SANTA CRUZ BIOTECHNOLOGY, INC.

PLK4 (D-6): sc-518222

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Fode, C., et al. 1994. Sak, a murine protein-serine/threonine kinase that is related to the *Drosophila* polo kinase and involved in cell proliferation. Proc. Natl. Acad. Sci. USA 91: 6388-6392.
2. Hudson, J.W., et al. 2001. Late mitotic failure in mice lacking Sak, a polo-like kinase. Curr. Biol. 11: 441-446.
3. Warnke, S., et al. 2004. Polo-like kinase-2 is required for centriole duplication in mammalian cells. Curr. Biol. 14: 1200-1207.
4. Habedanck, R., et al. 2005. The polo kinase PLK4 functions in centriole duplication. Nat. Cell Biol. 7: 1140-1146.
5. Ko, M.A., et al. 2005. PLK4 haploinsufficiency causes mitotic infidelity and carcinogenesis. Nat. Genet. 37: 883-888.
6. 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.

CHROMOSOMAL LOCATION

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

SOURCE

PLK4 (D-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 241-264 of PLK4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PLK4 (D-6) is available conjugated to agarose (sc-518222 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518222 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518222 PE), fluorescein (sc-518222 FITC), Alexa Fluor® 488 (sc-518222 AF488), Alexa Fluor® 546 (sc-518222 AF546), Alexa Fluor® 594 (sc-518222 AF594) or Alexa Fluor® 647 (sc-518222 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518222 AF680) or Alexa Fluor® 790 (sc-518222 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PLK4 (D-6) is recommended for detection of PLK4 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) 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.

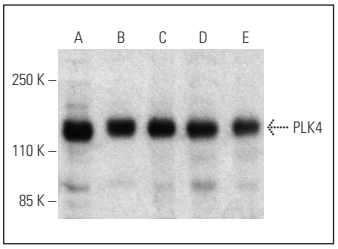
Molecular Weight of PLK4: 104 kDa.

Positive Controls: HCT-116 whole cell lysate: sc-364175, MOLT-4 cell lysate: sc-2233 or Ramos cell lysate: sc-2216.

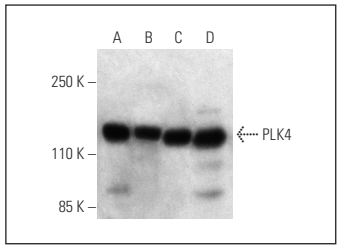
RECOMMENDED SECONDARY REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PLK4 (D-6): sc-518222. Western blot analysis of PLK4 expression in MOLT-4 (**A**), Ramos (**B**), NCI-H1299 (**C**), HEK293T (**D**) and HCT-116 (**E**) whole cell lysates. Detection reagent used: m-IgG_1 BP-HRP: sc-525408.



PLK4 (D-6): sc-518222. Western blot analysis of PLK4 expression in MOLT-4 (**A**), Ramos (**B**), NCI-H1299 (**C**) and HEK293T (**D**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

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.