

Plk (3F8): sc-53751



The Power to Question

BACKGROUND

Plk (for polo-like kinase) encodes a serine/threonine kinase that is closely related to polo and CDC5, genes that are required for passage through mitosis in *Drosophila* and *Saccharomyces*, respectively. Polo and Cdc5 both code for proteins that are involved in regulating the function of the mitotic spindle. Plk protein accumulates in the cell during the S and G₂ phases of the cell cycle; Plk protein content and catalytic activity peak at the onset of mitosis, followed by a rapid reduction after mitosis. Plk expression is detectable in mitotically active tissues such as colon and placenta, as well as in tumors of various origins. It has also been suggested that Plk may serve as a marker of cell proliferation.

REFERENCES

1. Sunkel, C.E., et al. 1988. Polo, a mitotic mutant of *Drosophila* displaying abnormal spindle poles. *J. Cell Sci.* 89: 25-38.
2. Kitada, K., et al. 1993. A multicopy suppressor gene of the *Saccharomyces cerevisiae* G₁ cell cycle mutant gene *dbf4* encodes a protein kinase and is identified as CDC5. *Mol. Cell. Biol.* 13: 4445-4457.
3. Lake, R.J., et al. 1993. Cell cycle- and terminal differentiation-associated regulation of the mouse mRNA encoding a conserved mitotic protein kinase. *Mol. Cell. Biol.* 13: 7793-7801.
4. Hamanaka, R., et al. 1994. Cloning and characterization of human and murine homologues of the *Drosophila* polo serine-threonine kinase. *Cell Growth Differ.* 5: 249-257.
5. Holtrich, U., et al. 1994. Induction and downregulation of Plk, a human serine/threonine kinase expressed in proliferating cells and tumors. *Proc. Natl. Acad. Sci. USA* 91: 1736-1740.
6. Golsteyn, R.M., et al. 1994. Cell cycle analysis and chromosomal localization of human Plk1, a putative homologue of the mitotic kinases *Drosophila* polo and *Saccharomyces cerevisiae* Cdc5. *J. Cell Sci.* 107: 1509-1517.

CHROMOSOMAL LOCATION

Genetic locus: PLK1 (human) mapping to 16p12.2; Plk1 (mouse) mapping to 7 F3.

SOURCE

Plk (3F8) is a mouse monoclonal antibody raised against amino acids 300-603 of Plk of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

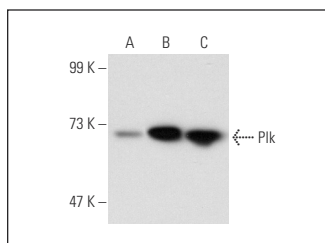
Plk (3F8) is recommended for detection of Plk of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Plk siRNA (h): sc-36277, Plk siRNA (m): sc-36278, Plk shRNA Plasmid (h): sc-36277-SH, Plk shRNA Plasmid (m): sc-36278-SH, Plk shRNA (h) Lentiviral Particles: sc-36277-V and Plk shRNA (m) Lentiviral Particles: sc-36278-V.

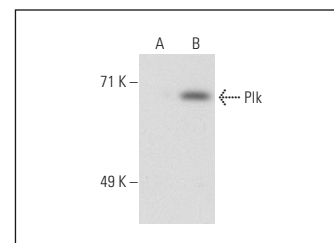
Molecular Weight of Plk: 66 kDa.

Positive Controls: Plk (h): 293 lysate: sc-111085, Plk (m): 293T Lysate: sc-127352 or K-562 whole cell lysate: sc-2203.

DATA



Plk (3F8): sc-53751. Western blot analysis of Plk expression in non-transfected 293T: sc-117752 (A), mouse Plk transfected 293T: sc-127352 (B) and K-562 (C) whole cell lysates.



Plk (3F8): sc-53751. Western blot analysis of Plk expression in non-transfected: sc-110760 (A) and human Plk transfected: sc-111085 (B) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wu, D., et al. 2014. Phosphorylation of myosin II-interacting guanine nucleotide exchange factor (MyoGEF) at threonine 544 by aurora B kinase promotes the binding of polo-like kinase 1 to MyoGEF. *J. Biol. Chem.* 289: 7142-7150.
2. Meade, B.R., et al. 2014. Efficient delivery of RNAi prodrugs containing reversible charge-neutralizing phosphotriester backbone modifications. *Nat. Biotechnol.* 32: 1256-1261.
3. Miyamoto, T., et al. 2017. Identification of a p53-repressed gene module in breast cancer cells. *Oncotarget* 8: 55821-55836.
4. Hagopian, J.C., et al. 2017. Induction of RNAi responses by short left-handed hairpin RNAi triggers. *Nucleic Acid Ther.* 27: 260-271.
5. Kasahara, Y., et al. 2021. Primate-specific POTE-actin gene could play a role in human folliculogenesis by controlling the proliferation of granulosa cells. *Cell Death Discov.* 7: 186.



See **Plk (F-8): sc-17783** for Plk antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.