# SANTA CRUZ BIOTECHNOLOGY, INC.

# 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.
- 8. 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  $\mu g$  IgG\_1 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  $\mu$ g per 100-500  $\mu$ g 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: 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 NCI-H1299 whole cell lysate. Detection reagent used: m-lgG1 BP-HRP: sc-525408.

## 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.