

XRCC1 (m): 293T Lysate: sc-127792

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, enhances its joining activity and it is also involved in V_DJ recombination. Any defect in one of the known components of the DNA repair/V_DJ recombination machinery (Ku-70, Ku-80, DNA-PK_{CS}, XRCC4 and DNA Ligase IV) leads to abortion of the V_DJ rearrangement process and early block in both T and B cell maturation.

REFERENCES

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2. Liu, N., et al. 1998. XRCC2 and XRCC3, new human Rad51-family members, promote chromosome stability and protect against DNA cross-links and other damages. *Mol. Cell* 1: 783-793.
3. Thacker, J. 1999. The role of homologous recombination processes in the repair of severe forms of DNA damage in mammalian cells. *Biochimie* 81: 77-85.
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5. Johnson, R.D., et al. 1999. Mammalian XRCC2 promotes the repair of DNA double-strand breaks by homologous recombination. *Nature* 401: 397-399.
6. Pierce, A.J., et al. 1999. XRCC3 promotes homology-directed repair of DNA damage in mammalian cells. *Genes Dev.* 13: 2633-2638.
7. Modesti, M., et al. 1999. DNA binding of XRCC4 protein is associated with V_DJ recombination but not with stimulation of DNA Ligase IV activity. *EMBO J.* 18: 2008-2018.
8. Moshous, D., et al. 2000. A new gene involved in DNA double-strand break repair and V_DJ recombination is located on human chromosome 10p. *Hum. Mol. Genet.* 9: 583-588.

CHROMOSOMAL LOCATION

Genetic locus: *Xrcc1* (mouse) mapping to 7 A3.

PRODUCT

XRCC1 (m): 293T Lysate represents a lysate of mouse XRCC1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

XRCC1 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive XRCC1 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

RESEARCH USE

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

PROTOCOLS

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