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Lieferung & Zahlungsart

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Zuschläge

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- Trockeneiszuschlag
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SANTA CRUZ BIOTECHNOLOGY, INC.

DNA pol γ2 siRNA (m): sc-155884

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 γ2 (polymerase (DNA directed), γ2, accessory subunit), also known as mitochondrial DNA polymerase accessory subunit, POLB, HP55, PEOA4, POLGB, MTPOLB, POLG-BETA or POLG2, is a 485 amino acid subunit of mitochondrial DNA pol γ. DNA pol γ2 enhances DNA binding and promotes processive DNA synthesis. Defects in the gene encoding DNA pol γ2 are the cause of PEOA4 (progressive external ophthalmoplegia with mitochondrial DNA deletions autosomal dominant type 4).

REFERENCES

1. Wang, Y., et al. 1997. Accessory subunit of mitochondrial DNA polymerase from *Drosophila* embryos. Cloning, molecular analysis, and association in the native enzyme. J. Biol. Chem. 272: 13640-13646.
2. Carrodeguas, J.A., et al. 2000. Protein sequences conserved in prokaryotic aminoacyl-tRNA synthetases are important for the activity of the processivity factor of human mitochondrial DNA polymerase. Nucleic Acids Res. 28: 1237-1244.
3. Carrodeguas, J.A., et al. 2001. Crystal structure and deletion analysis show that the accessory subunit of mammalian DNA polymerase γ, pol γB, functions as a homodimer. Mol. Cell 7: 43-54.
4. Longley, M.J., et al. 2006. Mutant POLG2 disrupts DNA polymerase γ subunits and causes progressive external ophthalmoplegia. Am. J. Hum. Genet. 78: 1026-1034.
5. Yakubovskaya, E., et al. 2006. Functional human mitochondrial DNA polymerase γ forms a heterotrimer. J. Biol. Chem. 281: 374-382.
6. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 604983. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: Polg2 (mouse) mapping to 11 E1.

PRODUCT

DNA pol γ2 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 DNA pol γ2 shRNA Plasmid (m): sc-155884-SH and DNA pol γ2 shRNA (m) Lentiviral Particles: sc-155884-V as alternate gene silencing products.

For independent verification of DNA pol γ2 (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-155884A, sc-155884B and sc-155884C.

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 γ2 siRNA (m) is recommended for the inhibition of DNA pol γ2 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 DNA pol γ2 gene expression knockdown using RT-PCR Primer: DNA pol γ2 (m)-PR: sc-155884-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. Dhar, S.K., et al. 2018. DNA polymerase γ (pol γ) deficiency triggers a selective mTORC2 prosurvival autophagy response via mitochondria-mediated Ros signaling. Oncogene 37: 6225-6242.

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.