SANTA CRUZ BIOTECHNOLOGY, INC.

Plk (AZ24): sc-53418

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 G_2 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. and Glover, D.M. 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* G_1 cell cycle mutant gene dbf4 encodes a protein kinase and is identified as Cdc5. Mol. Cell. Biol. 13: 4445-4457.
3. Lake, R.J. and Jelinek, W.R. 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 (AZ24) is a mouse monoclonal antibody raised against Plk of *Xenopus* origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 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 (AZ24) is recommended for detection of Plk of mouse, rat, human and *Xenopus laevis* 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-36278Plk 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.

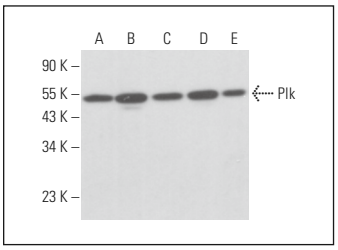
Molecular Weight of Plk: 66 kDa.

Positive Controls: JAR cell lysate: sc-2276, COLO 205 whole cell lysate: sc-364177 or HeLa whole cell lysate: sc-2200.

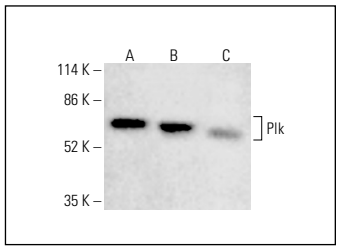
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Plk (AZ24): sc-53418. Western blot analysis of Plk expression in HeLa (**A**), JAR (**B**), COLO 205 (**C**) and NTERA-2 cl.D1 (**D**) whole cell lysates and NIH/3T3 nuclear extract (**E**).



Plk (AZ24): sc-53418. Western blot analysis of Plk expression in HeLa (**A**), K-562 (**B**) and HCT-116 (**C**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

SELECT PRODUCT CITATIONS

1. Yang, Y., et al. 2018. NudCL2 is an Hsp90 cochaperone to regulate sister chromatid cohesion by stabilizing cohesin subunits. Cell. Mol. Life Sci. 76: 381-395.
2. Shu, Z., et al. 2020. Cell-cycle-dependent phosphorylation of RRM1 ensures efficient DNA replication and regulates cancer vulnerability to ATR inhibition. Oncogene 39: 5721-5733.