SANTA CRUZ BIOTECHNOLOGY, INC.

POL H siRNA (m): sc-37802

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Xeroderma pigmentosum (XP) is an autosomal recessive disorder characterized by a genetic predisposition to sunlight-induced skin cancer due to deficiencies in the DNA repair enzymes. The most frequent mutations are found in the XP genes of group A through G and group V, which encode nucleotide excision repair proteins. The XPA gene encodes a zinc metalloprotein that preferentially binds to DNA damaged by UV radiation and chemical carcinogens and is required for the incision step during nucleotide excision repair The XPB and XPD genes encode DNA helicases involved in several DNA metabolic pathways, including DNA repair and transcription, and the XPG gene product is an endonuclease that cuts on the 3' side of a DNA lesion during nucleotide excision repair. Molecular defects in the XP variant (POL H) group maintain normal excision repair, yet they result in a substantial reduction in the ability to synthesize intact daughter DNA strands during DNA replication following DNA damage.

REFERENCES

1. Tateishi, S., et al. 1995. Separation of protein factors that correct the defects in the seven complementation groups of xeroderma pigmentosum cells. J. Biochem. 118: 819-824.
2. Nakane, H., et al. 1995. High incidence of ultraviolet-B or chemical-carcinogen-induced skin tumours in mice lacking the xeroderma pigmentosum group A gene. Nature 377: 165-168.
3. Li, L., et al. 1995. Mutations in XPA that prevent association with ERCC1 are defective in nucleotide excision repair. Mol. Cell. Biol. 15: 1993-1998.
4. Kuraoka, I., et al. 1996. Identification of a damaged-DNA binding domain of the XPA protein. Mut. Res. 362: 87-95.
5. Cappelli, E., et al. 1999. The DNA helicases acting in nucleotide excision repair, XPD, CSB and XPB, are not required for PCNA-dependent repair of abasic sites. Eur. J. Biochem. 259: 325-330.
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7. Constantinou, A., et al. 1999. Conserved residues of human XPG protein important for nuclease activity and function in nucleotide excision repair. J. Biol. Chem. 274: 5637-5648.
8. Masutani, C., et al. 1999. The XPV (xeroderma pigmentosum variant) gene encodes human DNA polymerase η. Nature 399: 700-704.

CHROMOSOMAL LOCATION

Genetic locus: Polh (mouse) mapping to 17 C.

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.

PRODUCT

POL H siRNA (m) 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 POL H shRNA Plasmid (m): sc-37802-SH and POL H shRNA (m) Lentiviral Particles: sc-37802-V as alternate gene silencing products.

For independent verification of POL H (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37802A, sc-37802B and sc-37802C.

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

POL H siRNA (m) is recommended for the inhibition of POL H expression in mouse 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 POL H gene expression knockdown using RT-PCR Primer: POL H (m)-PR: sc-37802-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.