SANTA CRUZ BIOTECHNOLOGY, INC.

XLF (E-2): sc-393844

BACKGROUND

XLF (XRCC4-like factor), also known as non-homologous end-joining factor 1 (NHEJ1) or cernunnos, is a 295 amino acid protein belonging to the XLF family. There are two main repair pathways for DNA double-strand breaks: homologous recombination (HR) and non-homologous end-joining (NHEJ). In the latter pathway, the Ku-70/Ku-86 heterodimer binds the DNA ends together and the DNA-PK catalytic subunits are recruited. Then the DNA ends are processed by DNA processing enzymes, such as Artemis. The binding is finalized through DNA Ligase IV, which acts in a complex with XRCC4 and XLF to stabilize the repair. Thus, it is believed that XLF interacts with DNA Ligase IV and XRCC4 to constitute the enzymatic core of the NHEJ machinery. Two named isoforms of XLF exist as a result of alternative splicing events.

REFERENCES

1. Revy, P., et al. 2006. Cernunnos-XLF, a recently identified non-homologous end-joining factor required for the development of the immune system. Curr. Opin. Allergy Clin. Immunol. 6: 416-420.
2. Drouet, J., et al. 2006. Interplay between Ku, Artemis, and the DNA-dependent protein kinase catalytic subunit at DNA ends. J. Biol. Chem. 281: 27784-27793.
3. Hentges, P., et al. 2006. Evolutionary and functional conservation of the DNA non-homologous end-joining protein, XLF/Cernunnos. J. Biol. Chem. 281: 37517-37526.
4. Windhofer, F., et al. 2007. Low levels of DNA ligases III and IV sufficient for effective NHEJ. J. Cell. Physiol. 213: 475-483.
5. Zha, S., et al. 2007. Defective DNA repair and increased genomic instability in Cernunnos-XLF-deficient murine ES cells. Proc. Natl. Acad. Sci. USA 104: 4518-4523.
6. Tsai, C.J., et al. 2007. Cernunnos/XLF promotes the ligation of mismatched and noncohesive DNA ends. Proc. Natl. Acad. Sci. USA 104: 7851-7856.
7. Mahaney, B.L., et al. 2009. Repair of ionizing radiation-induced DNA double-strand breaks by non-homologous end-joining. Biochem. J. 417: 639-650.

CHROMOSOMAL LOCATION

Genetic locus: NHEJ1 (human) mapping to 2q35; Nhej1 (mouse) mapping to 1 C3.

SOURCE

XLF (E-2) is a mouse monoclonal antibody raised against amino acids 1-299 representing full length XLF of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-393844 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

XLF (E-2) is recommended for detection of XLF 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 XLF siRNA (h): sc-76936, XLF siRNA (m): sc-76937, XLF shRNA Plasmid (h): sc-76936-SH, XLF shRNA Plasmid (m): sc-76937-SH, XLF shRNA (h) Lentiviral Particles: sc-76936-V and XLF shRNA (m) Lentiviral Particles: sc-76937-V.

XLF (E-2) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight (predicted) of XLF: 33 kDa.

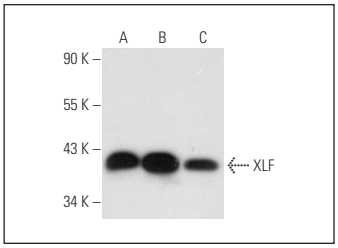
Molecular Weight (observed) of XLF: 40 kDa.

Positive Controls: XLF (m): 293T Lysate: sc-124664, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

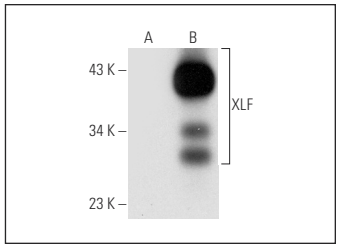
RECOMMENDED SUPPORT REAGENTS

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



XLF (E-2): sc-393844. Western blot analysis of XLF expression in HeLa (**A**), Jurkat (**B**) and A-431 (**C**) whole cell lysates.



XLF (E-2): sc-393844. Western blot analysis of XLF expression in non-transfected: sc-117752 (**A**) and mouse XLF transfected: sc-124664 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Smolinska, A., et al. 2020. MiR-502 is the first reported miRNA simultaneously targeting two components of the classical non-homologous end joining (C-NHEJ) in pancreatic cell lines. Heliyon 6: e03187.

RESEARCH USE

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