DESCRIPTION
Source  E. coli-derived
Asn299-Ser407, with an N-terminal Met
Accession # O95390

N-terminal Sequence Analysis  Met-Asn<sup>299</sup>-Leu-Gly-Leu-Asp-(Cys)-Asp-Glu-His

Structure / Form  Disulfide-linked homodimer

Predicted Molecular Mass  12.6 kDa (monomer)

SPECIFICATIONS
Activity  Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. Schwall, R.H. et al. (1991)
The ED<sub>50</sub> for this effect is 0.8-4.8 ng/mL.

Endotoxin Level  <0.01 EU per 1 μg of the protein by the LAL method.

Purity  >95%, 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 with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE
Reconstitution  Reconstitute at 100 μg/mL in sterile 4 mM HCl 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.
  ● 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-11/BMP-11 (Catalog # 1958-GD) induces hemoglobin expression in the K562 human chronic myelogenous leukemia cell line. The ED<sub>50</sub> for this effect is 0.8-4.8 ng/mL.

SDS-PAGE  1 μg lane of Recombinant Human/Mouse/Rat GDF-11/BMP-11 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 13 kDa and 21 kDa, respectively.

Mass Spectrometry  ESI analysis of Recombinant Human/Mouse/Rat GDF-11/BMP-11. The peak at 25163 Da corresponds to the calculated molecular mass of the disulfide-linked homodimer.

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Growth Differentiation Factor 11 (GDF-11), also known as BMP-11, is a member of the TGF-β superfamily and is highly related to GDF-8. GDF-11 encodes a 407 amino acid (aa) prepropeptide which contains a signal sequence for secretion and an RXXR proteolytic processing site to yield a 109 aa residue carboxy-terminal mature protein (1). Mature GDF-11 contains the canonical 7-cysteine motif common to other TGF-β superfamily members; however, like the TGF-βs, Activins and GDF-8, GDF-11 also contains one extra pair of cysteine residues. At the amino acid sequence level, mature human, mouse, rat and chicken GDF-11 are 99-100% identical. GDF-11 and GDF-8 share 90% amino acid sequence identity within the mature protein. As detected by in situ hybridization, GDF-11 is expressed in diverse regions of the mouse embryo: tailbud, somitic precursors, limbs, mandibular and branchial arches, dorsal neural tube, odontoblasts, nasal epithelium, and particular regions of the brain (1, 2). Targeted deletion of GDF-11, in mice, results in a spectrum of abnormalities including palatal malformation, vertebral defects, elongated trunks with a reduced or absent tail, missing or malformed kidneys, and an increased number of neurons in the olfactory epithelium (2-5). GDF-11 signals through the Activin type II receptors and induces phosphorylation of Smad2 to mediate axial patterning (6). Systemic GDF-11 levels decline with age and administration of higher levels of GDF-11 can reverse age-related cardiac hypertrophy (7). In addition, systemic administration of recombinant GDF-11 protein restores genomic integrity and health of muscle stem cells, neurovasculature and enhances neurogenesis (8, 9). R&D Systems recombinant GDF-11 preparations have been shown to act similarly to GDF-8 in both the Xenopus animal cap and the K562 assays.

References: