

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Gln32-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

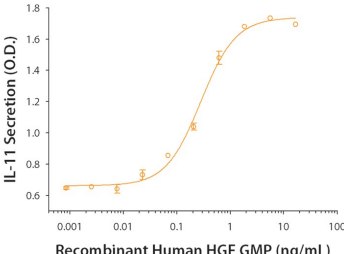
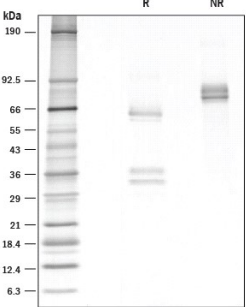
SPECIFICATIONS

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

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

<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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- Personnel training programs
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- Fully validated equipment, processes and test methods
- Equipment calibration schedules using a computerized calibration program
- Facility maintenance, safety programs and pest control
- Material review process for variances
- Monitoring of stability over product shelf-life

R&D Systems strives to provide our customers with the analytical characteristics of each product so that customers may determine whether our products are appropriate for their research. The Certificate of Analysis provided contains the following lot specific information:

- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- 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

Additional testing and documentation requested by the customer can be arranged at an additional cost. Testing may include, but is not limited to, USP< 61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

Production records and facilities are available for examination by appropriate personnel on-site at R&D Systems in Minneapolis, Minnesota USA.

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