SANTA CRUZ BIOTECHNOLOGY, INC.

NEIL3 siRNA (h): sc-61170

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 resi-due 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.
3. Rosenquist, T.A., et al. 2003. The novel DNA glycosylase, NEIL1, protects mammalian cells from radiation-mediated cell death. DNA Repair 2: 581-591.
4. Inoue, M., et al. 2004. Expression of the oxidative base excision repair enzymes is not induced in TK6 human lymphoblastoid cells after low doses of ionizing radiation. Radiat. Res. 161: 409-417.
5. Colley, J., et al. 2005. Rapid recognition of aberrant dHPLC elution profiles using the Transgenomic Navigator software. Hum. Mutat. 26: 165.
6. Torisu, K., et al. 2006. Hematopoietic tissue-specific expression of mouse NEIL3 for endonuclease VIII-like protein. J. Biochem. 138: 763-772.
7. LocusLink Report (LocusID: 55247). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: NEIL3 (human) mapping to 4q34.3.

PRODUCT

NEIL3 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NEIL3 shRNA Plasmid (h): sc-61170-SH and NEIL3 shRNA (h) Lentiviral Particles: sc-61170-V as alternate gene silencing products.

For independent verification of NEIL3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61170A, sc-61170B and sc-61170C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

NEIL3 siRNA (h) is recommended for the inhibition of NEIL3 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NEIL3 gene expression knockdown using RT-PCR Primer: NEIL3 (h)-PR: sc-61170-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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