

# PNK (K-20): sc-34302

## 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 translation product of 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 de-phosphorylate its 3'-phosphate termini. The highest levels of expression of PNK occurs in testis, pancreas, spleen, kidney and heart.

## REFERENCES

1. 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.
2. Karimi-Busheri, F., et al. 1999. Molecular characterization of a human DNA kinase. *J. Biol. Chem.* 274: 24187-24194.
3. Fanta, M., et al. 2001. Production, characterization, and epitope mapping of monoclonal antibodies against human polydeoxyribonucleotide kinase. *Hybridoma* 20: 237-242.
4. 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.
5. Plo, I., et al. 2003. Association of XRCC1 and tyrosyl DNA phosphodiesterase (Tdp1) for the repair of topoisomerase I-mediated DNA lesions. *DNA Repair* 2: 1087-1100.
6. Martins, A., et al. 2005. An end-healing enzyme from *Clostridium thermocellum* with 5' kinase, 2', 3' phosphatase and adenyltransferase activities. *RNA* 11: 1271-1280.
7. 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 19q13.3-q13.4; Pnkp (mouse) mapping to 7 B2.

## SOURCE

PNK (K-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PNK of human origin.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34302 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PNK (K-20) is recommended for detection of PNK of mouse, rat and 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)], 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).

PNK (K-20) is also recommended for detection of PNK in additional species, including canine and porcine.

Suitable for use as control antibody for PNK siRNA (h): sc-44826 and PNK siRNA (m): sc-45370.

Molecular Weight of PNK: 60 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, PC-3 nuclear extract: sc-2152 or Jurkat nuclear extract: sc-2132.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RESEARCH USE

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