

# DNA2L (A-3): sc-393323

## BACKGROUND

The replication of lagging strand DNA requires several enzymatic steps that eventually lead to the generation of Okazaki fragments; small DNA strands that are attached by DNA Ligase. DNA2L (DNA2-like helicase), also known as DNA2, is a 1,060 amino acid human homolog of yeast DNA2, a helicase/nuclease that is essential for genome stability and DNA metabolism. In yeast, DNA2 acts as a DNA-dependent ATPase that unwinds duplex DNA, thereby producing single-stranded DNA that serves as a template for DNA replication. In humans, DNA2L functions as a helicase that is involved in DNA replication, DNA repair and chromatin dynamics. Specifically, DNA2L is thought to play a role in the maturation and elongation of Okazaki fragments, thereby facilitating replication of the lagging strand. Mutations in the gene encoding DNA2L are lethal, suggesting that proper DNA2L function is crucial for cell viability. Three isoforms of DNA2L exist due to alternative splicing events.

## REFERENCES

1. Eki, T., et al. 1996. Assignment of the closest human homologue (DNA2L:K1AA0083) of the yeast DNA2 helicase gene to chromosome band 10q21.3-q22.1. *Genomics* 37: 408-410.
2. Bae, S.H., et al. 2001. RPA governs endonuclease switching during processing of Okazaki fragments in eukaryotes. *Nature* 412: 456-461.
3. Rossi, M.L. and Bambara, R.A. 2006. Reconstituted Okazaki fragment processing indicates two pathways of primer removal. *J. Biol. Chem.* 281: 26051-26061.
4. Masuda-Sasa, T., et al. 2006. Single strand annealing and ATP-independent strand exchange activities of yeast and human DNA2: possible role in Okazaki fragment maturation. *J. Biol. Chem.* 281: 38555-38564.
5. Stewart, J.A., et al. 2006. Flap endonuclease disengages DNA2 helicase/nuclease from Okazaki fragment flaps. *J. Biol. Chem.* 281: 38565-38572.

## CHROMOSOMAL LOCATION

Genetic locus: DNA2 (human) mapping to 10q21.3; Dna2 (mouse) mapping to 10 B4.

## SOURCE

DNA2L (A-3) is a mouse monoclonal antibody raised against amino acids 121-206 mapping within an internal region of DNA2L of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DNA2L (A-3) is available conjugated to agarose (sc-393323 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393323 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393323 PE), fluorescein (sc-393323 FITC), Alexa Fluor® 488 (sc-393323 AF488), Alexa Fluor® 546 (sc-393323 AF546), Alexa Fluor® 594 (sc-393323 AF594) or Alexa Fluor® 647 (sc-393323 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393323 AF680) or Alexa Fluor® 790 (sc-393323 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

DNA2L (A-3) is recommended for detection of DNA2L of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

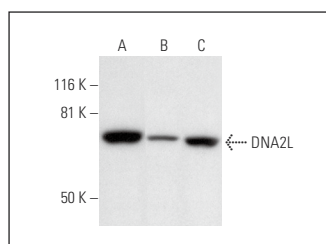
Suitable for use as control antibody for DNA2L siRNA (h): sc-90458, DNA2L siRNA (m): sc-143074, DNA2L shRNA Plasmid (h): sc-90458-SH, DNA2L shRNA Plasmid (m): sc-143074-SH, DNA2L shRNA (h) Lentiviral Particles: sc-90458-V and DNA2L shRNA (m) Lentiviral Particles: sc-143074-V.

Molecular Weight (predicted) of DNA2L isoforms 1/2/3: 120/78/93 kDa.

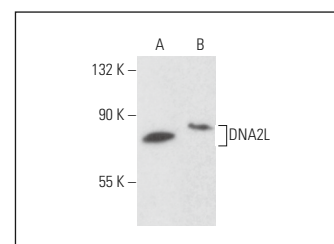
Molecular Weight (observed) of DNA2L: 84 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HEK293 whole cell lysate: sc-45136 or U-2 OS cell lysate: sc-2295.

## DATA



DNA2L (A-3): sc-393323. Western blot analysis of DNA2L expression in HeLa (A), HEK293 (B) and U-2 OS (C) whole cell lysates.



DNA2L (A-3): sc-393323. Western blot analysis of DNA2L expression in TF-1 (A) and 3611-RF (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Xu, W., et al. 2020. Tetrandrine enhances glucocorticoid receptor translocation possibly via inhibition of P-glycoprotein in daunorubicin-resistant human T lymphoblastoid leukemia cells. *Eur. J. Pharmacol.* 881: 173232.
2. Kadyrova, L.Y., et al. 2022. The nuclease activity of DNA2 promotes exonuclease 1-independent mismatch repair. *J. Biol. Chem.* 298: 101831.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

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

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