SANTA CRUZ BIOTECHNOLOGY, INC.

Ape2 siRNA (h): sc-61974

BACKGROUND

Ape2 (apurinic-apyrimidinic endonuclease 2), also known as APEX nuclease 2 (APEXL2), AP endonuclease XTH2 or DNA-(apurinic or apyrimidinic site) lyase 2, is a member of the AP/exoA family of DNA repair enzymes. Ape2 is ubiquitously expressed and localizes to the nucleus and mitochondria. It is one of the two class II AP endonucleases expressed in mammals (along with Ref-1 (Ape1)). However Ape2 exhibits limited AP-endonuclease activity, and instead primarily functions as a 3'-5' exonuclease and a 3'-phosphodiesterase. Ape2 associates with PCNA (proliferating cell nuclear antigen) and may play a role in base excision repair (BER), eliminating damaged bases in genomic DNA. Growth retardation and G_2/M-phase arrest, exhibited by Ape2-null mice, suggest that Ape2 is also a key player in the proper progression of the cell cycle.

REFERENCES

1. Hadi, M.Z. 2001. Second human protein with homology to the *Escherichia coli* abasic endonuclease exonuclease III. Environ. Mol. Mutagen. 36: 312-324.
2. Tsuchimoto, D., et al. 2001. Human Ape2 protein is mostly localized in the nuclei and to some extent in the mitochondria, while nuclear Ape2 is partly associated with proliferating cell nuclear antigen. Nucleic Acids Res. 29: 2349-2360.
3. Gros, L., et al. 2002. Enzymology of the repair of free radicals-induced DNA damage. Oncogene 21: 8905-8925.
4. Ide, Y., et al. 2003. Characterization of the genomic structure and expression of the mouse Apex2 gene. Genomics 81: 47-57.
5. Ide, Y., et al. 2004. Growth retardation and dyslymphopoiesis accompanied by G_2/M arrest in APEX2-null mice. Blood 104: 4097-4103.

CHROMOSOMAL LOCATION

Genetic locus: APEX2 (human) mapping to Xp11.21.

PRODUCT

Ape2 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 Ape2 shRNA Plasmid (h): sc-61974-SH and Ape2 shRNA (h) Lentiviral Particles: sc-61974-V as alternate gene silencing products.

For independent verification of Ape2 (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-61974A, sc-61974B and sc-61974C.

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.

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

Ape2 siRNA (h) is recommended for the inhibition of Ape2 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 Ape2 gene expression knockdown using RT-PCR Primer: Ape2 (h)-PR: sc-61974-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.