

Myostatin, active, human recombinant, expressed in Nicotiana benthamiana, His Tag, animal free

Catalog No:	99863
Lot No:	
Source:	Nicotiana benthamiana
UniProtKB:	O14793
Molecular formula:	C ₅₈₆ H ₈₆₅ N ₁₆₅ O ₁₆₄ S ₁₂
Extinction coefficient:	E 0.1% = 1.51 (A 280 nm)
Molecular weight:	Recombinant human Myostatin is a homodimer polypeptide chain containing 2X109 amino acids (267–375 of O14793 Growth/differentiation factor 8) and 6 amino acids Histidine-based tag. It has a predicted molecular mass of 26.8 kDa (13.4 kDa under reducing conditions in SDSPAGE)
p.I:	6.85
Purity:	>97% as determined by SDS-PAGE gel.
Endotoxin level:	<0.04 EU/ µg protein (LAL method)

Sequence:

HHHHHDFGL DCDEHSTESR CCRYPLTVDF EAFGWDWIIA PKRYKANYCS GECEVFLQK
YPHTHLVHQA NPRGSAGPCC TPTKMSPINM LYFNGKEQII YGKIPAMVVD RCGCS

Description:

Myostatin belongs to the transforming growth factor beta (TGFBs) superfamily, which includes: TGF-betas, Bone morphogenetic protein (BMPs), Growth differentiation factors (GDFs), Activins and Inhibins. As other members of this superfamily, is synthesized and secreted as a homodimeric prepropeptide that is cleaved by proprotein convertases such as furin, to generate the dimeric N-terminal propeptide and the dimeric C-terminal mature active Protein.

Myostatin is one of the most important protein that controls myoblast proliferation and it is a potent negative regulator of skeletal muscle mass in many animal species. Several studies have shown that Myostatin could play an important role in cardiac development and physiology.

Genetic deletion of Myostatin or in vivo administration of the Myostatin propeptide induces muscle hypertrophy as well as enhanced glucose utilization and insulin sensitivity and a reduction in overall fat mass.

Source:

Human recombinant protein expressed in *Nicotiana benthamiana*. It is produced by transient expression in non-transgenic plants and is purified by sequential chromatography (FPLC). This product contains no animal-derived components or impurities. Animal Free product.

Formulation:

Lyophilized from a Tris HCl 50mM, Urea 1.5 M, PMSF 0.004M and Glycine 50mM Buffer pH 8.

Reconstitution recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentration the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application and cell lines.

Storage and Stability:

This lyophilized preparation is stable at 2-8 °C for short term, for long storage it should be kept at -20 °C. Reconstituted protein should be stored in working aliquots at -20 °C. Repeated freezing and thawing is not recommended.

Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with Coomassie blue.

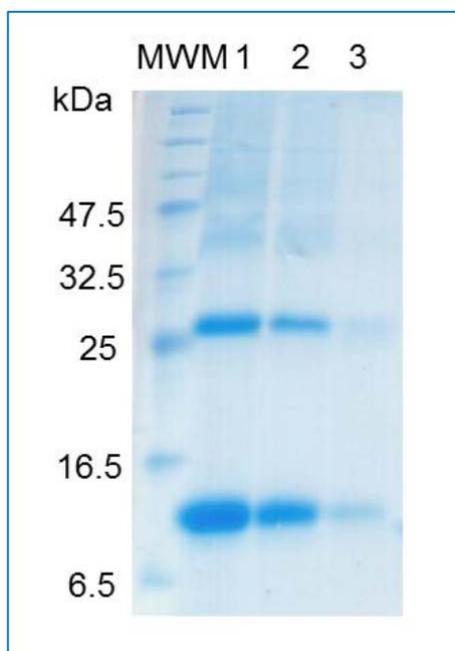


Figure 1. SDS-PAGE analysis of recombinant Myostatin. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. MWM: Molecular weight marker (kDa); lane 1-3 contains 2.5, 1.25 and 0.25 µg of rhuman Myostatin.

Serological Confirmation:

The protein was electrophoresed under reducing condition on a 15% SDS-polyacrylamide gel, transferred by electroblotting to a NC membrane and visualized by immune-detection with specific Myostatin antibody (reducing conditions ~13kDa monomer)

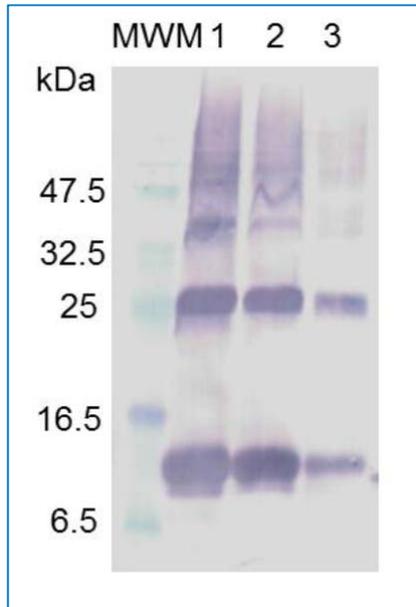
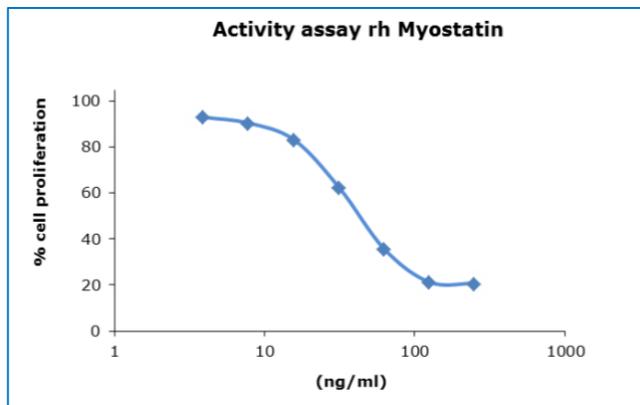


Figure 2. Western Blot analysis of recombinant Myostatin. Lane 1-3 contains 2.5, 1.25 and 0.25 µg of rhuman Myostatin

Biological Activity:

The biological activity of Myostatin is measured by its ability to inhibit mouse plasmacytoma cell line (MPC-11) cells.

EC50 30-40 ng/mL are required to stimulate a half-maximal response at cytokine saturation. Note: Since applications vary, each investigator should titrate the reagent to obtain optimal results.



References:

Rebbapragada, A. et al., 2003. Myostatin signals through a transforming growth factor beta-like signaling pathway to block adipogenesis. *Mol Cell Biol.*, 23: 7230-42.

Matsakas, A. et al., 2009. Molecular, cellular and physiological investigation of myostatin propeptide-mediated muscle growth in adult mice. *Neuromuscul. Disord.*, 19: 489–499.

Guo, T. et al., 2009. Myostatin inhibition in muscle, but not adipose tissue, decreases fat mass and improves insulin sensitivity. *PLoS ONE*, 4: e4937.

Sharma, M. et al., 1999. Myostatin, a transforming growth factor-beta superfamily member, is expressed in heart muscle and is upregulated in cardiomyocytes after infarct. *J. Cell Physiol.*, Jul, 180 (1): 1-9.

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