Recombinant Mouse GDF-5/BMP-14
Catalog Number: 853-G5

DESCRIPTION
Source  E. coli-derived
Ala376-Arg495, with and without an N-terminal Met
Accession # P43027

N-terminal Sequence Analysis  Met and Ala376
Structure / Form  Disulfide-linked homodimer
Predicted Molecular Mass  13.7 kDa (monomer)

SPECIFICATIONS
The ED₅₀ for this effect is 0.2-1.2 µg/mL.

Endotoxin Level  <0.10 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 150 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.

BACKGROUND
Growth Differentiation Factor-5 (GDF-5; also called BMP-14 and CDMP-1) is a member of the BMP family of TGF-β superfamily proteins (1, 2). GDF-5, -6, and -7 are a defined subgroup of the BMP family (3). GDF-5 is synthesized as a large precursor protein that consists of an N-terminal 19 amino acid (aa) signal sequence, a 362 aa pro region and a 120 aa C-terminal mature peptide. Mature mouse GDF-5 shares 99% aa sequence identity with both mature human and rat GDF-5. GDF-5 signaling is mediated by formation of a heterodimeric complex consisting of a type 1 (BMPR-IB) and a type II (BMPR-II or Activin RIIB) serine/threonine kinase receptor which results in the phosphorylation and activation of cytosolic Smad proteins (Smad1, 5, and 8) (4, 5). Similar to other BMP family proteins, GDF-5 signaling is antagonized by Noggin (6). GDF-5 is involved in multiple developmental processes including limb generation, cartilage development, joint formation, bone morphogenesis, cell survival, and neurogenesis (7-11). Exogenous GDF-5 has been reported to promote chondrogenesis, osteogenesis, and angiogenesis in mesenchymal stem cells in vivo and in vitro (12-14). Inhibition of GDF-5 expression or alteration of its signaling can facilitate the development of osteoarthritis (15-18).

References: