

TDP1 (N-17): sc-26038

BACKGROUND

Tyrosyl-DNA phosphodiesterase 1 (TDP1), a DNA repair enzyme, catalyzes the hydrolysis of phosphodiester bonds between tyrosine residues and DNA 3'-phosphates. In addition, TDP1 removes glycolate from single-stranded DNA containing a 3'-phosphoglycolate, suggesting a role in repair of free-radical mediated DNA double-strand breaks. A unique HKD signature motif with highly conserved lysine and histidine residues present in TDP1 places the enzyme in a distinct class within the phospholipase D superfamily. The hydrolytic reaction catalyzed by TDP1 occurs by a phosphoryl transfer reaction common to all members of the PLD superfamily. Loss-of-function mutations in TDP1 may cause spinocerebellar ataxia with axonal neuropathy by interfering with DNA transcription or by inducing apoptosis in postmitotic neurons.

REFERENCES

1. Interthal, H., Pouliot, J.J., and Champoux, J.J. 2001. The tyrosyl-DNA phosphodiesterase TDP1 is a member of the phospholipase D superfamily. *Proc. Nat. Acad. Sci. USA* 98: 12009-12014.
2. Davies, D.R., et al. 2002. Insights into substrate binding and catalytic mechanism of human tyrosyl-DNA phosphodiesterase (TDP1) from vanadate and tungstate-inhibited structures. *J. Mol. Biol.* 324: 917-932.
3. Inamdar, K.V., Pouliot, J.J., Zhou, T., Lees-Miller, S.P., Rasouli-Nia, A., and Povirk, L.F. 2002. Conversion of phosphoglycolate to phosphate termini on 3' overhangs of DNA double strand breaks by the human tyrosyl-DNA phosphodiesterase hTDP1. *J. Bio. Chem.* 277: 27162-27168.
4. Takashima, H., et al. 2002. Mutation of TDP1, encoding a topoisomerase I-dependent DNA damage repair enzyme in spinocerebellar ataxia with axonal neuropathy. *Nat. Genet.* 32: 267-272.
5. Entrez-Protein (NP_060789). World Wide Web URL: <http://www.ncbi.nlm.nih.gov:80/entrez>

CHROMOSOMAL LOCATION

Genetic locus: TDP1 (human) mapping to 14q32.11.

SOURCE

TDP1 (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of TDP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-26038 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

TDP1 (N-17) is recommended for detection of TDP1 of human origin by Western Blotting (starting dilution 1:200, 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 TDP1 siRNA (h): sc-41056, TDP1 shRNA Plasmid (h): sc-41056-SH and TDP1 shRNA (h) Lentiviral Particles: sc-41056-V.

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.

SELECT PRODUCT CITATIONS

1. de Campos-Nebel, M., et al. 2010. Topoisomerase II-mediated DNA damage is differently repaired during the cell cycle by non-homologous end joining and homologous recombination. *PLoS ONE* 5: e12541.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **TDP1 (C-3): sc-365674**, our highly recommended monoclonal alternative to TDP1 (N-17).