Biotinylated Recombinant Human BMP-6
Catalog Number: BT507

DESCRIPTION

Source
Mouse myeloma cell line, NS0-derived
Gln382-His513
Accession # P22004

N-terminal Sequence
Analysis
No results obtained. Gln382 expected

Structure / Form
Disulfide-linked homodimer, biotinylated via sugars

Predicted Molecular Mass
15 kDa (unlabeled)

SPECIFICATIONS

Activity
Measured by its ability to induce alkaline phosphatase production by ATDC5 mouse chondrogenic cells. Nakamura, K. et al. (1999) Exp. Cell Res. 250:351. The ED50 for this effect is typically 0.02-0.15 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 Comassie® Blue Staining.

Formulation
Lyophilized from a 0.2 m filtered solution in HCl with BSA as carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution
Reconstitute at 100 μg/mL in 4 mM HCl.

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

Bone Morphogenetic Protein 6 (BMP-6), also known as Vgr-1, is a member of the BMP subfamily of TGF-β superfamily proteins. BMPs are involved in a wide range of processes including embryogenesis, tissue morphogenesis, cell differentiation and migration, and tumorigenesis (1). Human BMP-6 is synthesized as a 513 amino acid (aa) precursor protein that is cleaved at the dibasic cleavage site (RxxR) to release the 18 kDa C-terminal mature protein. Biologically active BMP-6 consists of a disulfide-linked homodimer of the mature protein, although it can also form heterodimers with mature BMP-2 (2, 3). Mature human BMP-6 shares 96% and 98% aa sequence identity with mouse and rat BMP-6, respectively. Cellular responses to BMP-6 are mediated by hetero-oligomeric complexes of type I (Activin RIIA/ALK-2 and BMPR-IA/ALK-3) and type II (Activin RIIA and BMPR-II) serine/threonine kinase receptors (4, 5). BMP-6 induces the expression of Noggin and is subsequently antagonized by Noggin (6). BMP-6 induces a wide range of cellular responses. It promotes osteoblast differentiation from mesenchymal stem cells (7), chondrocyte maturation (8), Ang II-induced aldosterone production in the adrenal cortex (4), hormone production and responsiveness in ovarian granulosa cells (9), iNOS and TNF-α production in macrophages (5), the cell death of B cells (10), and neurite outgrowth (11). BMP-6 expression is induced in astrocytes surrounding sites of brain injury where it functions as a neuroprotectant (11, 12). It enhances tumor progression by promoting local angiogenesis and differentiation of immune tolerizing M2 macrophages (13-15). Through interactions with the BMP co-receptor RGM-RHemojuvelin, BMP-6 plays an important role in iron homeostasis by promoting Hepcidin expression and preventing serum iron overload (16). Heterodimers of BMP-2 and BMP-6 show increased potency at inducing osteoblastic calcium deposition, chondrogenesis, and in vivo bone formation compared to either BMP-2 or BMP-6 homodimers (3).

References: