

DNA pol δ 4 (G-13): sc-161029

BACKGROUND

DNA replication, recombination and repair, all of which are necessary for genomic stability, require the presence of exonucleases. In DNA replication, these enzymes are involved in the processing of Okazaki fragments, whereas in DNA repair, they function to excise damaged DNA fragments and correct recombinational mismatches. These exonucleases include the family of DNA polymerases. DNA pol α , β , δ and ϵ are involved in DNA replication and repair. DNA pol δ and DNA pol ϵ are multisubunit enzymes, with DNA pol δ consisting of two subunits: p125, which interacts with the sliding DNA clamp protein PCNA, and p50. DNA pol δ 4 (DNA polymerase delta subunit 4), also known as p12, POLDS or POLD4, is a 107 amino acid nuclear protein belonging to the DNA polymerase δ subunit 4 family that contributes to PCNA-dependent activity of DNA polymerase δ and exists as a heterotetramer.

REFERENCES

1. Bambara, R.A. and Jessee, C.B. 1991. Properties of DNA polymerases δ and ϵ , and their roles in eukaryotic DNA replication. *Biochim. Biophys. Acta* 1088: 11-24.
2. Li, J.J. and Alberts, B.M. 1992. DNA replication. *Eukaryotic initiation rites*. *Nature* 357: 114-115.
3. Diede, S.J. and Gottschling, D.E. 1999. Telomerase-mediated telomere addition *in vivo* requires DNA primase and DNA polymerases α and δ . *Cell* 99: 723-733.
4. Wood, R.D. 1999. DNA repair. Variants on a theme. *Nature* 399: 639-640.
5. Liu, L., Mo, J., Rodriguez-Belmonte, E.M. and Lee, M.Y. 2000. Identification of a fourth subunit of mammalian DNA polymerase δ . *J. Biol. Chem.* 275: 18739-18744.
6. Liu, G. and Warbrick, E. 2006. The p66 and p12 subunits of DNA polymerase δ are modified by ubiquitin and ubiquitin-like proteins. *Biochem. Biophys. Res. Commun.* 349: 360-366.
7. Zhang, S., Zhou, Y., Trusa, S., Meng, X., Lee, E.Y. and Lee, M.Y. 2007. A novel DNA damage response: rapid degradation of the p12 subunit of DNA polymerase δ . *J. Biol. Chem.* 282: 15330-15340.
8. Online Mendelian Inheritance in Man, OMIM[™]. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611525. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: POLD4 (human) mapping to 11q13.1; Pold4 (mouse) mapping to 19 A.

SOURCE

DNA pol δ 4 (G-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DNA pol δ 4 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 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-161029 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DNA pol δ 4 (G-13) is recommended for detection of DNA pol δ 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other DNA pol δ family members.

Suitable for use as control antibody for DNA pol δ 4 siRNA (h): sc-96473, DNA pol δ 4 siRNA (m): sc-143071, DNA pol δ 4 shRNA Plasmid (h): sc-96473-SH, DNA pol δ 4 shRNA Plasmid (m): sc-143071-SH, DNA pol δ 4 shRNA (h) Lentiviral Particles: sc-96473-V and DNA pol δ 4 shRNA (m) Lentiviral Particles: sc-143071-V.

Molecular Weight of DNA pol δ 4: 12 kDa.

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) 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.

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.