



# Recombinant Protein Technical Manual

## Recombinant Human GDF5/BMP4 Protein

RPES2340

### Product Data:

**Product SKU:** RPES2340

**Size:** 10µg

**Species:** Human

**Expression host:** E. coli

**Uniprot:** P43026

### Protein Information:

**Molecular Mass:** 13.7 kDa

**AP Molecular Mass:** 15 kDa

**Tag:**

**Bio-activity:**

**Purity:** > 95% as determined by reducing SDS-PAGE.

**Endotoxin:** < 1.0 EU per µg as determined by the LAL method.

**Storage:** Lyophilized protein should be stored at < -20°C, though stable at room temperature for 3 weeks. Reconstituted protein solution can be stored at 4-7°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.

**Shipping:** This product is provided as lyophilized powder which is shipped with ice packs.

**Formulation:** Lyophilized from a 0.2 µm filtered solution of 4mM HCl.

**Reconstitution:** Please refer to the printed manual for detailed information.

**Application:**

**Synonyms:** Growth/differentiation factor 5; GDF-5; Bone morphogenetic protein 14; BMP4; Cartilage-derived morphogenetic protein 1; CDMP; Lipopolysaccharide-associated protein 4; LAP-4; LPS-associated protein 4; Radotermin; CDMP1

## Immunogen Information:

**Sequence:** Ala382-Arg501

## Background:

Growth Differentiation Factor 5 (GDF-5, BMP4) is a member of the BMP family of TGF $\beta$  superfamily proteins. Human GDF-5, -6, and -7 are a defined subgroup of the BMP family. GDF-5 is synthesized as a homodimeric precursor protein consisting of a 354 amino acid (aa) N-terminal proregion and a 120 aa C-terminal mature peptide. Mature human GDF-5 shares 99% aa sequence identity with both mature mouse and rat GDF-5. GDF-5 signaling is mediated by formation of a heterodimeric complex consisting of a type I (BMPRII) and a type II (BMPRI or Activin RII) serine/threonine kinase receptor which results in the phosphorylation and activation of cytosolic Smad proteins (Smad1, 5, and 8). GDF-5 is involved in multiple developmental processes including limb generation, cartilage development, joint formation, bone morphogenesis, cell survival, and neuritogenesis. Inhibition of GDF-5 expression or alteration of its signaling can facilitate the development of osteoarthritis.