SANTA CRUZ BIOTECHNOLOGY, INC.

POL H (B-7): sc-17770

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.

CHROMOSOMAL LOCATION

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

SOURCE

POL H (B-7) is a mouse monoclonal antibody raised against amino acids 414-713 of POL H 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.

POL H (B-7) is available conjugated to agarose (sc-17770 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to either phycoerythrin (sc-17770 PE), fluorescein (sc-17770 FITC), Alexa Fluor® 488 (sc-17770 AF488), Alexa Fluor® 546 (sc-17770 AF546), Alexa Fluor® 594 (sc-17770 AF594) or Alexa Fluor® 647 (sc-17770 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17770 AF680) or Alexa Fluor® 790 (sc-17770 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

POL H (B-7) is recommended for detection of POL H of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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 POL H siRNA (h): sc-36289, POL H shRNA Plasmid (h): sc-36289-SH and POL H shRNA (h) Lentiviral Particles: sc-36289-V.

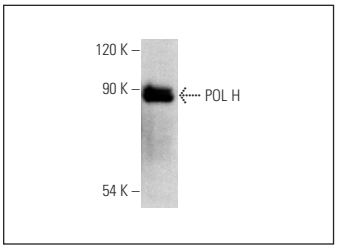
Molecular Weight of POL H: 79 kDa.

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

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 (B-7): sc-17770. Western blot analysis of POL H expression in HeLa whole cell lysate.

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. Choi, J.H. and Pfeifer, G.P. 2005. The role of DNA polymerase η in UV mutational spectra. DNA Repair 4: 211-220.
3. 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.
4. Lee, D.H. and Pfeifer, G.P. 2008. Translesion synthesis of 7,8-dihydro-8-oxo-2'-deoxyguanosine by DNA polymerase η *in vivo*. Mutat. Res. 641: 19-26.
5. Jung, Y.S., et al. 2010. Pirh2 E3 ubiquitin ligase targets DNA polymerase η for 20S proteasomal degradation. Mol. Cell. Biol. 30: 1041-1048.
6. Diamant, N., et al. 2012. DNA damage bypass operates in the S and G_2 phases of the cell cycle and exhibits differential mutagenicity. Nucleic Acids Res. 40: 170-180.
7. 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.
8. Despras, E., et al. 2016. Rad18-dependent SUMOylation of human specialized DNA polymerase η is required to prevent under-replicated DNA. Nat. Commun. 7: 13326.
9. Lerner, L.K., et al. 2017. Predominant role of DNA polymerase η and p53-dependent translesion synthesis in the survival of ultraviolet-irradiated human cells. Nucleic Acids Res. 45: 1270-1280.
10. Zafar, M.K., et al. 2018. A small-molecule inhibitor of human DNA polymerase η potentiates the effects of cisplatin in tumor cells. Biochemistry 57: 1262-1273.

RESEARCH USE

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