PRODUCT INFORMATION

c-Kit/CD117 GNNK– Isoform Extracellular Domain (human, recombinant)

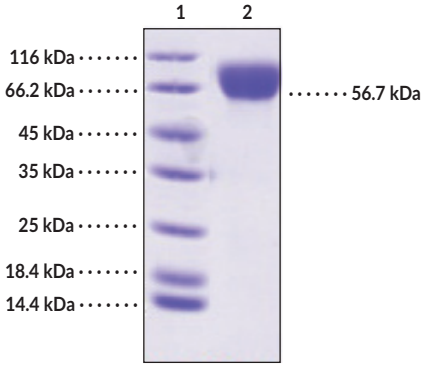
Item No. 33980

Overview and Properties

Synonyms:	c-Kit(–), c-Kit Isoform 2, Cluster of Differentiation 117, Mast/Stem Cell Growth Factor Receptor Kit, Proto-oncogene c-Kit, SCFR, v-Kit Hardy-Zuckerman 4 Feline Sarcoma Viral Oncogene Homolog
Source:	Active recombinant human C-terminal His-tagged c-Kit GNNK–isoform extracellular domain expressed in HEK293 cells
Amino Acids:	26-516
Uniprot No.:	P10721-2
Molecular Weight:	56.7 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥97% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Protein Concentration:	***batch specific*** mg/ml
Bioactivity:	See figures for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: c-Kit/CD117 GNNK– Isoform Extracellular Domain

SDS-PAGE Analysis of c-Kit/CD117 GNNK– Isoform Extracellular Domain. This protein has a calculated molecular weight of 56.7 kDa. It has an apparent molecular weight of approximately 86 kDa by SDS-PAGE under reducing conditions due to glycosylation.

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Description

c-Kit, also known as CD117, is a type III receptor tyrosine kinase involved in the proliferation, differentiation, and survival of hematopoietic cells.[1,2] It is composed of an N-terminal extracellular domain (ECD) containing five immunoglobulin-like (Ig-like) domains, short transmembrane and juxtamembrane domains, and a C-terminal intracellular region containing the kinase domain. Alternative splicing of *KIT* produces two isoforms, GNNK+ and GNNK−, that contain or do not contain the tetrapeptide GNNK, respectively, in the juxtamembrane region of the ECD.[3] c-Kit is expressed in hematopoietic stem and progenitor cells, as well as certain non-hematopoietic tissues.[2] It is activated by the binding of its ligand, stem cell factor (SCF), to the extracellular region, which induces autophosphorylation and the recruitment of signaling molecules to the intracellular region.[1] c-Kit signal transduction activates a variety of signaling pathways, including the PI3K/Akt, RAS/MAPK, and JAK/STAT pathways.[1,2] The GNNK−isoform of c-Kit undergoes more rapid autophosphorylation and internalization and shows increased MAPK signaling compared with GNNK+ c-Kit, promotes anchorage-independent growth *in vitro*, and induces tumorigenesis in mice.[3] Homozygous knockout of *Kit*, the gene encoding c-Kit, is embryonic lethal, with mice developing severe anemia *in utero*.[4] *KIT* is considered a proto-oncogene and activating mutations have been associated with a variety of cancers.[1,2] Cayman's c-Kit/CD117 GNNK− Isoform Extracellular Domain (human, recombinant) protein consists of 502 amino acids, has a calculated molecular weight of 56.7 kDa, and a predicted N-terminus of Gln26 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 86 kDa due to glycosylation.

References

1. Roskoski, R., Jr. Src protein-tyrosine kinase structure, mechanism, and small molecule inhibitors. *Pharmacol. Res.* **94**, 9-25 (2015).
2. Edling, C.E. and Hallberg, B. c-Kit—a hematopoietic cell essential receptor tyrosine kinase. *Int. J. Biochem. Cell Biol.* **39(11)**, 1995-1998 (2007).
3. Caruana, G., Cambareri, A.C., and Ashman, L.K. Isoforms of c-KIT differ in activation of signalling pathways and transformation of NIH3T3 fibroblasts. *Oncogene* **18(40)**, 5573-5581 (1999).
4. Russell, E.S. Hereditary anemias of the mouse: A review for geneticists. *Adv. Genet.* **20**, 357-459 (1979).

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