

DESCRIPTION

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| Source | Mouse myeloma cell line, NS0-derived human HGF protein Gln ₃₂ -Ser728 Accession # P14210 Manufactured and tested under cGMP guidelines. |
| N-terminal Sequence Analysis | Amino acid sequencing of the alpha chain was blocked, suggesting it is consistent with Gln ₃₂ Gln ₃₂ -Arg-Lys-Arg-Arg-Asn-Thr-Ile-His-Glu (α-chain) Val ₄₉₅ -Val-Asn-Gly-Ile-Pro-Thr-Arg-Thr-Asn (β-chain) |
| Structure / Form | Disulfide-linked heterodimer |
| Predicted Molecular Mass | α chain: 53.7 kDa β chain: 26 kDa |

SPECIFICATIONS

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| SDS-PAGE | 65-75 kDa, non-reducing conditions 60-65 kDa, and 30-40 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) Blood 94 :3883. The ED ₅₀ for this effect is 0.1-0.5 ng/mL. The specific activity of recombinant human HGF is approximately 1.5 x 10 ³ IU/μg, which is calibrated against recombinant human HGF WHO International Standard (NIBSC code: 96/564). |
| Endotoxin Level | <0.10 EU per 1 μg of the protein by the LAL method. |
| Purity | >95%, by SDS-PAGE with silver staining, under reducing conditions. |
| Host Cell Protein | < 5 ng per μg of protein when tested by ELISA. |
| Mycoplasma | Negative when tested in a ribosomal RNA hybridization assay. |
| Formulation | Lyophilized from a 0.2 μm filtered solution in PBS. See Certificate of Analysis for details. |

PREPARATION AND STORAGE

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| Reconstitution | Reconstitute at 100 μg/mL in 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"> • A minimum of 6 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution. |

DATA

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| <p>Bioactivity</p> <p>Recombinant Human HGF GMP induces IL-11 secretion by Saos-2 human osteosarcoma cells. The ED₅₀ for this effect is 0.1-0.5 ng/mL.</p> | <p>SDS-PAGE</p> <p>1 μg/lane of GMP-grade Recombinant Human HGF (Catalog # 294-GMP) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing R bands at 34-37 and 60-64 kDa and NR bands at 76-83 kDa, respectively.</p> |
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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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MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days)
- Host Cell Protein testing performed by ELISA
- Mycoplasma testing by ribosomal RNA hybridization assay

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