

## Kininogen 1 Protein, Human, Recombinant (His)

### General Information

Synonyms:	kininogen 1;KNG;BK;BDK
Protein Construction:	A DNA sequence encoding the human KNG1 isoform 1 (NP_001095886.1) (Gln 19-Ser 644) was fused with a polyhistidine tag at the C-terminus, and a signal peptide at the N-terminus. Predicted N terminal: Gln 19
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P01042-1
Molecular Weight:	71.3 kDa (predicted); 100-110 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	Measured by its ability to inhibit papain cleavage of a fluorogenic peptide substrate Z-FR-AMC. The IC50 value is < 7 nM.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 25 mM Tris, 100 mM NaCl, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Kininogen-1, also known as high molecular weight kininogen, Williams-Fitzgerald-Flaujeac factor, Alpha-2-thiol proteinase inhibitor, Fitzgerald factor, KNG1, and BDK, is a secreted protein that contains three cystatin domains. Kininogen-1 / KNG1 is a protein from the blood coagulation system as well as the kinin-kallikrein system. It is a protein that adsorbs to the surface of biomaterials that come in contact with blood. Kininogen-1 / KNG1 circulates

throughout the blood and quickly adsorbs to the material surfaces. Kininogen-1 / KNG1 is one of the early participants of the intrinsic pathway of coagulation, together with Factor XII (Hageman factor) and prekallikrein. Kininogen-1 / KNG1 is one of the kininogens, a class of proteins. As with many other coagulation proteins, the protein was initially named after the patients in whom deficiency was first observed. When the clinical data were combined, it turned out that all patients had a deficiency of the same protein. Defects in KNG1 are the cause of high molecular weight kininogen deficiency (HMWK deficiency) which is an autosomal recessive coagulation defect. Patients with HMWK deficiency do not have a hemorrhagic tendency, but they exhibit abnormal surface-mediated activation of fibrinolysis.

### Reference

Ohkubo I., et al., (1984), Isolation of a human cDNA for alpha 2-thiol proteinase inhibitor and its identity with low molecular weight kininogen. *Biochemistry* 23:5691-5697.

Takagaki Y., et al., (1985), Cloning and sequence analysis of cDNAs for human high molecular weight and low molecular weight prekininogens. Primary structures of two human prekininogens. *J. Biol. Chem.* 260:8601-8609.

Ota T., et al., (2004), Complete sequencing and characterization of 21,243 full-length human cDNAs. *Nat. Genet.* 36: 40-45.

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