SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC2 (3C190): sc-73278

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, 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.

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.
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4. 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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6. Johnson, R.D., et al. 1999. Mammalian XRCC2 promotes the repair of DNA double-strand breaks by homologous recombination. Nature 401: 397-399.
7. Pierce, A.J., et al. 1999. XRCC3 promotes homology-directed repair of DNA damage in mammalian cells. Genes Dev. 13: 2633-2638.
8. 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.
9. Moshous, D., et al. 2000. A new gene involved in DNA double-strand break repair and V(D)J recombination is located on human chromosome 10p. Hum. Mol. Genet. 9: 583-588.

CHROMOSOMAL LOCATION

Genetic locus: XRCC2 (human) mapping to 7q36.1.

SOURCE

XRCC2 (3C190) is a mouse monoclonal antibody raised against human XRCC2.

PRODUCT

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

APPLICATIONS

XRCC2 (3C190) is recommended for detection of XRCC2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for XRCC2 siRNA (h): sc-36861, XRCC2 shRNA Plasmid (h): sc-36861-SH and XRCC2 shRNA (h) Lentiviral Particles: sc-36861-V.

Molecular Weight of XRCC2: 34 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

SELECT PRODUCT CITATIONS

1. Wang, Q., et al. 2014. shRNA-mediated XRCC2 gene knockdown efficiently sensitizes colon tumor cells to X-ray irradiation *in vitro* and *in vivo*. Int. J. Mol. Sci. 15: 2157-2171.

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.

PROTOCOLS

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