SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol μ siRNA (h): sc-105304

BACKGROUND

DNA polymerase μ shares a number of characteristics with DNA polymerase β as well as with terminal deoxynucleotideyltransferase. Pol μ purportedly plays a role in microhomology mediated joining and the repair of double-stranded breaks. However, unlike other DNA polymerases, which show substrate specificity for deoxynucleotides, DNA Pol μ incorporates both deoxynucleotides and ribonucleotides in a template-directed manner. This unusual capability implies a novel role for this polymerase in DNA repair.

REFERENCES

1. Chiu, A., et al. 2002. DNA polymerase μ gene expression in B-cell non-Hodgkin's lymphomas: an analysis utilizing *in situ* hybridization. Am. J. Pathol. 161: 1349-1355.
2. Zhang, Y., et al. 2002. Lesion bypass activities of human DNA polymerase μ. J. Biol. Chem. 277: 44582-44587.
3. Mahajan, K.N., et al. 2002. Association of DNA polymerase μ (pol μ) with Ku and ligase IV: role for pol μ in end-joining double-strand break repair. Mol. Cell. Biol. 22: 5194-5202.
4. Havener, J.M., et al. 2003. Translesion synthesis past platinum DNA adducts by human DNA polymerase μ. Biochemistry 42: 1777-1788.
5. Nick McElhinny, S.A., et al. 2003. Polymerase μ is a DNA-directed DNA/RNA polymerase. Mol. Cell. Biol. 23: 2309-2315.
6. Ruiz, J.F., et al. 2004. Overexpression of human DNA polymerase μ (pol μ) in a Burkitt's lymphoma cell line affects the somatic hypermutation rate. Nucleic Acids Res. 32: 5861-5873.

CHROMOSOMAL LOCATION

Genetic locus: POLM (human) mapping to 7p13.

PRODUCT

DNA pol μ siRNA (h) is a pool of 2 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 DNA pol μ shRNA Plasmid (h): sc-105304-SH and DNA pol μ shRNA (h) Lentiviral Particles: sc-105304-V as alternate gene silencing products.

For independent verification of DNA pol μ (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-105304A and sc-105304B.

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

DNA pol μ siRNA (h) is recommended for the inhibition of DNA pol μ 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.

GENE EXPRESSION MONITORING

DNA pol μ (E-8): sc-398666 is recommended as a control antibody for monitoring of DNA pol μ gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DNA pol μ gene expression knockdown using RT-PCR Primer: DNA pol μ (h)-PR: sc-105304-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chakraborty, A., et al. 2023. Human DNA polymerase η promotes RNA-templated error-free repair of DNA double strand breaks. J. Biol. Chem. E-published.

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.