SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol δ 4 siRNA (h): sc-96473

BACKGROUND

DNA replication, recombination and repair, all of which are necessary for genomic stability, require the presence of exonucleases. In DNA replication, these enzymes are involved in the processing of Okazaki fragments, whereas in DNA repair, they function to excise damaged DNA fragments and correct recombinational mismatches. These exonucleases include the family of DNA polymerases. DNA pol α, β, δ and ε are involved in DNA replication and repair. DNA pol δ and DNA pol ε are multisubunit enzymes, with DNA pol δ consisting of two subunits: p125, which interacts with the sliding DNA clamp protein PCNA, and p50. DNA pol δ 4 (DNA polymerase delta subunit 4), also known as p12, POLDS or POLD4, is a 107 amino acid nuclear protein belonging to the DNA polymerase δ subunit 4 family that contributes to PCNA-dependent activity of DNA polymerase δ and exists as a heterotetramer.

REFERENCES

1. Bambara, R.A. and Jessee, C.B. 1991. Properties of DNA polymerases δ and ε, and their roles in eukaryotic DNA replication. Biochim. Biophys. Acta 1088: 11-24.
2. Li, J.J. and Alberts, B.M. 1992. DNA replication. Eukaryotic initiation rites. Nature 357: 114-115.
3. Diede, S.J. and Gottschling, D.E. 1999. Telomerase-mediated telomere addition *in vivo* requires DNA primase and DNA polymerases α and δ. Cell 99: 723-733.
4. Wood, R.D. 1999. DNA repair. Variants on a theme. Nature 399: 639-640.
5. Liu, L., et al. 2000. Identification of a fourth subunit of mammalian DNA polymerase δ. J. Biol. Chem. 275: 18739-18744.
6. Liu, G. and Warbrick, E. 2006. The p66 and p12 subunits of DNA polymerase δ are modified by ubiquitin and ubiquitin-like proteins. Biochem. Biophys. Res. Commun. 349: 360-366.
7. Zhang, S., et al. 2007. A novel DNA damage response: rapid degradation of the p12 subunit of DNA polymerase δ. J. Biol. Chem. 282: 15330-15340.

CHROMOSOMAL LOCATION

Genetic locus: POLD4 (human) mapping to 11q13.2.

PRODUCT

DNA pol δ 4 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 δ 4 shRNA Plasmid (h): sc-96473-SH and DNA pol δ 4 shRNA (h) Lentiviral Particles: sc-96473-V as alternate gene silencing products.

For independent verification of DNA pol δ 4 (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-96473A and sc-96473B.

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

DNA pol δ 4 siRNA (h) is recommended for the inhibition of DNA pol δ 4 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 DNA pol δ 4 gene expression knockdown using RT-PCR Primer: DNA pol δ 4 (h)-PR: sc-96473-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.