SANTA CRUZ BIOTECHNOLOGY, INC.

POL H (H-300): sc-5592

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Xeroderma pigmentosum (XP) is an autosomal recessive disorder characterized by a genetic predisposition to sunlight-induced skin cancer due to deficiencies in the DNA repair enzymes. The most frequent mutations are found in the XP genes of group A through G and group V, which encode nucleotide excision repair proteins. The XPA gene encodes a zinc metalloprotein that preferentially binds to DNA damaged by UV radiation and chemical carcinogens and is required for the incision step during nucleotide excision repair. The XPB and XPD genes encode DNA helicases involved in several DNA metabolic pathways, including DNA repair and transcription, and the XPG gene product is an endonuclease that cuts on the 3' side of a DNA lesion during nucleotide excision repair. Molecular defects in the XP variant (POL H) group maintain normal excision repair, yet they result in a substantial reduction in the ability to synthesize intact daughter DNA strands during DNA replication following DNA damage.

REFERENCES

1. Tateishi, S., et al. 1995. Separation of protein factors that correct the defects in the seven complementation groups of xeroderma pigmentosum cells. J. Biochem. 118: 819-824.
2. Nakane, H., et al. 1995. High incidence of ultraviolet-B or chemical-carcinogen-induced skin tumours in mice lacking the xeroderma pigmentosum group A gene. Nature 377: 165-168.

CHROMOSOMAL LOCATION

Genetic locus: POLH (human) mapping to 6p21.1.

SOURCE

POL H (H-300) is a rabbit polyclonal antibody raised against amino acids 414-713 of POL H 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.

APPLICATIONS

POL H (H-300) is recommended for detection of POL H 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 POL H siRNA (h): sc-36289, POL H shRNA Plasmid (h): sc-36289-SH and POL H shRNA (h) Lentiviral Particles: sc-36289-V.

Molecular Weight of POL H: 79 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

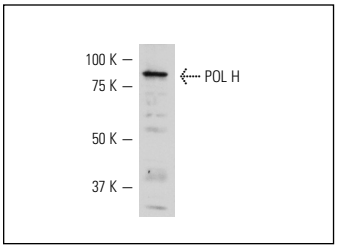
RESEARCH USE

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

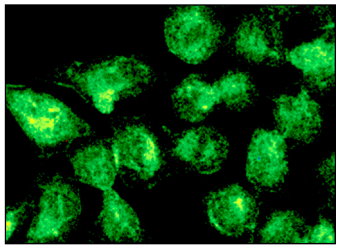
STORAGE

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

DATA



POL H (H-300): sc-5592. Western blot analysis of POL H expression in HeLa whole cell lysate.



POL H (H-300): sc-5592. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Laposa, R.R., et al. 2003. Recapitulation of the cellular xeroderma pigmentosum-variant phenotypes using short interfering RNA for DNA polymerase H. Cancer Res. 63: 3909-3912.
2. Liu, G. and Chen, X. 2006. DNA polymerase eta, the product of the xeroderma pigmentosum variant gene and a target of p53, modulates the DNA damage checkpoint and p53 activation. Mol. Cell. Biol. 26: 1398-1413.
3. Shu, L., et al. 2006. RNPC1, an RNA-binding protein and a target of the p53 family, is required for maintaining the stability of the basal and stress-induced p21 transcript. Genes Dev. 20: 2961-2972.
4. Tanioka, M., et al. 2007. Molecular analysis of DNA polymerase η gene in Japanese patients diagnosed as xeroderma pigmentosum variant type. J. Invest. Dermatol. 127: 1745-1751.
5. Gueranger, Q., et al. 2008. Role of DNA polymerases η, ι and ζ in UV resistance and UV-induced mutagenesis in a human cell line. DNA Repair 7: 1551-1562.
6. Jung, Y.S., et al. 2010. Pirh2 E3 ubiquitin ligase targets DNA polymerase η for 20S proteasomal degradation. Mol. Cell. Biol. 30: 1041-1048.
7. Baldeck, N., et al. 2015. FF483-484 motif of human Polη mediates its interaction with the POLD2 subunit of Polδ and contributes to DNA damage tolerance. Nucleic Acids Res. 43: 2116-2125.
8. Sekimoto, T., et al. 2015. Both high-fidelity replicative and low-fidelity Y-family polymerases are involved in DNA rereplication. Mol. Cell. Biol. 35: 699-715.