell. *Endocrinology* **146(12)**, 5048-5051 (2005).
5. Hedger, M.P., Winnall, W.R., Phillips, D.J., *et al*. The regulation and functions of activin and follistatin in inflammation and immunity. *Vitam. Horm.* **85**, 255-297 (2011).
6. Zabkiewicz, C., Resaul, J., Hargest, R., *et al*. Increased expression of follistatin in breast cancer reduces invasiveness and clinically correlates with better survival. *Cancer Genom. Proteom.* **14(4)**, 241-251 (2017).
7. Tang, R., Harasymowicz, N.S., Wu, C.-L., *et al*. Gene therapy for follistatin mitigates systemic metabolic inflammation and post-traumatic arthritis in high-fat diet-induced obesity. *Sci. Adv.* **6(19)**, eaaz7492 (2020).

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