SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC1 (H-300): sc-11429

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The x-ray repair cross-complementing (XRCC) proteins are responsible for efficiently repairing and maintaining genetic stability following DNA base damage. These genes share sequence similarity with the yeast DNA repair protein Rad5. XRCC1 is a protein that facilitates the DNA base excision repair pathway by interacting with DNA ligase III and DNA polymerase to repair DNA single-strand breaks. XRCC2 and XRCC3 are both involved in maintaining chromosome stability during cell division. XRCC2 is required for efficient repair of DNA double-strand breaks by homologous recombination between sister chromatids, and XRCC3 interacts directly with Rad51 to cooperate with Rad51 during recombinational repair. XRCC4 is an accessory factor of DNA ligase IV that preferentially binds DNA with nicks or broken ends. XRCC4 binds to DNA ligase IV and enhances its joining activity, and it is also involved in V(D)J recombination. Any defect in one of the known components of the DNA repair/V(D)J recombination machinery (Ku-70, Ku-80, DNA-PKCS, XRCC4 and DNA ligase IV) leads to abortion of the V(D)J rearrangement process and early block in both T and B cell maturation.

CHROMOSOMAL LOCATION

Genetic locus: XRCC1 (human) mapping to 19q13.31; Xrcc1 (mouse) mapping to 7 A3.

SOURCE

XRCC1 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of XRCC1 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

XRCC1 (H-300) is recommended for detection of XRCC1 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), 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).

XRCC1 (H-300) is also recommended for detection of XRCC1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for XRCC1 siRNA (h): sc-36859, XRCC1 siRNA (m): sc-36860, XRCC1 shRNA Plasmid (h): sc-36859-SH, XRCC1 shRNA Plasmid (m): sc-36860-SH, XRCC1 shRNA (h) Lentiviral Particles: sc-36859-V and XRCC1 shRNA (m) Lentiviral Particles: sc-36860-V.

Molecular Weight (predicted) of XRCC1: 69 kDa.

Molecular Weight (observed) of XRCC1: 71-92 kDa.

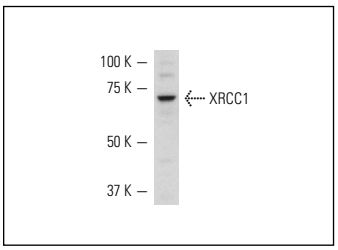
STORAGE

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

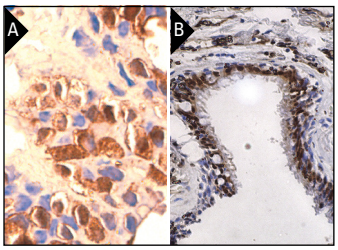
RESEARCH USE

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

DATA



XRCC1 (H-300): sc-11429. Western blot analysis of XRCC1 expression in NIH/3T3 + UV whole cell lysate.



XRCC1 (H-300): sc-11429. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse lung tissue showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing nuclear staining of respiratory epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Keil, C., et al. 2006. MNNG-induced cell death is controlled by interactions between PARP-1, poly(ADP-ribose) glycohydrolase, and XRCC1. J. Biol. Chem. 281: 34394-34405.
2. Liberti, S.E., et al. 2011. Bi-directional routing of DNA mismatch repair protein human exonuclease 1 to replication foci and DNA double strand breaks. DNA Repair 10: 73-86.
3. Sousa, M.M., et al. 2011. Antibody cross-linking and target elution protocols used for immunoprecipitation significantly modulate signal-to noise ratio in downstream 2D-PAGE analysis. Proteome Sci. 9: 45.
4. Ang, M.K., et al. 2011. High XRCC1 protein expression is associated with poorer survival in patients with head and neck squamous cell carcinoma. Clin. Cancer Res. 17: 6542-6552.
5. Lachapelle, S., et al. 2011. Proteome-wide identification of WRN-interacting proteins in untreated and nuclease-treated samples. J. Proteome Res. 10: 1216-1227.
6. Andersen, S.D., et al. 2012. 14-3-3 checkpoint regulatory proteins interact specifically with DNA repair protein human exonuclease 1 (hEXO1) via a semi-conserved motif. DNA Repair 11: 267-277.
7. Hanssen-Bauer, A., et al. 2012. The region of XRCC1 which harbours the three most common nonsynonymous polymorphic variants, is essential for the scaffolding function of XRCC1. DNA Repair 11: 357-366.
8. Sousa, M.M., et al. 2013. An inverse switch in DNA base excision and strand break repair contributes to melphalan resistance in multiple myeloma cells. PLoS ONE 8: e55493.