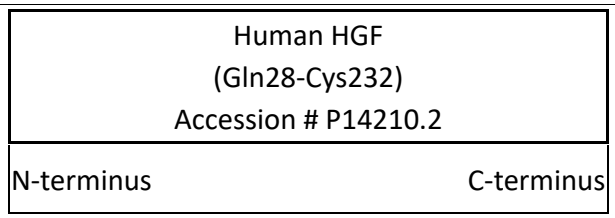
K2 ONCOLOGY

DataSheet

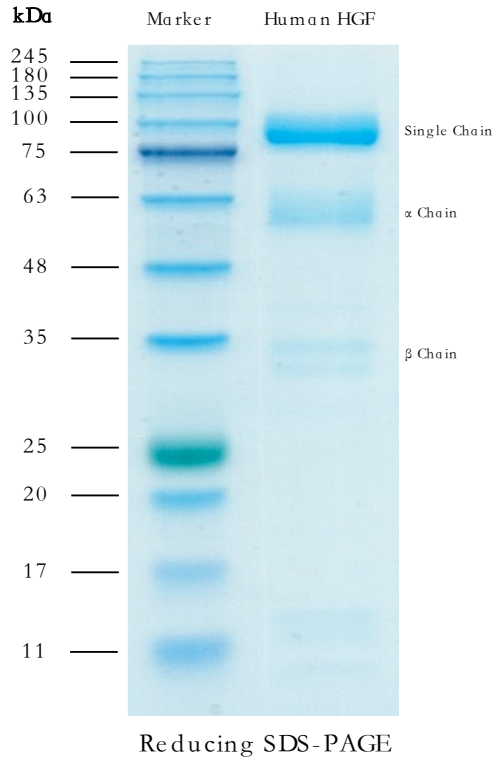
Recombinant Human HGF Protein

Cat. No.: HG01-100 Size: 100μg
Cat. No.: HG01-1000 Size: 1mg

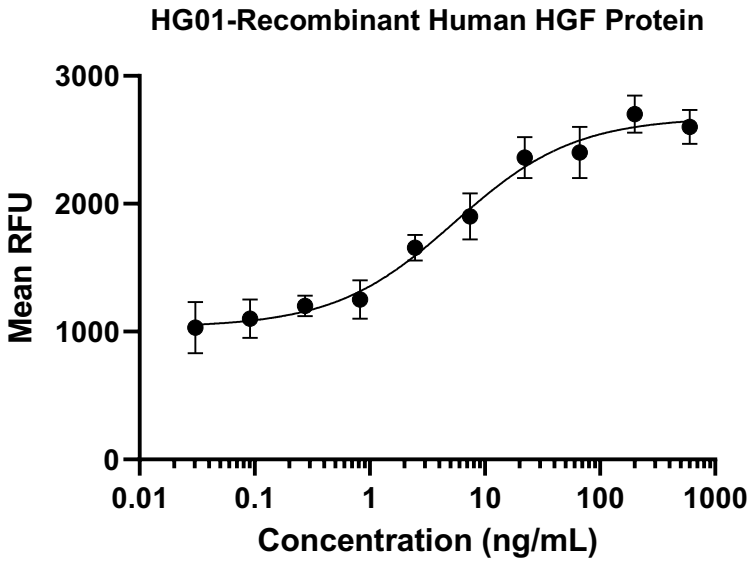
Product Specifications

Source:	 Human HEK293 cell line, HEK293-derived human HGF protein
Accession:	P14210.2
Purity:	>90%, by SDS-PAGE under reducing conditions.
Endotoxin Level:	<0.10 EU/μg of the protein by the LAL method.
Activity:	The activity was determined by the dose-dependent stimulation of the proliferation of the monkey 4MBr-5 cell line. The ED50 for this effect is 5-50 ng/mL.
Organoids Culture Test:	Pass
Structure:	Disulfide-linked heterodimer.
Predicted Molecular Weight	Single chain:79.7kDa, alpha chain: 53.7 kDa, beta chain: 26 kDa.
SDS-PAGE	85-100kDa, 60-63kDa and 30-35 kDa corresponding to the single chain, α chain and β chain, reducing conditions.
Sterile:	0.22μm sterile filtration.
Product Form:	Lyophilized powder.
Shipping & Storage:	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below: ➢ To the date of expiration, -20°C to -80°C as supplied. ➢ 3 months, -20°C to -80°C under sterile conditions after reconstitution. ➢ 1 month, 2 to 8 °C under sterile conditions after reconstitution. **Avoid repeated freeze-thaw cycles.**

Scientific Data



The purity of the recombinant human HGF protein was analyzed using SDS-PAGE under reducing conditions and stained using Coomassie blue.



The activity was determined by the dose-dependent stimulation of the proliferation of the monkey 4MBr-5 cell line. The ED50 for this effect is 5-50 ng/mL.

Product Background:

HGF, also known as scatter factor and hepatopoietin A, is a multifunctional protein involved in organoid culture. It belongs to the plasminogen subfamily of S1 peptidases and consists of several domains, including an N-terminal PAN/APPLE-like domain, four Kringle domains, and a serine proteinase-like domain without protease activity. HGF is initially secreted as an inactive propeptide containing 728 amino acids. It undergoes cleavage after the fourth Kringle domain by a serine protease to generate bioactive disulfide-linked HGF, consisting of a 60 kDa alpha chain and a 30 kDa beta chain. Alternative splicing of the HGF gene leads to the production of isoforms lacking the proteinase-like domain and varying numbers of Kringle domains. Human HGF shares significant sequence identity (91%-94%) with HGF from other species, including bovine, canine, feline, mouse, and rat.

HGF exerts its effects by binding to heparan-sulfate proteoglycans and the widely expressed receptor tyrosine kinase, HGF R/c-MET. The activation of c-MET by HGF is implicated in the development of various human cancers. In the context of organoid culture, HGF plays a crucial role in regulating epithelial morphogenesis by inducing cell scattering and branching tubulogenesis. It promotes the up-regulation of integrin alpha 2 beta 1, a collagen I receptor, and its blockade disrupts epithelial cell branching tubulogenesis. HGF also influences epithelium morphology by inducing the shedding of the nectin-1 alpha ectodomain, an adhesion protein component of adherens junctions .

Furthermore, HGF affects the thyroid by inducing the proliferation, motility, and loss of differentiation markers

in thyrocytes, as well as inhibiting TSH-stimulated iodine uptake. In damaged myocardium, HGF promotes the motility of cardiac stem cells. These diverse functions of HGF make it an essential factor in organoid culture.

References:

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RUO Statement:

Recombinant Human HGF Protein for Research Use Only. It is not intended for diagnostic, therapeutic, or any other clinical applications.

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