# 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<sub>CS</sub>, 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  $\mu g\, lgG_{2a}$  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  $\mu$ g/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365854 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365854 PE), fluorescein (sc-365854 FITC), Alexa Fluor<sup>®</sup> 488 (sc-365854 AF488), Alexa Fluor<sup>®</sup> 546 (sc-365854 AF546), Alexa Fluor<sup>®</sup> 594 (sc-365854 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-365854 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-365854 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-365854 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

#### **STORAGE**

Store at 4° C, \*\*D0 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  $\mu$ g per 100-500  $\mu$ g 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) nuclea 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  $({\bf A}),$  U-251-MG  $({\bf B}),$  HEL 92.1.7  $({\bf C})$  and 3T3-L1  $({\bf D})$  whole cell lysates.

### SELECT PRODUCT CITATIONS

- Rivera, B., et al. 2017. Functionally null Rad51D missense mutation associates strongly with ovarian carcinoma. Cancer Res. 77: 4517-4529.
- 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.
- Castro, I., et al. 2023. Establishing and characterizing a novel doxorubicinresistant acute myeloid leukaemia cell line. J. Chemother. 35: 307-321.
- Gong, H., et al. 2024. XRCC2 driven homologous recombination subtypes and therapeutic targeting in lung adenocarcinoma metastasis. NPJ Precis. Oncol. 8: 169.
- Dixit, S., et al. 2024. RTEL1 helicase counteracts RAD51-mediated homologous recombination and fork reversal to safeguard replicating genomes. Cell Rep. 43: 114594.
- Randolph, M.E., et al. 2024. RNA helicase DDX3 regulates RAD51 localization and DNA damage repair in Ewing sarcoma. iScience 27: 108925.

#### **RESEARCH USE**

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