Recombinant GDF5 protein (His tag)

Catalog Number	546983
Synonyms	GDF-5; Bone morphogenetic protein 14; BMP-14; Cartilage-derived morphogenetic protein 1; CDMP-1; Lipopolysaccharide-associated protein 4; LAP-4; LPS-associated protein 4; Radotermin
Species	Human
Expression System	E. coli
Accession	P43026
Molecular Weight	Predictes a molecular mass of 15.23 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 15 kDa band.

Product Information

Sequence Region	382-501
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>86%, by SDS-PAGE with Coomassie Brilliant Blue staining.
Endotoxin	Not tested.
Activity	Not tested.
Stability	Samples are stable for up to twelve months from date of receipt at -70℃
Protein Construction	DNA encoding 382-501 aa (P43026) were fused with 6His tag.

Storage & Handling

Reconstitution	Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution.
Storage	Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Shipping	In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	Recombinant Human Growth/Differentiation Factor 5 (GDF-5) Fragment (residues 382-501) is a highly purified protein designed for research into bone and cartilage development. This 120-amino acid fragment, computationally selected for stability and solubility, enables structural and biochemical studies of GDF-5's role in chondrogenic differentiation and inflammatory signaling. Growth/differentiation factor 5 (GDF-5), also known as BMP-14 or CDMP-1, is a secreted human protein critical for skeletal formation. It regulates cartilage development through dual pathways: it promotes chondrogenic differentiation by binding BMP receptors (BMPR1B with high affinity and BMPR1A with lower affinity), activating SMAD1/5/8 phosphorylation and downstream signaling. Conversely, GDF-5 can inhibit chondrogenesis via interaction with Noggin. Additionally, it binds bacterial lipopolysaccharide (LPS), mediating LPS-induced inflammatory responses such as TNF secretion in monocytes. The protein localizes to the secretory pathway and cell membrane, facilitating its extracellular signaling functions. This recombinant fragment corresponds to a stable structural domain, supporting investigations into GDF-5's mechanisms in musculoskeletal biology and inflammation.