Animal-Free™ Recombinant Human HGF

Catalog Number: Qk013

DESCRIPTION

Source	*E. coli*-derived human HGF protein Accession # P14210.2
Predicted Molecular Mass	20 kDa

SPECIFICATIONS

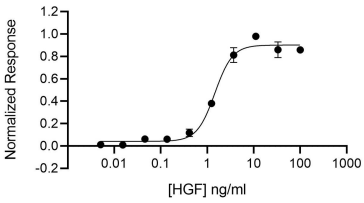
SDS-PAGE	Monomeric HGF (NK1) protein only
Activity	No significant difference between EC_{50} of reference and test lots
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Mass Spectrometry	Single species with expected mass
Formulation	Lyophilized from acetonitrile/TFA See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Resuspend in 10mM HCl at >100 µg/ml, prepare single use aliquots, add carrier protein if desired.
Shipping	The product is shipped lyophilized at ambient temperture, on ice blocks or dry ice. Shipping at ambient temperture does not affect the bioactivity or stability of the protein. Upon reciept, store immediately at the conditions stated below.
Stability & Storage	BulkLotPrefix assignment required for Storage Info

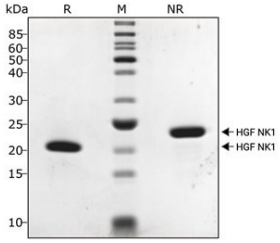
DATA

Bioactivity



Recombinant Human HGF (NK1), Animal-Free Protein Bioactivity HGF NK1 activity is determined using the Promega serum response element luciferase reporter assay (*) in transfected HEK293T cells. Cells were treated in duplicate with a serial dilution of HGF for 6 hours. Firefly luciferase activity is measured and normalized to the control Renilla luciferase activity. EC_{50} = 1.5 ng/ml (72.9 pM).
*Promega pGL4.33[luc2P/SRE/Hygro] #E1340

SDS-PAGE



Recombinant Human HGF (NK1), Animal-Free Protein SDS-PAGE HGF NK1 migrates as major band at 20 kDa in non-reducing conditions and 18 kDa upon reduction. Purified recombinant protein (7 µg) was resolved using 15% w/v SDS-PAGE in reduced (+DTT, R) and non-reduced conditions (NR) and stained with Coomassie Brilliant Blue R250. NB reduced samples were not boiled as the protein is sensitive to high temperatures, which causes degradation.

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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 α2β1 in epithelial cells by a selective increase in α2 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-1α 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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PRODUCT SPECIFIC NOTICES

The above product was manufactured, tested and released by R&D System's contract manufacturer, Qkine Ltd, at 1 Murdoch House, Cambridge, UK, CB5 8HW. The product is for research use only and not for the diagnostic or theraputic use.

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