

# PNK (F-5): sc-166153

## BACKGROUND

Bifunctional polynucleotide phosphatase/kinase (PNK), also referred to as polynucleotide kinase-3'-phosphatase, is a member of the DNA 3' phosphatase family. PNK is the protein expressed by the gene PNKP and contains a 3'-phosphatase domain with similarity to L-2-haloacid dehalogenases and a reported ATP binding site. PNK is a nuclear protein that is involved in DNA repair following damage caused by radiation or oxidation. The protein catalyzes the phosphorylation of DNA at the hydroxy termini but can also dephosphorylate its 3'-phosphate termini. The highest levels of expression of PNK occur in testis, pancreas, spleen, kidney and heart.

## REFERENCES

- Jilani, A., et al. 1999. Molecular cloning of the human gene, PNKP, encoding a polynucleotide kinase 3'-phosphatase and evidence for its role in repair of DNA strand breaks caused by oxidative damage. *J. Biol. Chem.* 274: 24176-24186.
- Karimi-Busheri, F., et al. 1999. Molecular characterization of a human DNA kinase. *J. Biol. Chem.* 274: 24187-24194.
- Fanta, M., et al. 2001. Production, characterization, and epitope mapping of monoclonal antibodies against human polydeoxyribonucleotide kinase. *Hybridoma* 20: 237-242.
- Meijer, M., et al. 2002. Pnk1, a DNA kinase/phosphatase required for normal response to DNA damage by gamma-radiation or camptothecin in *Schizosaccharomyces pombe*. *J. Biol. Chem.* 277: 4050-4055.
- Plo, I., et al. 2003. Association of XRCC1 and tyrosyl DNA phosphodiesterase (Tdp1) for the repair of topoisomerase I-mediated DNA lesions. *DNA* 2: 1087-1100.
- Zhu, H., et al. 2004. Characterization of polynucleotide kinase/phosphatase enzymes from mycobacteriophages  $\omega$  and Cjw1 and vibriophage KVP40. *J. Biol. Chem.* 279: 26358-26369.
- Bernstein, N.K., et al. 2005. The molecular architecture of the mammalian DNA repair enzyme, polynucleotide kinase. *Mol. Cell* 17: 657-670.

## CHROMOSOMAL LOCATION

Genetic locus: PNKP (human) mapping to 19q13.33; Pnkp (mouse) mapping to 7 B4.

## SOURCE

PNK (F-5) is a mouse monoclonal antibody raised against amino acids 222-521 mapping at the C-terminus of PNK of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-166153 X, 200  $\mu$ g/0.1 ml.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

PNK (F-5) is recommended for detection of PNK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 PNK siRNA (h): sc-44826, PNK siRNA (m): sc-45370, PNK shRNA Plasmid (h): sc-44826-SH, PNK shRNA Plasmid (m): sc-45370-SH, PNK shRNA (h) Lentiviral Particles: sc-44826-V and PNK shRNA (m) Lentiviral Particles: sc-45370-V.

PNK (F-5) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

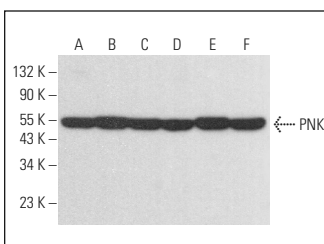
Molecular Weight of PNK: 60 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, PC-3 nuclear extract: sc-2152 or DU 145 cell lysate: sc-2268.

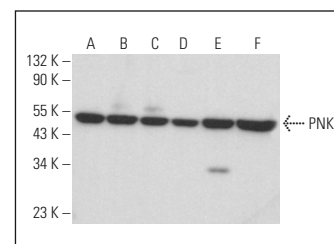
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



PNK (F-5): sc-166153. Western blot analysis of PNK expression in DU 145 (A), F9 (B), RAW 264.7 (C), NTERA-2 cl.D1 (D), M1 (E) and Daudi (F) whole cell lysates.



PNK (F-5): sc-166153. Western blot analysis of PNK expression in HeLa (A), PC-3 (B) and Jurkat (C) nuclear extracts and A549 (D), PC-12 (E) and RAW 264.7 (F) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Horton, J.K., et al. 2017. XRCC1-mediated repair of strand breaks independent of PNKP binding. *DNA Repair* 60: 52-63.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.