

Background

Growth Differentiation Factor 8 (GDF-8), also known as Myostatin, is a secreted TGF- β superfamily 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 - 3). Mouse GDF-8 is synthesized as a 376 amino acid (aa) preproprotein that consists of a 24 aa signal peptide, a 243 aa propeptide, and a 109 aa mature protein (2). Within the propeptide, mouse GDF-8 shares 96% and 99% aa sequence identity with human and rat GDF-8, respectively. GDF-8 is secreted as a preproprotein that is cleaved by BMP-1 family proteases to separate the 35 - 40 kDa propeptide from the 12 kDa bioactive mature protein (4 - 6). This results in a latent complex containing a disulfide-linked dimer of the mature protein and two noncovalently-associated molecules of the propeptide (2, 6). The GDF-8 propeptide functions as an inhibitor of mature GDF-8, and GDF-8 activity can also be inhibited through association with Follistatin, FLRG, Decorin, or GASP-1 (6 - 11). The uncleaved GDF-8 proprotein binds Latent TGF- β bp3 which can sequester it in the extracellular matrix and prevent the proteolytic cleavage of the propeptide (12). GDF-8 binds to the type II Activin receptor Activin RIIb which then associates with the type I receptors Activin RIB/ALK-4 or TGF-beta RI/ALK-5 to induce signaling (13). GDF-8 additionally inhibits adipogenic differentiation of mesenchymal stem cells and preadipocytes (14). Genetic deletion of GDF-8 or *in vivo* administration of the GDF-8 propeptide induces muscle hypertrophy as well as enhanced glucose utilization and insulin sensitivity and a reduction in overall fat mass (15, 16).

References:

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Description

Source	Murine myeloma cell line, NS0-derived Asn25 - Ser265, with a C-terminal 10-His tag Accession # O08689
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 Recombinant Mouse GDF-8/Myostatin Propeptide. 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.

6/23/2011

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NOT FOR USE IN HUMANS