

BLM siRNA (h): sc-29808

BACKGROUND

Bloom's syndrome is an autosomal recessive disorder characterized by pre- and post-natal growth deficiencies, sun sensitivity, immunodeficiency and a predisposition to various cancers. The gene responsible for Bloom's syndrome, BLM, encodes a protein homologous to the RecQ helicase of *E. coli* and is mutated in most Bloom's syndrome patients. One characteristic of Bloom's syndrome is an increased frequency of sister chromatid exchange (SCE). BLM has been shown to unwind G4 DNA, and a failure of this function is thought to be responsible for the increased rate of SCE. BLM is known to be translocated to the nucleus, where its ATPase activity is stimulated by both single- and double-stranded DNA. Mutations in the yeast SGS1, a homolog of BLM, are known to cause mitotic hyperrecombination similar to that observed in Bloom's cells.

REFERENCES

1. Ellis, N.A., et al. 1995. The Bloom's syndrome gene product is homologous to RecQ helicases. *Cell* 83: 655-666.
2. Bamezai, R. 1996. Bloom syndrome: is the gene mapped to the point? *Indian J. Exp. Biol.* 34: 298-301.
3. Watt, P.M., et al. 1996. SGS1, a homologue of the Bloom's and Werner's syndrome genes, is required for maintenance of genome stability in *Saccharomyces*. *Genetics* 144: 935-945.
4. Kaneko, H., et al. 1997. BLM (the causative gene of Bloom syndrome) protein translocation into the nucleus by a nuclear localization signal. *Biochem. Biophys. Res. Commun.* 240: 348-353.
5. Karow, J.K., et al. 1997. The Bloom's syndrome gene product is a 3'-5' DNA helicase. *J. Biol. Chem.* 272: 30611-30614.
6. Sun, H., et al. 1998. The Bloom's syndrome helicase unwinds G4 DNA. *J. Biol. Chem.* 273: 27587-27592.

CHROMOSOMAL LOCATION

Genetic locus: BLM (human) mapping to 15q26.1.

PRODUCT

BLM 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BLM shRNA Plasmid (h): sc-29808-SH and BLM shRNA (h) Lentiviral Particles: sc-29808-V as alternate gene silencing products.

For independent verification of BLM (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-29808A, sc-29808B and sc-29808C.

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 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

BLM siRNA (h) is recommended for the inhibition of BLM 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 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.

GENE EXPRESSION MONITORING

BLM (B-4): sc-365753 is recommended as a control antibody for monitoring of BLM gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BLM gene expression knockdown using RT-PCR Primer: BLM (h)-PR: sc-29808-PR (20 μ l, 431 bp). 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.