



Recombinant Mouse GDF-8/Myostatin Propeptide

Catalog Number: 1539-PG

Background

Growth differentiation Factor 8 (GDF-8), also known as myostatin, is a secreted protein that is expressed specifically in developing and adult skeletal muscle. It controls myoblast proliferation and is a potent negative regulator of skeletal muscle mass (1). GDF-8 belongs to the transforming growth factor β (TGF- β) superfamily, which includes the TGF- β s, bone morphogenetic proteins (BMPs), growth differentiation factors (GDFs), activins, inhibins, leftys, nodal, Mullerian inhibitory substance (MIS) and the glial cell line-derived neurotrophic factors (GDNFs) (2). All TGF- β superfamily members are synthesized and secreted as a homodimeric propeptide that is cleaved by proprotein convertases such as furin to generate the dimeric N-terminal propeptide and the dimeric C-terminal mature active protein. The C-terminal mature protein contains the characteristic conserved cysteine residues involved in the formation of the cysteine knot domain. Mouse GDF-8 cDNA encodes a 376 amino acid (aa) residue proprotein with a putative 24 aa signal peptide, a 243 aa propeptide and a 109 aa mature protein (1). As is the case with most TGF- β family proteins, GDF-8 is highly conserved across species. Mature human, mouse, rat, and bovine GDF-8 share 100% aa sequence identity. Among TGF- β family members, GDF-8 is most closely related to GDF-11/BMP-11. The two proteins share 65% overall aa sequence identity, within their mature regions, the two proteins differ only by 11 aa residues.

Similarly to TGF- β 1, 2, and 3, the GDF-8 homodimeric propeptide and mature protein remained non-covalently linked after proteolytic cleavage, and is released as a biologically inactive latent complex that does bind its receptor (3). In serum, GDF-8 has also been found to exist in a large latent complex that also included FLGR (follistatin-related gene) and GASP-1 (growth and differentiation factor-associated serum protein-1) in addition to the propeptide (4). R&D Systems' recombinant GDF-8 propeptide is capable of associating with the active GDF-8 with high-affinity to reconstitute the latent complex and is a potent GDF-8 antagonist.

References:

1. McPherron, A.C. *et al.* (1997) *Nature* **387**:83.
2. Chang, H. *et al.* (2002) *Endocrine Reviews* **23**:787.
3. Thies, R.S. *et al.* (2001) *Growth Factors* **18**:251.
4. Hill, J.J. *et al.* (2003) *Molecular Endocrinology* **17**:1144.

Description

Source	Murine myeloma cell line, NS0-derived Asn25 - Ser265, with a C-terminal 10-His tag Accession # Q540E2
N-terminal Sequence Analysis	Asn25
Predicted Molecular Mass	28.7 kDa

Specifications

SDS-PAGE	39 kDa, reducing conditions
Activity	Measured by its ability to inhibit rmGDF-8 activity in K562 human chronic myelogenous leukemia cells. Thies, R.S. <i>et al.</i> (2001) <i>Growth Factors</i> 18 :251. The ED ₅₀ for this effect is typically 0.05 - 0.25 μ g/mL in the presence of 40 ng/mL of rmGDF-8. Approximately 1 μ g/mL will completely inhibit GDF-8 activity in these cells.
Endotoxin Level	<1.0 EU per 1 μ g of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 μ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

Preparation and Storage

Reconstitution	Reconstitute at 50 μ g/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none">● 12 months from date of receipt, -20 to -70 °C as supplied.● 1 month, 2 to 8 °C under sterile conditions after reconstitution.● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

10/9/2009

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NOT FOR USE IN HUMANS.