

DNA Ligase IV (H-300): sc-28232

BACKGROUND

The X-ray repair cross-complementing protein XRCC4 and DNA Ligase IV are essential for repairing double-strand breaks in DNA. These proteins form a critical complex consisting of two molecules of each protein that preferentially bind DNA with nicks or broken ends. As an obligate accessory molecule, XRCC4 binds to DNA Ligase IV and enhances its joining activity. The XRCC4/DNA Ligase IV complex is also involved in V(D)J recombination. V(D)J recombination occurs in normal development of the adaptive immune system and involves the formation of a double-strand break intermediate. Deletions of either DNA Ligase IV or XRCC4 inhibit the completion of V(D)J recombination, resulting in a high incidence of apoptosis in the developing nervous system and a block in B and T cell maturation.

REFERENCES

- Modesti, M., et al. 1999. DNA binding of XRCC4 protein is associated with V(D)J recombination but not with stimulation of DNA Ligase IV activity. *EMBO J.* 18: 2008-2018.
- Bryans, M., et al. 1999. Absence of DNA Ligase IV protein in XR-1 cells: evidence for stabilization by XRCC4. *Mutat. Res.* 433: 53-58.

CHROMOSOMAL LOCATION

Genetic locus: LIG4 (human) mapping to 13q33.3; Lig4 (mouse) mapping to 8 A1.1.

SOURCE

DNA Ligase IV (H-300) is a rabbit polyclonal antibody raised against amino acids 545-844 mapping at the C-terminus of DNA Ligase IV 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

DNA Ligase IV (H-300) is recommended for detection of DNA Ligase IV of mouse, rat and 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).

DNA Ligase IV (H-300) is also recommended for detection of DNA Ligase IV in additional species, including equine and canine.

Suitable for use as control antibody for DNA Ligase IV siRNA (h): sc-37394, DNA Ligase IV siRNA (m): sc-72113, DNA Ligase IV shRNA Plasmid (h): sc-37394-SH, DNA Ligase IV shRNA Plasmid (m): sc-72113-SH, DNA Ligase IV shRNA (h) Lentiviral Particles: sc-37394-V and DNA Ligase IV shRNA (m) Lentiviral Particles: sc-72113-V.

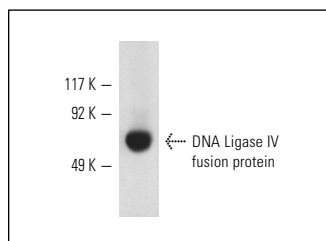
Molecular Weight of DNA Ligase IV: 96 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Ramos cell lysate: sc-2216 or HeLa nuclear extract: sc-2120.

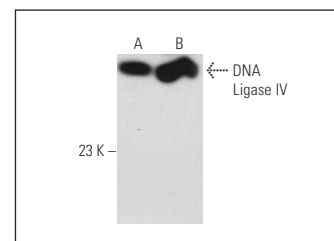
RECOMMENDED SECONDARY REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



DNA Ligase IV (H-300): sc-28232. Western blot analysis of human recombinant DNA Ligase IV fusion protein.



DNA Ligase IV (H-300): sc-28232. Western blot analysis of DNA Ligase IV expression in HeLa (A) and Ramos (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Biswas, J., et al. 2010. Curcumin protects DNA damage in a chronically arsenic-exposed population of West Bengal. *Hum. Exp. Toxicol.* 29: 513-524.
- Tichy, E.D., et al. 2010. Mouse embryonic stem cells, but not somatic cells, predominantly use homologous recombination to repair double-strand DNA breaks. *Stem Cells Dev.* 19: 1699-1711.
- Long, Y., et al. 2013. Neurotoxicity of perfluorooctane sulfonate to hippocampal cells in adult mice. *PLoS ONE* 8: e54176.
- Hähnel, P.S., et al. 2014. Targeting components of the alternative NHEJ pathway sensitizes KRAS mutant leukemic cells to chemotherapy. *Blood* 123: 2355-2366.

STORAGE

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

RESEARCH USE

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



Try **DNA Ligase IV (D-8): sc-271299**, our highly recommended monoclonal alternatives to DNA Ligase IV (H-300). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **DNA Ligase IV (D-8): sc-271299**.