SANTA CRUZ BIOTECHNOLOGY, INC.

NEIL3 (A-1): sc-393703

BACKGROUND

NEIL1, NEIL2 and NEIL3 (also known as endonuclease VIII-like 1,2 and 3 or DNA-(apurinic or apyrimidinic site) lyase NEIL 1, 2 and 3) are nuclear proteins involved in the repair of DNA damaged by oxidation. The NEIL proteins belong to the FPG family. They act as DNA glycosylases that can recognize and remove damaged bases, leaving an abasic site. NEIL3, however, lacks the proline residue at the N-terminus which acts as the active site residue found in NEIL1 and NEIL2. Thus, reports of NEIL3 DNA glycosylase activity are contradictory. NEIL3 localizes to the nucleus and only demonstrates expression in thymus and testis tissues. The deduced 605 amino acid NEIL3 protein contains both one FPG-type zinc finger and one RanBP2-type zinc finger.

REFERENCES

1. Morland, I., et al. 2002. Human DNA glycosylases of the bacterial Fpg/MutM superfamily: an alternative pathway for the repair of 8-oxoguanine and other oxidation products in DNA. Nucleic Acids Res. 30: 4926-4936.
2. Takao, M., et al. 2002. A back-up glycosylase in NTH1 knock-out mice is a functional NEI (endonuclease VIII) homologue. J. Biol. Chem. 277: 42205-42213.

CHROMOSOMAL LOCATION

Genetic locus: Neil3 (mouse) mapping to 8 B1.3.

SOURCE

NEIL3 (A-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 24-49 near the N-terminus of NEIL3 of mouse origin.

PRODUCT

Each vial contains 200 µg IgA 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-393703 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-393703 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

NEIL3 (A-1) is recommended for detection of NEIL3 of mouse and rat 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 NEIL3 siRNA (m): sc-61171, NEIL3 siRNA (r): sc-108086, NEIL3 shRNA Plasmid (m): sc-61171-SH, NEIL3 shRNA Plasmid (r): sc-108086-SH, NEIL3 shRNA (m) Lentiviral Particles: sc-61171-V and NEIL3 shRNA (r) Lentiviral Particles: sc-108086-V.

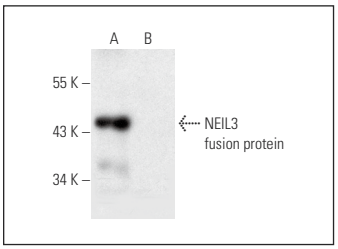
NEIL3 (A-1) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of NEIL3: 68 kDa.

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 L-Agarose: sc-2336 (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



NEIL3 (A-1): sc-393703. Western blot analysis of mouse recombinant (**A**) and human recombinant (**B**) NEIL3 fusion proteins. Note lack of reactivity with human NEIL3 in lane **B**.

SELECT PRODUCT CITATIONS

1. Tan, H.W., et al. 2019. Lasting DNA damage and aberrant DNA repair gene expression profile are associated with post-chronic cadmium exposure in human bronchial epithelial cells. Cells 8: 842.
2. Sobczak, M., et al. 2019. PARP1 co-regulates EP300-BRG1-dependent transcription of genes involved in breast cancer cell proliferation and DNA repair. Cancers 11: 1539.
3. Sobczak, M., et al. 2020. BRG1 activates proliferation and transcription of cell cycle-dependent genes in breast cancer cells. Cancers 12: 349.
4. Srivastava, M., et al. 2020. HMCES safeguards replication from oxidative stress and ensures error-free repair. EMBO Rep. 21: e49123.
5. Konis, S.M.R., et al. 2022. TRIM26 maintains cell survival in response to oxidative stress through regulating DNA glycosylase stability. Int. J. Mol. Sci. 23: 11613.

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.