SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC4 (4): sc-136124

BACKGROUND

DNA repair proteins are necessary for the maintenance of chromosome integrity and are involved in the elimination of premutagenic lesions from DNA. The DNA-repair proteins Rad51 and Rad52 are key components of the double-strand-break repair pathway. Rad51 and Rad52 are essential for mitotic and meiotic recombination, and Rad51 mutation in yeast and mammalian cells results in chromosome loss. Rad51 has been shown in separate studies to interact with breast cancer susceptibility gene products BRCA1 and BRCA2, suggesting that these proteins may function as essential cofactors in Rad51-dependent DNA repair. Rad52 has been shown to associate with the RPA complex, a complex involved in DNA replication, nucleotide excision repair and homologous recombination. An additional protein involved in the DSBR pathway has been identified as XRCC4. XRCC4 has been shown to restore DSBR activity as well as V(D)J recombination in cells with impaired DSBR and V(D)J recombination.

REFERENCES

1. Nash, R.A., et al. 1997. XRCC1 protein interacts with one of two distinct forms of DNA ligase III. Biochemistry 36: 5207-5211.
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. Johnson, R.D., et al. 1999. Mammalian XRCC2 promotes the repair of DNA double-strand breaks by homologous recombination. Nature 401: 397-399.
4. Pierce, A.J., et al. 1999. XRCC3 promotes homology-directed repair of DNA damage in mammalian cells. Genes Dev. 13: 2633-2638.
5. 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.
6. Muylaert, I., et al. 2007. Knock-down of DNA ligase IV/XRCC4 by RNAi inhibits herpes simplex virus type I DNA replication. J. Biol. Chem. 282: 10865-10872.
7. Lu, H., et al. 2007. Length-dependent binding of human XLF to DNA and stimulation of XRCC4: DNA ligase IV activity. J. Biol. Chem. 282: 11155-11562.
8. Gu, J., et al. 2007. XRCC4: DNA ligase IV can ligate incompatible DNA ends and can ligate across gaps. EMBO J. 26: 1010-1023.

CHROMOSOMAL LOCATION

Genetic locus: XRCC4 (human) mapping to 5q14.2.

SOURCE

XRCC4 (4) is a mouse monoclonal antibody raised against amino acids 53-168 of XRCC4 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

APPLICATIONS

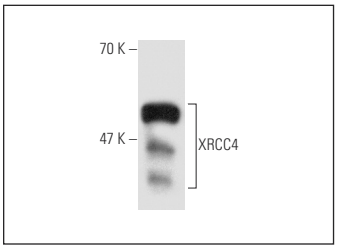
XRCC4 (4) is recommended for detection of XRCC4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for XRCC4 siRNA (h): sc-37405, XRCC4 shRNA Plasmid (h): sc-37405-SH and XRCC4 shRNA (h) Lentiviral Particles: sc-37405-V.

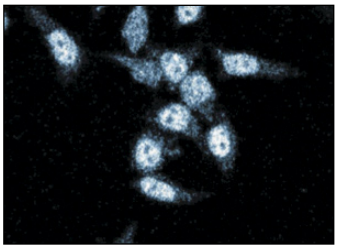
Molecular Weight of XRCC4: 55 kDa.

Positive Controls: MOLT-4 cell lysate: sc-2233, T-47D cell lysate: sc-2293 or HeLa whole cell lysate: sc-2200.

DATA



XRCC4 (4): sc-136124. Western blot analysis of XRCC4 expression in MOLT-4 whole cell lysate.



XRCC4 (4): sc-136124. Immunofluorescence staining of HeLa cells showing nuclear staining.

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.