

SETMAR siRNA (m): sc-153388

BACKGROUND

SETMAR (SET domain and mariner transposase fusion gene-containing protein), also known as METNASE or Hsmar1, is a ubiquitously expressed fusion protein with histone-lysine N-methyltransferase activity and DNA-binding, DNA-looping and DNA-cleavage activities. Localizing to the nucleus, SETMAR contains one N-terminal SET domain which facilitates the histone-lysine methyltransferase activity (at H3-Lys4 and H3-Lys36) and a C-terminal transposase domain which is responsible for the DNA-binding, -looping and -cleavage activities. Both domains are essential for the proper function of SETMAR. SETMAR specifically functions in DNA repair but, on its own, SETMAR can only bind to 5'-TIR (terminal inverted repeats) in DNA. For interactions with non-TIR DNA, SETMAR (via its SET domain) binds to and forms a stable complex with the pre-mRNA processing protein PRP19. Due to alternative splicing events, two isoforms exist.

REFERENCES

- Robertson, H.M. and Zumpano, K.L. 1997. Molecular evolution of an ancient mariner transposon, Hsmar1, in the human genome. *Gene* 205: 203-217.
- Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609834. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Higgins, J.J., et al. 2004. Candidate genes for recessive non-syndromic mental retardation on chromosome 3p (MRT2A). *Clin. Genet.* 65: 496-500.
- Lee, S.H., et al. 2005. The SET domain protein Metnase mediates foreign DNA integration and links integration to nonhomologous end-joining repair. *Proc. Natl. Acad. Sci. USA* 102: 18075-18080.
- Cordaux, R., et al. 2006. Birth of a chimeric primate gene by capture of the transposase gene from a mobile element. *Proc. Natl. Acad. Sci. USA* 103: 8101-8106.
- Roman, Y., et al. 2007. Biochemical characterization of a SET and transposase fusion protein, Metnase: its DNA binding and DNA cleavage activity. *Biochemistry* 46: 11369-11376.

CHROMOSOMAL LOCATION

Genetic locus: Setmar (mouse) mapping to 6 E1.

PRODUCT

SETMAR 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SETMAR shRNA Plasmid (m): sc-153388-SH and SETMAR shRNA (m) Lentiviral Particles: sc-153388-V as alternate gene silencing products.

For independent verification of SETMAR (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-153388A, sc-153388B and sc-153388C.

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

SETMAR siRNA (m) is recommended for the inhibition of SETMAR 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.

GENE EXPRESSION MONITORING

SETMAR (A-12): sc-515243 is recommended as a control antibody for monitoring of SETMAR 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 SETMAR gene expression knockdown using RT-PCR Primer: SETMAR (m)-PR: sc-153388-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.