

## DESCRIPTION

<b>Species Reactivity</b>	Human/Mouse/Rat
<b>Specificity</b>	Detects human, mouse, and rat GDF-8/Myostatin in direct ELISAs and Western blots.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant mouse GDF-8/Myostatin Asp268-Ser376 Accession # O08689
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the antibody by the LAL method.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

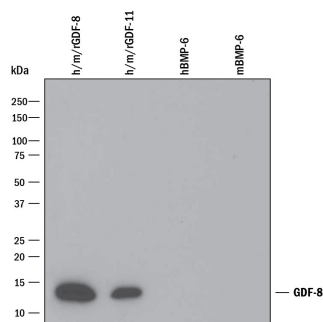
## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.1 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below
<b>Neutralization</b>	Measured by its ability to neutralize GDF-8/Myostatin-induced hemoglobin expression in the K562 human chronic myelogenous leukemia cell line. The Neutralization Dose (ND <sub>50</sub> ) is typically 0.6-3 µg/mL in the presence of 30 ng/mL Recombinant Mouse GDF-8/Myostatin.	

## DATA

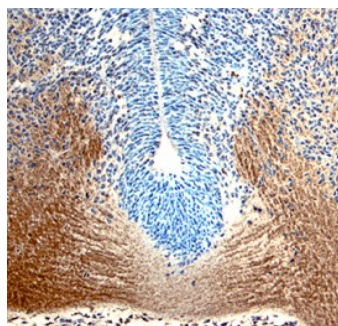
### Western Blot



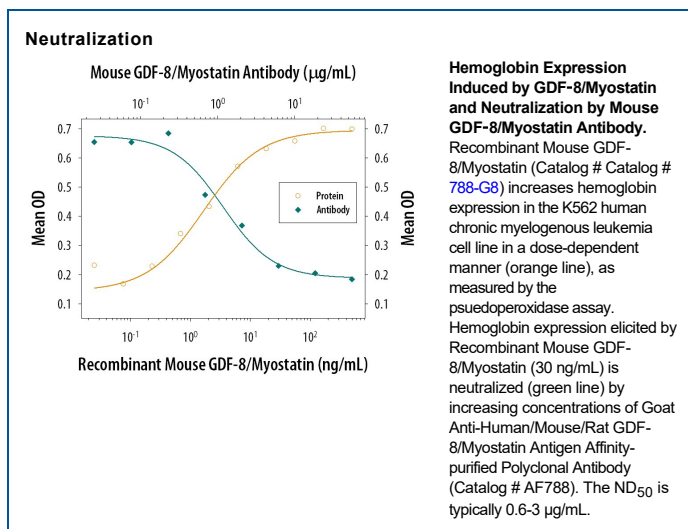
#### Detection of Recombinant Human, Mouse, and Rat GDF-8/Myostatin by Western Blot.

Western blot shows 25 ng of Recombinant Human/Mouse/Rat GDF-8/Myostatin (Catalog # [788-G8](#)), Recombinant Human/Mouse/Rat GDF-11/BMP-11 (Catalog # [1958-GD](#)), Recombinant Human BMP-6 (Catalog # [507-BP](#)), and Recombinant Mouse BMP-6 (Catalog # [6325-BM](#)). PVDF Membrane was probed with 0.1 µg/mL of Goat Anti-Human/Mouse/Rat GDF-8/Myostatin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF788) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # [HAF109](#)). A specific band was detected for GDF-8/Myostatin at approximately 14 kDa (as indicated). This experiment was conducted under reducing conditions and using [Immunoblot Buffer Group 3](#).

### Immunohistochemistry



**GDF-8/Myostatin in Mouse Embryo.** GDF-8/Myostatin was detected in immersion fixed frozen sections of mouse embryo (10 d.p.c., section through neural tube) using Goat Anti-Human/Mouse/Rat GDF-8/Myostatin Antigen Affinity-purified Polyclonal Antibody (Catalog # AF788) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # [CTS008](#)) and counterstained with hematoxylin (blue). View our protocol for [Chromogenic IHC Staining of Frozen Tissue Sections](#).



## PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 0.2 mg/mL in sterile PBS.

**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.  
\*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C

**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.
- 6 months, -20 to -70 °C under sterile conditions after reconstitution.

## BACKGROUND

Growth Differentiation Factor 8 (GDF-8), also known as myostatin, is a member of the TGF- $\beta$  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- $\beta$  superfamily members. Similar to the TGF- $\beta$ s, 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- $\beta$  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-muscling 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:

1. Storm, E.E. *et al.* (1994) *Nature* **368**:639.
2. Sharma, M. *et al.* (1999) *J. Cell Physiol.* **180**:1.
3. McPherron, A.C. *et al.* (1997) *Nature* **387**:83.
4. Lee, S.J. *et al.* (2001) *Proc. Natl. Acad. Sci. USA* **98**:9306.
5. Kim, H.S. *et al.* (2001) *Biochem. Biophys. Res. Commun.* **281**:902.