SANTA CRUZ BIOTECHNOLOGY, INC.

XRCC4 (A-7): sc-365055

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-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.

CHROMOSOMAL LOCATION

Genetic locus: XRCC4 (human) mapping to 5q14.2; Xrcc4 (mouse) mapping to 13 C3.

SOURCE

XRCC4 (A-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 307-337 at the C-terminus of XRCC4 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-365055 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

XRCC4 (A-7) is recommended for detection of XRCC4 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).

Suitable for use as control antibody for XRCC4 siRNA (h): sc-37405, XRCC4 siRNA (m): sc-37406, XRCC4 shRNA Plasmid (h): sc-37405-SH, XRCC4 shRNA Plasmid (m): sc-37406-SH, XRCC4 shRNA (h) Lentiviral Particles: sc-37405-V and XRCC4 shRNA (m) Lentiviral Particles: sc-37406-V.

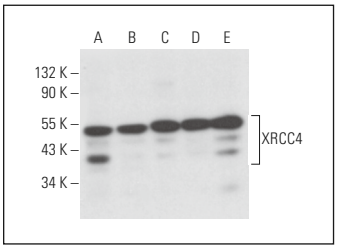
Molecular Weight of XRCC4: 55 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, IB4 whole cell lysate: sc-364780 or A-10 cell lysate: sc-3806.

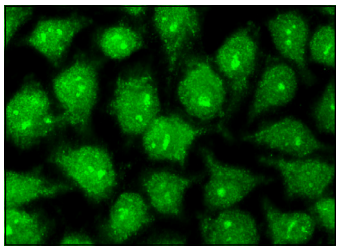
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



XRCC4 (A-7): sc-365055. Western blot analysis of XRCC4 expression in RAW 264.7 (**A**), EOC 20 (**B**), A-10 (**C**), IB4 (**D**) and KNRK (**E**) whole cell lysates.



XRCC4 (A-7): sc-365055. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Herrero, A.B., et al. 2015. Deregulation of DNA double-strand break repair in multiple myeloma: implications for genome stability. PLoS ONE 10: e0121581.
2. Dooley, J., et al. 2016. Genetic predisposition for β cell fragility underlies type 1 and type 2 diabetes. Nat. Genet. 48: 519-527.
3. Maertens, O., et al. 2019. MAPK pathway suppression unmasks latent DNA repair defects and confers a chemical synthetic vulnerability in BRAF-, NRAS-, and NF1-mutant melanomas. Cancer Discov. 9: 526-545.
4. Nicolai, S., et al. 2020. ZNF281 is recruited on DNA breaks to facilitate DNA repair by non-homologous end joining. Oncogene 39: 754-766.
5. Zhang, T., et al. 2023. Break-induced replication orchestrates resection-dependent template switching. Nature 619: 201-208.

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.