

PLK4 (19-Y7): sc-100413

BACKGROUND

The Plk (polo-like kinase) family consists of serine/threonine kinases that are closely related to polo and CDC5 proteins, which are required for passage through mitosis in *Drosophila* and *Saccharomyces*, respectively. Polo-like kinases, which include Plk, Snk (serum-inducible kinase, also designated Plk2), Fnk (FGF-inducible kinase, also designated Plk3 or PRK) and PLK4 (also designated Sak), all play a role in cell proliferation. PLK4 differs from other polo-like kinases because it has only a single polo box, which forms a dimer fold that resides in the nucleolus, centrosomes, and the cleavage furrow. PLK4 expression slowly increases during S through M phase, and PLK4 mediates late mitotic progression, cell survival, and postgastrulation embryonic development. APC/C destroys Sak by proteolysis. Reduced PLK4 expression causes increased incidence of apoptosis and anaphase arrest, while haploinsufficiency of the PLK4 gene causes spontaneous tumors to develop, primarily in the liver.

REFERENCES

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- Warnke, S., et al. 2004. Polo-like kinase-2 is required for centriole duplication in mammalian cells. *Curr. Biol.* 14: 1200-1207.
- Habedanck, R., et al. 2005. The polo kinase Plk4 functions in centriole duplication. *Nat. Cell Biol.* 7: 1140-1146.
- Ko, M.A., et al. 2005. Plk4 haploinsufficiency causes mitotic infidelity and carcinogenesis. *Nat. Genet.* 37: 883-888.
- Li, J., et al. 2005. Sak, a new polo-like kinase, is transcriptionally repressed by p53 and induces apoptosis upon RNAi silencing. *Neoplasia* 7: 312-323.
- Winkles, J.A. and Alberts, G.F. 2005. Differential regulation of polo-like kinase 1, 2, 3 and 4 gene expression in mammalian cells and tissues. *Oncogene* 24: 260-266.
- Myer, D.L., et al. 2005. The Plk3-Cdc25 circuit. *Oncogene* 24: 299-305.
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CHROMOSOMAL LOCATION

Genetic locus: PLK4 (human) mapping to 4q28.2.

SOURCE

PLK4 (19-Y7) is a mouse monoclonal antibody raised against a partial recombinant protein mapping at the N-terminus of PLK4 of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PLK4 (19-Y7) is recommended for detection of PLK4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PLK4 siRNA (h): sc-61491, PLK4 shRNA Plasmid (h): sc-61491-SH and PLK4 shRNA (h) Lentiviral Particles: sc-61491-V.

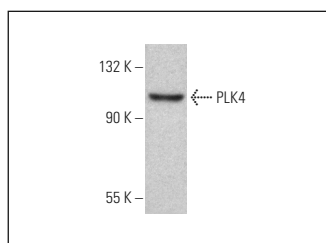
Molecular Weight of PLK4: 104 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or NCI-H1299 whole cell lysate: sc-364234.

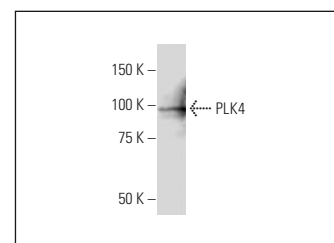
RECOMMENDED SUPPORT REAGENTS

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



PLK4 (19-Y7): sc-100413. Western blot analysis of PLK4 expression in NCI-H1299 whole cell lysate.



PLK4 (19-Y7): sc-100413. Western blot analysis of PLK4 expression in HeLa nuclear extract.

SELECT PRODUCT CITATIONS

- Alfaro-Mora, Y., et al. 2021. MPS1 is involved in the HPV16-E7-mediated centrosomes amplification. *Cell Div.* 16: 6.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.