SANTA CRUZ BIOTECHNOLOGY, INC.

MRE11 siRNA (chicken): sc-270654

BACKGROUND

Rad52 family members (Rad50, Rad51B/C/D, Rad52, Rad54 and MRE11) mediate DNA double-strand break repair (DSBR) for DNA damage that could otherwise cause cell death, mutation or neoplastic transformation. Rad51 (RECA, BRCC5) interacts with BRCA1 and BRCA2 to influence subcellular localization and cellular response to DNA damage. BRCA2 inactivation may be a key event leading to genomic instability and tumorigenesis from deregulation of Rad51. Rad52 forms a heptameric ring that binds single-stranded DNA ends and catalyzes DNA-DNA interaction necessary for the annealing of complementary strands. Rad52 can interact with Rad51. MRE11 (meiotic recombination 11, ATLD, HNGS1) is a nuclear 3'-5' exonuclease/endonuclease that associates with RAD50 and influences homologous recombination, telomere length maintenance, and DNA double-strand break repair. MRE11 is most abundant in proliferating tissues.

REFERENCES

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2. Zhong, Q., et al. 2002. Deficient nonhomologous end-joining activity in cell-free extracts from BRCA1-null fibroblasts. Cancer Res. 62: 3966-3970.
3. Lisby, M., et al. 2003. Colocalization of multiple DNA double-strand breaks at a single Rad52 repair centre. Nat. Cell Biol. 5: 572-577.
4. Sugawara, N., et al. 2003. *In vivo* roles of Rad52, Rad54, and Rad55 proteins in Rad51-mediated recombination. Mol. Cell 12: 209-219.
5. Miyazaki, T., et al. 2004. *In vivo* assembly and disassembly of Rad51 and Rad52 complexes during double-strand break repair. EMBO J. 23: 939-949.
6. O'Connor, M.S., et al. 2004. The human Rap1 protein complex and modulation of telomere length. J. Biol. Chem. 279: 28585-28591.
7. Bekker-Jensen, S., et al. 2006. Spatial organization of the mammalian genome surveillance machinery in response to DNA strand breaks. J. Cell Biol. 173: 195-206.
8. Wu, Y., et al. 2006. DNA annealing mediated by Rad52 and Rad59 proteins. J. Biol. Chem. 281: 15441-15449.

CHROMOSOMAL LOCATION

Genetic locus: MRE11 (chicken) mapping to 1.

PRODUCT

MRE11 siRNA (chicken) 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 MRE11 shRNA Plasmid (chicken): sc-270654-SH and MRE11 shRNA (chicken) Lentiviral Particles: sc-270654-V as alternate gene silencing products.

For independent verification of MRE11 (chicken) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270654A, sc-270654B and sc-270654C.

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

MRE11 siRNA (chicken) is recommended for the inhibition of MRE11 expression in chicken 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 MRE11 gene expression knockdown using RT-PCR Primer: MRE11 (chicken)-PR: sc-270654-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.

PROTOCOLS

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