

DNA2L (S-12): sc-138771

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., Okumura, K., Shiratori, A., Abe, M., Nogami, M., Taguchi, H., Shibata, T., Murakami, Y. and Hanaoka, F. 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., Bae, K.H., Kim, J.A. and Seo, Y.S. 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., Polacek, P. and Campbell, J.L. 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., Campbell, J.L. and Bambara, R.A. 2006. Flap endonuclease disengages Dna2 helicase/nuclease from Okazaki fragment flaps. *J. Biol. Chem.* 281: 38565-38572.
6. Budd, M.E., Reis, C.C., Smith, S., Myung, K. and Campbell, J.L. 2006. Evidence suggesting that Pif1 helicase functions in DNA replication with the Dna2 helicase/nuclease and DNA polymerase delta. *Mol. Cell. Biol.* 26: 2490-2500.

CHROMOSOMAL LOCATION

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

SOURCE

DNA2L (S-12) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of DNA2L 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.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-138771 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DNA2L (S-12) is recommended for detection of DNA2L of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with DNA2.

DNA2L (S-12) is also recommended for detection of DNA2L in additional species, including canine and bovine.

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.

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™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) 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™ Mounting Medium: sc-24941.

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.