SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC2 (F-4): sc-365854

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: XRCC2 (human) mapping to 7q36.1; Xrcc2 (mouse) mapping to 5 A3.

SOURCE

XRCC2 (F-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 6-33 at the N-terminus of XRCC2 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.

XRCC2 (F-4) is available conjugated to agarose (sc-365854 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365854 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365854 PE), fluorescein (sc-365854 FITC), Alexa Fluor® 488 (sc-365854 AF488), Alexa Fluor® 546 (sc-365854 AF546), Alexa Fluor® 594 (sc-365854 AF594) or Alexa Fluor® 647 (sc-365854 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365854 AF680) or Alexa Fluor® 790 (sc-365854 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365854 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

XRCC2 (F-4) is recommended for detection of XRCC2 of mouse, rat and 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).

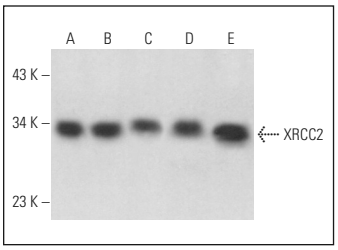
XRCC2 (F-4) is also recommended for detection of XRCC2 in additional species, including bovine.

Suitable for use as control antibody for XRCC2 siRNA (h): sc-36861, XRCC2 siRNA (m): sc-36862, XRCC2 shRNA Plasmid (h): sc-36861-SH, XRCC2 shRNA Plasmid (m): sc-36862-SH, XRCC2 shRNA (h) Lentiviral Particles: sc-36861-V and XRCC2 shRNA (m) Lentiviral Particles: sc-36862-V.

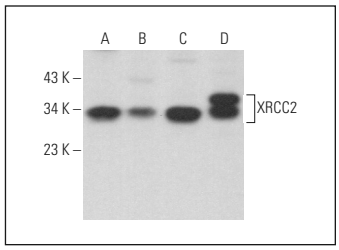
Molecular Weight of XRCC2: 34 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, Jurkat whole cell lysate: sc-2204 or K-562 nuclear extract: sc-2130.

DATA



XRCC2 (F-4): sc-365854. Western blot analysis of XRCC2 expression in Jurkat (**A**) and K-562 (**B**) nuclear extracts and Jurkat (**C**), SH-SY5Y (**D**) and MOLT-4 (**E**) whole cell lysates.



XRCC2 (F-4): sc-365854. Western blot analysis of XRCC2 expression in Jurkat (**A**), U-251-MG (**B**), HEL 92.1.7 (**C**) and 3T3-L1 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Rivera, B., et al. 2017. Functionally null Rad51D missense mutation associates strongly with ovarian carcinoma. Cancer Res. 77: 4517-4529.
2. Saxena, S., et al. 2018. XRCC2 regulates replication fork progression during dNTP alterations. Cell Rep. 25: 3273-3282.e6.
3. 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.
4. Berti, M., et al. 2020. Sequential role of Rad51 paralog complexes in replication fork remodeling and restart. Nat. Commun. 11: 3531.
5. Sharma, M., et al. 2021. DNA damage response proteins synergistically affect the cancer prognosis and resistance. Free Radic. Biol. Med. 178: 174-188.
6. Shan, J., et al. 2022. XRCC2 reduced the sensitivity of NSCLC to radiochemotherapy by arresting the cell cycle. Am. J. Transl. Res. 14: 3783-3795.

RESEARCH USE

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