

PLK1 Protein, Human, Recombinant (His)

General Information

Synonyms:	PLK;STPK13;polo-like kinase 1
Protein Construction:	A DNA sequence encoding the human PLK1 (NP_005021.2) (Met 1-Ser 603) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: His
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P53350
Molecular Weight:	70.5 kDa (predicted); 66 kDa (reducing conditions)

QC Testing

Biological Activity:	The specific activity was determined to be > 3 nmol/min/mg using casein as substrate.
Purity:	≥ 90 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 50 mM Tris, 100 mM NaCl, pH 7.4, 0.5 mM EDTA, 0.5 mM EGTA, 0.5 mM PMSF, 25% glycerol.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

Proteins are shipped with blue ice.

Protein Background

Serine / threonine-protein kinase PLK1 / PLK-1, also known as polo-like kinase 1 (PLK-1) or serine / threonine-protein kinase 13 (STPK13), Polo-like kinases (PLKs), is a family of four serine / threonine protein kinases that are critical regulators of cell cycle progression, mitosis, cytokinesis, and the DNA damage response. PLK1 / PLK-1 is ubiquitously expressed. The mRNA and protein expression of PLK1 / PLK-1, -2 and -4 are coordinately regulated during cell cycle progression, but PLK3 levels are independent of the other three family members. PLK1 / PLK-1 is the most well-characterized member of this family and strongly promotes the progression of cells through mitosis. During the various stages of mitosis PLK1 / PLK-1 localizes to the centrosomes, kinetochores and central spindle. PLKs are dysregulated in a variety of human cancers. PLK1 / PLK-1 overexpression correlates with cellular

proliferation and poor prognosis. Serine / threonine-protein kinase that performs several important functions throughout M phase of the cell cycle, including the regulation of centrosome maturation and spindle assembly, the removal of cohesins from chromosome arms, the inactivation of APC / C inhibitors, and the regulation of mitotic exit and cytokinesis. It is required for recovery after DNA damage checkpoint and entry into mitosis. PLK1 / PLK-1 is required for kinetochore localization of BUB1B, spindle pole localization of isoform 3 of SGOL1 and plays a role in regulating its centriole cohesion function. PLK1 / PLK-1 Phosphorylates BORA, and thereby promotes the degradation of BORA. PLK1 / PLK-1 also contributes to the regulation of AURKA function and phosphorylates SGOL1.

Reference

Lee KS,et al.(2008) Self-regulated mechanism of Plk1 localization to kinetochores: lessons from the Plk1-PBIP1 interaction. Cell Div. 3: 4.

Zhou T,et al.(2003) A role for Plk1 phosphorylation of NudC in cytokinesis. Dev Cell. 5 (1): 127-38.

Lee M,et al.(2004) Phosphorylation of BRCA2 by the Polo-like kinase Plk1 is regulated by DNA damage and mitotic progression. Oncogene. 23 (4): 865-72.

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