SANTA CRUZ BIOTECHNOLOGY, INC.

TDP1 (C-3): sc-365674

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Tyrosyl-DNA phosphodiesterase 1 (TDP1), a DNA repair enzyme, catalyzes the hydrolysis of phophodiester 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.

CHROMOSOMAL LOCATION

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

SOURCE

TDP1 (C-3) is a mouse monoclonal antibody raised against amino acids 309-608 mapping at the C-terminus of TDP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TDP1 (C-3) is available conjugated to agarose (sc-365674 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365674 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365674 PE), fluorescein (sc-365674 FITC), Alexa Fluor® 488 (sc-365674 AF488), Alexa Fluor® 546 (sc-365674 AF546), Alexa Fluor® 594 (sc-365674 AF594) or Alexa Fluor® 647 (sc-365674 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365674 AF680) or Alexa Fluor® 790 (sc-365674 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

TDP1 (C-3) is recommended for detection of TDP1 of human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (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.

Molecular Weight of TDP1 isoforms 1/2: 68/42 kDa.

Positive Controls: Ramos cell lysate: sc-2216, MOLT-4 cell lysate: sc-2233 or HuT 78 whole cell lysate: sc-2208.

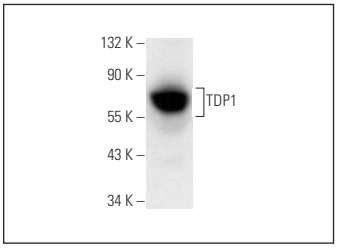
RESEARCH USE

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

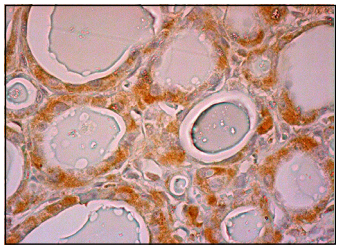
STORAGE

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

DATA



TDP1 (C-3): sc-365674. Western blot analysis of TDP1 expression in Ramos whole cell lysate.



TDP1 (C-3): sc-365674. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Elsayed, W., et al. 2016. Isoeugenol is a selective potentiator of camptothecin cytotoxicity in vertebrate cells lacking TDP1. Sci. Rep. 6: 26626.
2. Toots, M., et al. 2017. Identification of several high-risk HPV inhibitors and drug targets with a novel high-throughput screening assay. PLoS Pathog. 13: e1006168.
3. Wang, T., et al. 2019. MiR-211 facilitates platinum chemosensitivity by blocking the DNA damage response (DDR) in ovarian cancer. Cell Death Dis. 10: 495.
4. Ashour, M.E., et al. 2021. High temperature drives topoisomerase mediated chromosomal break repair pathway choice. Cancers 13: 2315.
5. Kliza, K.W., et al. 2021. Reading ADP-ribosylation signaling using chemical biology and interaction proteomics. Mol. Cell 81: 4552-4567.e8.
6. Jakobsen, A.K., et al. 2021. TDP1 and TOP1 as targets in anticancer treatment of NSCLC: activity and protein level in normal and tumor tissue from 150 NSCLC patients correlated to clinical data. Lung Cancer 164: 23-32.
7. Zhang, H., et al. 2022. TDP1-independent pathways in the process and repair of TOP1-induced DNA damage. Nat. Commun. 13: 4240.
8. Sarni, D., et al. 2022. Topoisomerase 1-dependent R-loop deficiency drives accelerated replication and genomic instability. Cell Rep. 40: 111397.
9. Groen, K., et al. 2023. Genetic variant overlap analysis identifies established and putative genes involved in pulmonary fibrosis. Int. J. Mol. Sci. 24: 2790.

PROTOCOLS

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

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