

# PNUTS (H-94): sc-135164

## BACKGROUND

Eukaryotic protein phosphorylation and dephosphorylation on serine and threonine residues regulates numerous cell functions, including division, homeostasis and apoptosis. A group of proteins that play a major role in this process are the serine/threonine protein phosphatases. Protein phosphatase (PP) holoenzyme is a trimeric complex that contains a regulatory subunit, a variable subunit and a catalytic subunit. Families of PP catalytic subunits include PP1, PP2A, PP2B, PP2C, PPX and PP5. Regulatory subunits include nuclear inhibitor of PP1 (NIPP1), PP1 nuclear targeting subunit (PNUTS), PP2A-A, PP2A-B, PP2A-B56, PP2A-C, PP2B-B and PR48. PNUTS, also designated CAT53 or FB19, is encoded by the gene PPP1R10. PNUTS acts as an inhibitor for the phosphatase activity of PP1 $\alpha$  and PP1 $\gamma$ . It is a nuclear protein primarily detected in nucleoplasmic bodies and within nucleoli. PNUTS expression levels are highest in brain, heart, lung, placenta, liver, kidney, pancreas and skeletal muscle.

## REFERENCES

1. Kreivi, J.P., et al. 1997. Purification and characterisation of p99, a nuclear modulator of protein phosphatase 1 activity. FEBS Lett. 420: 57-62.
2. Totaro, A., et al. 1998. Cloning of a new gene (FB19) within HLA class I region. Biochem. Biophys. Res. Commun. 250: 555-557.
3. Kim, Y.M., et al. 2003. PNUTS, a protein phosphatase 1 (PP1) nuclear targeting subunit. Characterization of its PP1- and RNA-binding domains and regulation by phosphorylation. J. Biol. Chem. 278: 13819-13828.
4. Lesage, B., et al. 2004. Interactor-mediated nuclear translocation and retention of protein phosphatase-1. J. Biol. Chem. 279: 55978-55984.
5. Tran, H.T., et al. 2004. Proteomic characterization of protein phosphatase complexes of the mammalian nucleus. Mol. Cell. Proteomics 3: 257-265.
6. Landsverk, H.B., et al. 2005. PNUTS enhances *in vitro* chromosome decondensation in a PP1-dependent manner. Biochem. J. 390: 709-717.

## CHROMOSOMAL LOCATION

Genetic locus: PPP1R10 (human) mapping to 6p21.33; Ppp1r10 (mouse) mapping to 17 B1.

## SOURCE

PNUTS (H-94) is a rabbit polyclonal antibody raised against amino acids 63-156 mapping near the N-terminus of PNUTS of human origin.

## PRODUCT

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

## STORAGE

Store at 4 $^{\circ}$  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.

## APPLICATIONS

PNUTS (H-94) is recommended for detection of PNUTS 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).

PNUTS (H-94) is also recommended for detection of PNUTS in additional species, including canine and porcine.

Suitable for use as control antibody for PNUTS siRNA (h): sc-61377, PNUTS siRNA (m): sc-61378, PNUTS shRNA Plasmid (h): sc-61377-SH, PNUTS shRNA Plasmid (m): sc-61378-SH, PNUTS shRNA (h) Lentiviral Particles: sc-61377-V and PNUTS shRNA (m) Lentiviral Particles: sc-61378-V.

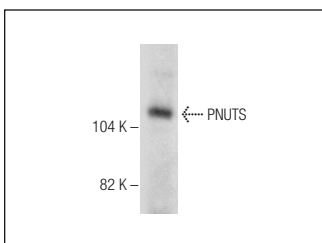
Molecular Weight of PNUTS: 110 kDa.

Positive Controls: Rat brain extract: sc-2392 or SK-N-MC nuclear extract: sc-2154 or mouse brain extract: sc-2253.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## DATA



PNUTS (H-94): sc-135164. Western blot analysis of PNUTS expression in mouse brain tissue extract.

## RESEARCH USE

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

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Try **PNUTS (F-8): sc-271681** or **PNUTS (47): sc-136044**, our highly recommended monoclonal alternatives to PNUTS (H-94).