**DESCRIPTION**

Source: Mouse myeloma cell line, NS0-derived GDF-8/Myostatin protein
Asp268-Ser376
Accession #: O08689

N-terminal Sequence
Analysis: Asp268

Structure / Form: Disulfide-linked homodimer

Predicted Molecular Mass: 12.4 kDa

**SPECIFICATIONS**

**SDS-PAGE**
- 12 kDa, reducing conditions
- 24 kDa, non-reducing conditions

Activity: Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. Schwall, R.H. et al. (1991)
Method Enzymol. 198:340. The ED$_{50}$ for this effect is 2-10 ng/mL.

**Endotoxin Level**: <0.10 EU per 1 µg of the protein by the LAL method.

**Purity**: >90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation**: Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. *1 mg pack size (01M) is supplied as a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution**
Reconstitute at 100 µg/mL in sterile 4 mM HCl.

**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.
- 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.

**DATA**

**Bioactivity**

Recombinant Human/Mouse/Rat GDF-8/Myostatin (Catalog # 788-G8/CF) induces hemoglobin expression in the K562 human chronic myelogenous leukemia cell line. The ED$_{50}$ for this effect is 2-10 ng/mL.

**SDS-PAGE**

1 µg lane of Recombinant Human/Mouse/Rat GDF-8/Myostatin was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing the main bands at 12 kDa and 24 kDa, respectively.
Growth Differentiation Factor 8 (GDF-8), also known as myostatin, is a member of the TGF-β superfamily that is expressed specifically in developing and adult skeletal muscle. GDF-8 cDNA encodes a 376 amino acid (aa) prepropeptide with a 24 aa residue signal peptide, a 223 aa residue amino-terminal propeptide, and a 109 aa residue carboxy-terminal mature protein. Mature GDF-8 contains the canonical 7-cysteine motif common to other TGF-β superfamily members. Similar to the TGF-βs, activins and BMP-11, GDF-8 also contains one extra pair of cysteine residues that is not found in other family members. The bioactive form of GDF-8 is a homodimer with an apparent molecular weight of approximately 25 kDa. GDF-8 is highly conserved across species. At the amino acid sequence level, mature human, mouse, rat and cow GDF-8 are 100% identical. Within the TGF-β superfamily, GDF-8 is most closely related to BMP-11, a mammalian protein that acts as a dorsal mesoderm and neural inducer in Xenopus explants. The two proteins share 90% amino acid sequence identity within their mature chain. A targeted disruption of GDF-8 in mouse results in large mice with a widespread increase in skeletal muscle mass, indicating that GDF-8 is a negative regulator of skeletal muscle growth. A mutation in the bovine GDF-8 gene has been shown to be responsible for the double-muscled phenotype in cattle breeds such as Belgian Blue cattle that is characterized by an increase in muscle mass. GDF-8 has also been shown to inhibit preadipocyte differentiation to adipocytes. Mature GDF-8 binds to activin type II receptors and the binding is antagonized by the activin-binding protein, follistatin. R&D Systems recombinant GDF-8 preparations have been shown to act similarly to Activin A in both the Xenopus animal cap and the K562 assays.

References: