

Pin1 (8C10): sc-81533

BACKGROUND

NIMA was originally shown in *Aspergillus nidulans* to be necessary for entry into mitosis. NIMA-related mammalian proteins have since been identified as Nek1, Nek2 and Nek3. High expression of Nek1 is seen in male and female germ cell lines of mouse. Nek2 is the closest known mammalian relative to NIMA. Like NIMA, Nek2 expression peaks at the G₂ to M phase transition. Pin1 was originally identified as a NIMA-interacting protein. Pin1 is a peptidyl-prolyl *cis/trans* isomerase (PPlase), which specifically binds to phosphoserine-proline or phosphothreonine-proline bonds in mitotic phosphoproteins. While previously identified PPlases have been shown to be involved in protein folding, assembly and transport, Pin1 is the first PPlase to be identified as a required protein for cell viability.

REFERENCES

- Osmani, S.A., et al. 1988. Mitotic induction and maintenance by over-expression of a G₂-specific gene that encodes a potential protein kinase. *Cell* 53: 237-244.
- Letwin, K., et al. 1992. A mammalian dual-specificity protein kinase, Nek1, is related to the NIMA cell cycle regulator and highly expressed in meiotic germ cells. *EMBO J.* 11: 3521-3531.
- Schultz, S.J., et al. 1994. Cell cycle-dependent expression of Nek2, a novel human protein kinase related to the NIMA mitotic regulator of *Aspergillus nidulans*. *Cell Growth Differ.* 5: 625-635.
- Lu, K.P., et al. 1996. A human peptidyl-prolyl isomerase essential for regulation of mitosis. *Nature* 380: 544-547.
- Yaffe, M.B., et al. 1997. Sequence-specific and phosphorylation-dependent proline isomerization: a potential mitotic regulatory mechanism. *Science* 278: 1957-1960.
- Ranganathan, R., et al. 1997. Structural and functional analysis of the mitotic rotamase Pin1 suggests substrate recognition is phosphorylation dependent. *Cell* 89: 875-886.
- Rhee, K., et al. 1997. The NIMA-related kinase 2, Nek2, is expressed in specific stages of the meiotic cell cycle and associates with meiotic chromosomes. *Development* 124: 2167-2177.
- Fry, A.M., et al. 1997. Characterization of mammalian DNA-related kinases. *Meth. Enzymol.* 283: 270-282.

CHROMOSOMAL LOCATION

Genetic locus: PIN1 (human) mapping to 19p13.2; Pin1 (mouse) mapping to 9 A3.

SOURCE

Pin1 (8C10) is a mouse monoclonal antibody raised against recombinant Pin1 of human origin.

PRODUCT

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

APPLICATIONS

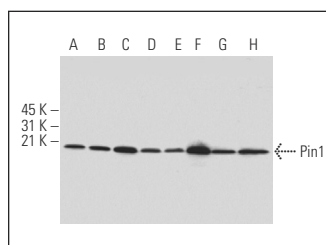
Pin1 (8C10) is recommended for detection of Pin1 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Pin1 siRNA (h): sc-36230, Pin1 siRNA (m): sc-36231, Pin1 shRNA Plasmid (h): sc-36230-SH, Pin1 shRNA Plasmid (m): sc-36231-SH, Pin1 shRNA (h) Lentiviral Particles: sc-36230-V and Pin1 shRNA (m) Lentiviral Particles: sc-36231-V.

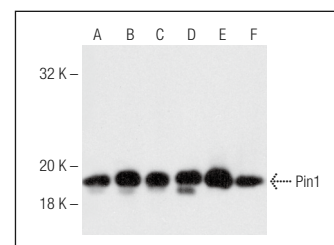
Molecular Weight of Pin1: 20 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 nuclear extract: sc-2130 or Jurkat nuclear extract: sc-2132.

DATA



Pin1 (8C10): sc-81533. Western blot analysis of Pin1 expression in serum starved A-431 (A), A549 (B), SKOV3 (C), OVCAR-5 (D), HaCaT (E), PC-3 (F), HeLa (G) and Hep G2 (H) whole cell lysates.



Pin1 (8C10): sc-81533. Western blot analysis of Pin1 expression in HeLa (A), K-562 (B), Jurkat (C), NIH/3T3 (D), PC-3 (E) and Hep G2 (F) nuclear extracts.

SELECT PRODUCT CITATIONS

- Zhang, S. and Zhang, X. 2019. Shrimp miRNA suppresses the stemness of human cancer stem cells via the Pin1 pathway. *FASEB J.* 33: 10767-10779.
- Leung, J.K., et al. 2021. Pin1 inhibition improves the efficacy of ralaniten compounds that bind to the N-terminal domain of androgen receptor. *Commun. Biol.* 4: 381.

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.



See **Pin1 (G-8): sc-46660** for Pin1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.