SANTA CRUZ BIOTECHNOLOGY, INC.

MEI1 siRNA (h): sc-75770

BACKGROUND

The predominant cause of spermatogenic arrest of meiosis is the failure of homologous chromosomes to accurately synapse. MEI1 (meiosis inhibitor protein 1), also designated meiosis defective protein 1, is a 1,274 amino acid protein that is likely required for the formation of genetically programmed double-strand breaks, the first step in the initiation of meiosis. With predominant expression in testis, it is likely that defects of the gene encoding MEI1 results in male infertility. Interestingly, studies show that genetic variation in the MEI gene possibly predisposes European Americans but not Israeli men to infertility by meiotic arrest. Human MEI1 shares 79% sequence similarity with its mouse homolog. There are seven isoforms of MEI1 that are produced as a result of alternative splicing events.

REFERENCES

1. Libby, B.J., et al. 2002. The mouse meiotic mutation mei1 disrupts chromosome synapsis with sexually dimorphic consequences for meiotic progression. Dev. Biol. 242: 174-187.
2. Grelon, M., et al. 2003. The Arabidopsis MEI1 gene encodes a protein with five BRCT domains that is involved in meiosis-specific DNA repair events independent of SPO11-induced DSBs. Plant J. 35: 465-475.
3. Libby, B.J., et al. 2003. Positional cloning and characterization of Mei1, a vertebrate-specific gene required for normal meiotic chromosome synapsis in mice. Proc. Natl. Acad. Sci. USA 100: 15706-15711.
4. Reinholdt, L.G. and Schimenti, J.C. 2005. Mei1 is epistatic to Dmc1 during mouse meiosis. Chromosoma 114: 127-134.
5. Liebe, B., et al. 2006. Mutations that affect meiosis in male mice influence the dynamics of the mid-preleptotene and bouquet stages. Exp. Cell Res. 312: 3768-3781.
6. Sato, H., et al. 2006. Polymorphic alleles of the human MEI1 gene are associated with human azoospermia by meiotic arrest. J. Hum. Genet. 51: 533-540.
7. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 608797. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: MEI1 (human) mapping to 22q13.2.

PRODUCT

MEI1 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 MEI1 shRNA Plasmid (h): sc-75770-SH and MEI1 shRNA (h) Lentiviral Particles: sc-75770-V as alternate gene silencing products.

For independent verification of MEI1 (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-75770A, sc-75770B and sc-75770C.

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

MEI1 siRNA (h) is recommended for the inhibition of MEI1 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.

GENE EXPRESSION MONITORING

MEI1 (F-4): sc-515359 is recommended as a control antibody for monitoring of MEI1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 MEI1 gene expression knockdown using RT-PCR Primer: MEI1 (h)-PR: sc-75770-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.