

DESCRIPTION

Source	<i>Spodoptera frugiperda</i> , Sf 21 (baculovirus)-derived human HGF protein Gln32-Ser728 (Asp384Asn, Asp416Asn, Leu622Ser, His645Arg, Val678Ile) Accession # P14210.2
N-terminal Sequence Analysis	α chain: No results obtained; Gln32 predicted β chain: Val495
Structure / Form	Disulfide-linked heterodimer
Predicted Molecular Mass	53.7 kDa (α chain), 26 kDa (β chain)

SPECIFICATIONS

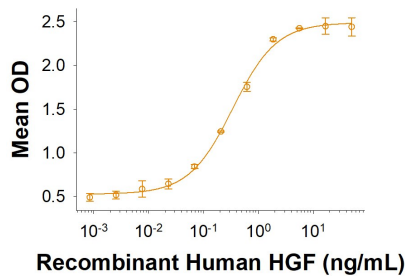
SDS-PAGE	60-70 kDa, nonreducing conditions 60 kDa, and 33-34 kDa, reducing conditions
Activity	Measured by its ability to induce IL-11 secretion by Saos-2 human osteosarcoma cells. Hjertner, O. <i>et al.</i> (1999) <i>Blood</i> 94 :3883. The ED ₅₀ for this effect is equal to or less than 4.00 ng/mL.
Endotoxin Level	<1.0 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 NaH ₂ PO ₄ and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
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. <ul style="list-style-type: none"> • 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.

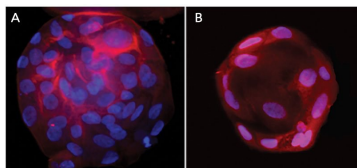
DATA

Bioactivity



Recombinant Human HGF Protein Bioactivity Recombinant Human HGF (Catalog # 294-HG/CF) induces IL-11 secretion in Saos-2 human osteosarcoma cells. The ED₅₀ for this effect is equal to or less than 4.00 ng/mL.

Cell Culture



Adult Stem Cell-derived Liver Organoids Cultured using Recombinant Human HGF Protein. Adult stem cell-derived liver organoids were cultured using Cultrex UltiMatrix RGF Basement Membrane Extract (Catalog # BME001-05) and liver organoid initiation medium, which includes Recombinant Human HGF (Catalog # 294-HG/CF), Recombinant Human BMP-7 (Catalog # 354-BP), Recombinant Human EGF (Catalog # 236-EG), Recombinant Human FGF-10 (Catalog # 345-FG), Recombinant Human Noggin (Catalog # 6057-NG), Recombinant Human R-Spondin 1 (Catalog # 4645-RS), and Recombinant Human Wnt-3a (Catalog # 5036-WN), along with the other reagents listed in the liver organoid initiation medium recipe in the [human liver organoid culture protocol](#). After 3 days, liver organoid expansion medium was added for 7-10 days, followed by liver organoid differentiation medium, which includes Recombinant Human HGF (Catalog # 294-HG/CF), Recombinant Human BMP-7 (Catalog # 354-BP), Recombinant Human EGF (Catalog # 236-EG), and Recombinant Human FGF-19 (Catalog # 969-FG), along with the other reagents listed in the liver organoid differentiation medium recipe in the human liver organoid culture protocol. Differentiated human liver organoids were stained using a (A) Mouse Anti-Human Serum Albumin Monoclonal Antibody (Catalog # MAB1455; red) and a (B) Goat Anti-Human HNF-3beta Antigen Affinity-purified Polyclonal Antibody (Catalog # AF2400; red) and counterstained with DAPI (Catalog # 5748; blue).

BACKGROUND

HGF, also known as scatter factor and hepatopoietin A, is a pleiotropic protein in the plasminogen subfamily of S1 peptidases. It is a multidomain molecule that includes an N-terminal PAN/APPLE-like domain, four Kringle domains, and a serine proteinase-like domain that has no detectable protease activity (1-5). Human HGF is secreted as an inactive 728 amino acid (aa) single chain propeptide. It is cleaved after the fourth Kringle domain by a serine protease to form bioactive disulfide-linked HGF with a 60 kDa α and 30 kDa β chain. Alternate splicing generates human HGF isoforms that lack the proteinase-like domain and different numbers of the Kringle domains. Human HGF shares 91%-94% aa sequence identity with bovine, canine, feline, mouse, and rat HGF. HGF binds heparan-sulfate proteoglycans and the widely expressed receptor tyrosine kinase, HGF R/c-MET (6, 7). HGF-dependent c-MET activation is implicated in the development of many human cancers (8). HGF regulates epithelial morphogenesis by inducing cell scattering and branching tubulogenesis (9, 10). HGF induces the up-regulation of integrin $\alpha 2 \beta 1$ in epithelial cells by a selective increase in $\alpha 2$ gene transcription (11). This integrin serves as a collagen I receptor, and its blockade disrupts epithelial cell branching tubulogenesis (11, 12). HGF can also alter epithelium morphology by the induction of nectin-1 α ectodomain shedding, an adhesion protein component of adherens junctions (13). In the thyroid, HGF induces the proliferation, motility, and loss of differentiation markers of thyrocytes and inhibits TSH-stimulated iodine uptake (14). HGF promotes the motility of cardiac stem cells in damaged myocardium (15).

References:

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