

Animal-Free SCF Protein, Human (His)

Cat. No.:	HY-P700148AF
Synonyms:	Kit Ligand; Mast Cell Growth Factor; MGF; Stem Cell Factor; SCF; c-Kit ligand; KITLG; MGF; SCF
Species:	Human
Source:	E. coli
Accession:	P21583 (E26-A189)
Gene ID:	4254
Molecular Weight:	Approximately 19.4 kDa

PROPERTIES

AA Sequence	<pre> M E G I C R N R V T N N V K D V T K L V A N L P K D Y M I T L K Y V P G M D V L P S H C W I S E M V V Q L S D S L T D L L D K F S N I S E G L S N Y S I I D K L V N I V D D L V E C V K E N S S K D L K K S F K S P E P R L F T P E E F F R I F N R S I D A F K D F V V A S E T S D C V V S S T L S P E K D S R V S V T K P F M L P P V A </pre>
Biological Activity	Measure by its ability to induce TF-1 cells proliferation. The ED ₅₀ for this effect is <5 ng/mL. The specific activity of recombinant human SCF is >5 x 10 ⁵ IU/mg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS containing, pH 7.4.
Endotoxin Level	<0.1 EU per 1 µg of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The GMP stem cell factor (SCF) protein serves as a ligand for the receptor-type protein-tyrosine kinase KIT, playing a pivotal role in the regulation of diverse cellular processes. Its functions span the control of cell survival and proliferation, hematopoiesis, stem cell maintenance, gametogenesis, mast cell development, migration, and melanogenesis. Upon binding with KIT, GMP SCF activates multiple signaling pathways, including the phosphorylation of PIK3R1 and subsequent activation of the kinase AKT1. The interaction also triggers signaling cascades involving GRB2, RAS, RAF1, and the MAP
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kinases MAPK1/ERK2 and/or MAPK3/ERK1. Furthermore, GMP SCF and KIT promote the activation of STAT family members (STAT1, STAT3, and STAT5), as well as PLCG1, leading to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate. Acting synergistically with other cytokines, likely interleukins, GMP SCF forms a homodimer non-covalently linked and a heterotetramer with KIT, facilitating KIT dimerization and subsequent activation through autophosphorylation.

Caution: Product has not been fully validated for medical applications. For research use only.

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