

Dclre1c siRNA (m): sc-142902

BACKGROUND

Distinct DNA repair pathways minimize the consequences of mutagenic events. Reactive oxygen species (ROS) are highly reactive atoms with an unpaired electron that are conducive to double-strand DNA breaking events. Artemis, named after the Greek goddess for the protection of children, is one of the major proteins contributing to the preservation of double-strand breaks in DNA by cutting away the damaged parts of the DNA, which allows the strands to rejoin. Artemis is a single-strand-specific 5' to 3' exonuclease that forms a complex with the DNA-dependent protein kinase (DNA-PKcs). DNA-PKcs phosphorylates Artemis, and Artemis acquires endonucleolytic activity on 5' and 3' overhangs and hairpins. These activities are essential for V(D)J recombination and for the 5' and 3' overhang processing in nonhomologous DNA end joining. Mutations in the human Artemis protein result in hypersensitivity to DNA double-strand break-inducing agents and absence of B and T lymphocytes, which is known as "bubble boy" disease or severe combined immunodeficiency disease (SCID) (2,7). The human Artemis gene maps to chromosome 10p13, and encodes a 577 amino acid protein.

REFERENCES

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4. Schlissel, M.S. 2002. Does artemis end the hunt for the hairpin-opening activity in V(D)J recombination? *Cell* 109: 1-4.
5. Li, L., et al. 2002. A founder mutation in Artemis, an SNM1-like protein, causes SCID in Athabascan-speaking Native Americans. *J. Immunol.* 168: 6323-6329.
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CHROMOSOMAL LOCATION

Genetic locus: Dclre1c (mouse) mapping to 2 A1.

PRODUCT

Dclre1c siRNA (m) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Dclre1c shRNA Plasmid (m): sc-142902-SH and Dclre1c shRNA (m) Lentiviral Particles: sc-142902-V as alternate gene silencing 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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Dclre1c siRNA (m) is recommended for the inhibition of Dclre1c 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 μ M in 66 μ l. 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 Dclre1c gene expression knockdown using RT-PCR Primer: Dclre1c (m)-PR: sc-142902-PR (20 μ l). 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.