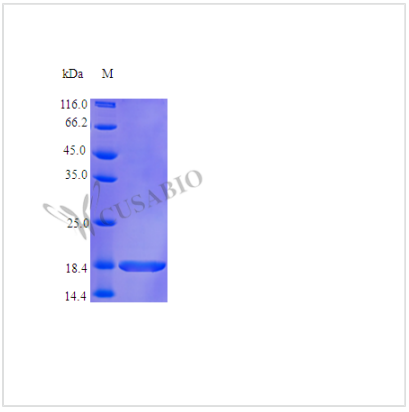
Recombinant Human Kit ligand protein (KITLG), partial (Active)

Product Code	CSB-AP002061HU
Abbreviation	Recombinant Human KITLG protein, partial (Active)
Uniprot No.	P21583
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, pH 7.4
Product Type	Colony Stimulating Factor
Immunogen Species	Homo sapiens (Human)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by a cell proliferation assay using human TF-1 cells is less than 2 ng/ml, corresponding to a specific activity of >5.0x10^5 IU/mg.
Purity	>97% as determined by SDS-PAGE.
Sequence	EGICRNRVTN NVKDVTKLVA NLPKDYMITL KYVPGMDVLP SHCWISEMVV QLSDSLTDLL DKFSNISEGL SNYSIIDKLV NIVDDLVECV KENSSKDLKK SFKSPEPRLF TPEEFFRIFN RSIDAFKDFV VASETSDCVV SSTLSPEKDS RVSVTKPFML PPVA
Research Area	Immunology
Source	E.coli
Target Names	KITLG
Expression Region	26-189aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	18.5 kDa
Protein Length	Partial
PubMed ID	1724381
Image	



Description

Recombinant Human Kit ligand protein (KITLG) is produced in an E. coli expression system and contains amino acids 26-189 of the human sequence. This tag-free protein reaches over 97% purity based on SDS-PAGE analysis, which appears to make it well-suited for research work. The protein retains full biological activity, showing an ED50 of less than 2 ng/ml in cell proliferation assays with human TF-1 cells. This translates to a specific activity greater than 5.0 × 10^5 IU/mg. Endotoxin levels stay below 1.0 EU/μg, as measured by the LAL method.

KITLG, also known as stem cell factor, plays what seems to be a crucial role in hematopoiesis by driving proliferation and differentiation of hematopoietic stem cells. The protein participates in various cellular processes—mast cell development and function among them—and appears essential for immune response and pigmentation pathways. Researchers focus heavily on this protein because of its involvement in critical signaling pathways that regulate cell survival and proliferation.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Cell Proliferation and Viability Assays

This recombinant KITLG protein can stimulate cell proliferation in hematopoietic cell lines and primary cells that express the KIT receptor. The demonstrated biological activity with an ED50 of less than 2 ng/ml using TF-1 cells gives researchers a validated concentration range for experimental design. Scientists can use this protein to study dose-response relationships or optimize culture conditions for KIT-expressing cells. Investigating cellular responses to KITLG stimulation becomes more straightforward with this tool. The high purity (>97%) and low endotoxin levels make it suitable for sensitive cell culture work where contamination might skew results.

2. Receptor Binding and Interaction Studies

The biologically active KITLG protein may serve as an effective ligand in binding assays to characterize KIT receptor interactions and binding kinetics. Surface plasmon resonance, biolayer interferometry, or fluorescence polarization assays can help determine binding affinity, association and dissociation rates, and competitive binding with other molecules. The tag-free nature of this protein eliminates potential interference from fusion tags that could affect binding properties. These studies might provide fundamental biochemical data on KITLG-KIT interactions and support drug discovery efforts targeting this pathway.

3. Signal Transduction Pathway Analysis

This recombinant protein can help investigate downstream signaling cascades that KITLG-KIT binding activates in various cell types. Researchers can stimulate cells and analyze phosphorylation events, gene expression changes, or metabolic alterations using techniques like Western blotting, qPCR, or metabolomics. The defined specific activity allows for standardized experimental conditions across different studies. Time-course experiments can map the temporal dynamics of signaling responses following KITLG stimulation, though the complexity of these pathways may require careful interpretation.

4. Antibody Development and Validation

The high-purity recombinant KITLG protein can serve as an antigen for generating and characterizing antibodies against human KITLG. It works well in immunization protocols for monoclonal or polyclonal antibody production, as well as in screening assays to identify specific binding clones. The protein also appears suitable for antibody validation studies including ELISA development, Western blot optimization, and specificity testing. Low endotoxin content ensures compatibility with animal immunization procedures. The biological activity can test whether antibodies block or enhance KITLG function.

5. Protein-Protein Interaction Screening

This biologically active KITLG protein can work in pull-down assays or co-immunoprecipitation experiments to identify novel binding partners or cofactors that may modulate KITLG activity. The tag-free format allows for native protein interactions without steric hindrance from fusion tags. Researchers can immobilize the protein on various matrices for affinity purification of interacting proteins from cell lysates or tissue extracts. Mass spectrometry analysis of captured proteins might reveal new components of KITLG signaling complexes or regulatory mechanisms, though distinguishing specific from non-specific interactions requires careful controls.

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final

	concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.