SANTA CRUZ BIOTECHNOLOGY, INC.

DNA Ligase III (7): sc-135883

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA ligase is a type of ligase that can link together DNA strands that have double-strand breaks. DNA ligase functions in both DNA repair and DNA replication. It is utilized in molecular biology laboratories for recombination experiments. In mammals, the four specific types of DNA ligase are known as DNA Ligase I, II, III and IV. DNA Ligase I ligates Okazaki fragments during lagging strand DNA replication and some recombinant fragments. DNA Ligase II is an alternatively spliced form of DNA Ligase III found in non-dividing cells. DNA Ligase III complexes with the DNA repair protein XRCC1 to function in sealing base excision mutations and recombinant fragments. DNA Ligase IV complexes with XRCC4 and catalyzes the final step in the non-homologous end joining DNA double-strand break repair pathway.

REFERENCES

1. Lehman, I.R. 1976. DNA ligase: structure, mechanism, and function. Science 186: 790-797.
2. Caldecott, K.W., et al. 1994. An interaction between the mammalian DNA repair protein XRCC1 and DNA Ligase III. Mol. Cell. Biol. 14: 68-76.

CHROMOSOMAL LOCATION

Genetic locus: LIG3 (human) mapping to 17q12; Lig3 (mouse) mapping to 11 C.

SOURCE

DNA Ligase III (7) is a mouse monoclonal antibody raised against amino acids 2-115 of DNA Ligase III of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DNA Ligase III (7) is available conjugated to agarose (sc-135883 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; and to HRP (sc-135883 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

DNA Ligase III (7) is recommended for detection of DNA Ligase III of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for DNA Ligase III siRNA (h): sc-72079, DNA Ligase III siRNA (m): sc-72086, DNA Ligase III shRNA Plasmid (h): sc-72079-SH, DNA Ligase III shRNA Plasmid (m): sc-72086-SH, DNA Ligase III shRNA (h) Lentiviral Particles: sc-72079-V and DNA Ligase III shRNA (m) Lentiviral Particles: sc-72086-V.

Molecular Weight of DNA Ligase III α-form: 103 kDa.

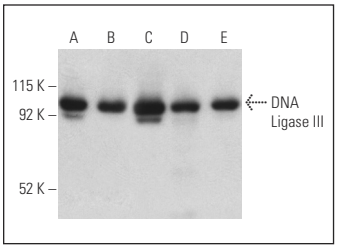
Molecular Weight of DNA Ligase III β-form: 96 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, NIH/3T3 whole cell lysate: sc-2210 or K-562 whole cell lysate: sc-2203.

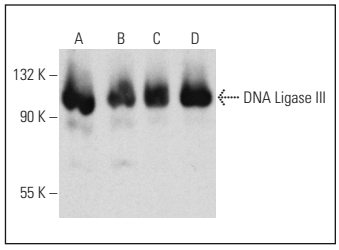
STORAGE

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

DATA



DNA Ligase III (7): sc-135883. Western blot analysis of DNA Ligase III expression in Jurkat (**A**), K-562 (**B**), MOLT-4 (**C**), HL-60 (**D**) and NTERA-2 cl.D1 (**E**) whole cell lysates. Detection reagent used: m-IgG_1 BP-HRP: sc-525408.



DNA Ligase III (7): sc-135883. Western blot analysis of DNA Ligase III expression in Jurkat (**A**), K-562 (**B**), NIH/3T3 (**C**) and NBT-II (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Roy, M., et al. 2011. Curcumin prevents DNA damage and enhances the repair potential in a chronically arsenic-exposed human population in West Bengal, India. Eur. J. Cancer Prev. 20: 123-131.
2. Sinha, D. and Roy, M. 2011. Antagonistic role of tea against sodium arsenite-induced oxidative DNA damage and inhibition of DNA repair in Swiss albino mice. J. Environ. Pathol. Toxicol. Oncol. 30: 311-322.
3. Sfeir, A. and de Lange, T. 2012. Removal of shelterin reveals the telomere end-protection problem. Science 336: 593-597.
4. Gao, R., et al. 2019. Mutant Huntingtin impairs PNKP and ATXN3, disrupting DNA repair and transcription. Elife 8: e42988.
5. Maynard, S., et al. 2019. Lamin A/C promotes DNA base excision repair. Nucleic Acids Res. 47: 11709-11728.
6. Molla, S., et al. 2020. PARP inhibitor Olaparib enhances the apoptotic potentiality of curcumin by increasing the DNA damage in oral cancer cells through inhibition of BER cascade. Pathol. Oncol. Res. 26: 2091-2103.
7. Le, B.V., et al. 2020. TGFβR-SMAD3 signaling induces resistance to PARP inhibitors in the bone marrow microenvironment. Cell Rep. 33: 108221.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.