SANTA CRUZ BIOTECHNOLOGY, INC.

RMI1 siRNA (h): sc-72651

BACKGROUND

Bloom's syndrome (BS) is a rare human genetic disorder characterized by dwarfism, immunodeficiency, genomic instability and cancer predisposition. BS is a result of mutation in the BLM gene, which encodes a protein that forms a multienzyme complex with topoisomerase IIIα, replication protein A and RMI1 (also designated RecQ-mediated genome instability protein 1 or RMI1). BLM maintains genome integrity and catalyzes Holliday-junction branch migration and the annealing of complementary single-stranded DNA molecules. RMI1, an OB-fold nucleic acid binding domain, is is essential for the stability of the BLM complex *in vivo*. Specifically, RMI1 enhances the ability of the BLM-Topo IIIα pair to branch migrate the Holliday junction or dissolve the double Holliday junction structure to yield non-crossover recombinants. RMI1 colocalizes with BLM in subnuclear foci in response to DNA damage, and its depletion impairs the recruitment of BLM to these foci.

REFERENCES

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2. Yin, J., et al. 2005. RMI1, an essential component of Bloom's syndrome protein complexes that maintain genome integrity. EMBO J. 24: 1465-1476.
3. Raynard, S., et al. 2006. A double Holliday junction dissolvasome comprising BLM, topoisomerase IIIα, and RMI1. J. Biol. Chem. 281: 13861-13864.
4. Wu, L., Bet al. 2006. RMI1/RMI1 promotes the BLM-dependent dissolution of homologous recombination intermediates. Proc. Natl. Acad. Sci. USA 103: 4068-4073.
5. Broberg, K., et al. 2007. Genetic variant of the human homologous recombination-associated gene RMI1 (S455N) impacts the risk of AML/MDS and malignant melanoma. Cancer Lett. 258: 38-44.
6. Chan, K.L., et al. 2007. BLM is required for faithful chromosome segregation and its localization defines a class of ultrafine anaphase bridges. EMBO J. 26: 3397-3409.
7. Singh, T.R., et al. 2008. BLAP18/RMI2, a novel OB-fold-containing protein, is an essential component of the Bloom helicase-double Holliday junction dissolvasome. Genes Dev. 22: 2856-2868.

CHROMOSOMAL LOCATION

Genetic locus: RMI1 (human) mapping to 9q21.32.

PRODUCT

RMI1 siRNA (h) 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 RMI1 shRNA Plasmid (h): sc-72651-SH and RMI1 shRNA (h) Lentiviral Particles: sc-72651-V as alternate gene silencing products.

For independent verification of RMI1 (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-72651A, sc-72651B and sc-72651C.

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

RMI1 siRNA (h) is recommended for the inhibition of RMI1 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 RMI1 gene expression knockdown using RT-PCR Primer: RMI1 (h)-PR: sc-72651-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.