SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC3 (D-7): sc-271714

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 Rad51. 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-PK_{CS}, 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: XRCC3 (human) mapping to 14q32.33.

SOURCE

XRCC3 (D-7) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of XRCC3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

XRCC3 (D-7) is available conjugated to agarose (sc-271714 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271714 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271714 PE), fluorescein (sc-271714 FITC), Alexa Fluor® 488 (sc-271714 AF488), Alexa Fluor® 546 (sc-271714 AF546), Alexa Fluor® 594 (sc-271714 AF594) or Alexa Fluor® 647 (sc-271714 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271714 AF680) or Alexa Fluor® 790 (sc-271714 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

XRCC3 (D-7) is recommended for detection of XRCC3 of human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for XRCC3 siRNA (h): sc-37403, XRCC3 shRNA Plasmid (h): sc-37403-SH and XRCC3 shRNA (h) Lentiviral Particles: sc-37403-V.

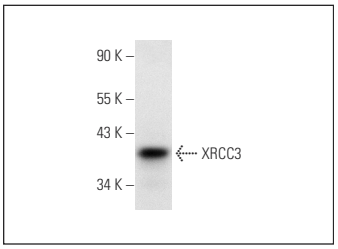
Molecular Weight of XRCC3: 40 kDa.

Positive Controls: SK-N-MC cell lysate: sc-2237, SUP-T1 whole cell lysate: sc-364796 or HeLa whole cell lysate: sc-2200.

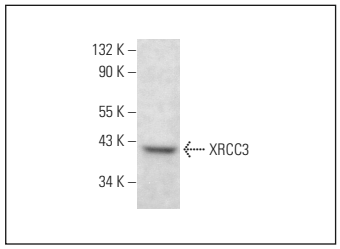
STORAGE

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

DATA



XRCC3 (D-7): sc-271714. Western blot analysis of XRCC3 expression in SK-N-MC whole cell lysate.



XRCC3 (D-7): sc-271714. Western blot analysis of XRCC3 expression in SUP-T1 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Rajamanickam, S., et al. 2016. Inhibition of FOXM1-mediated DNA repair by imipramine blue suppresses breast cancer growth and metastasis. Clin. Cancer Res. 22: 3524-3536.
2. Mishra, A., et al. 2018. Rad51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. Mol. Cell. Biol. 38: e00489-17.
3. Saxena, S., et al. 2018. XRCC2 regulates replication fork progression during dNTP alterations. Cell Rep. 25: 3273-3282.e6.
4. Saxena, S., et al. 2019. ATR signaling uncouples the role of Rad51 paralogs in homologous recombination and replication stress response. Cell Rep. 29: 551-559.e4.
5. Berti, M., et al. 2020. Sequential role of Rad51 paralog complexes in replication fork remodeling and restart. Nat. Commun. 11: 3531.
6. Yan, Y., et al. 2021. BoxCar and shotgun proteomic analyses reveal molecular networks regulated by UBR5 in prostate cancer. Proteomics 22: e2100172.
7. Castro, I., et al. 2022. Establishing and characterizing a novel doxorubicin-resistant acute myeloid leukaemia cell line. J. Chemother. E-published.
8. Wang, L.M., et al. 2023. Thioparib inhibits homologous recombination repair, activates the type I IFN response, and overcomes olaparib resistance. EMBO Mol. Med. E-published.

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.