SANTA CRUZ BIOTECHNOLOGY, INC.

Spo11 siRNA (h): sc-38436

BACKGROUND

Spo11 is a type II topoisomerase that is thought to generate the chromosome breaks that initiate meiotic recombination. The Spo11 protein initiates meiotic recombination by generating DNA double-strand breaks (DSBs) and is required for meiotic synapsis in *S. cerevisiae*. The DSBs are located mostly in promoter regions, where the chromatin is in an open configuration, and cluster in domains along the chromosome. Expression of the Spo11 is detected mainly in the testis, in agreement with its predicted function in the initiation of meiotic recombination. Disruption of Spo11 leads to severe gonadal abnormalities from defective meiosis and results in infertility.

REFERENCES

1. Mezard, C., Baudat, F., Debrauwere, H., de Massy, B., Smith, K., Soustelle, C., Varoutas, P.C., Vedel, M. and Nicolas, A. 1999. Mechanisms and control of meiotic recombination in the yeast *Saccharomyces cerevisiae*. J. Soc. Biol. 193: 23-27.
2. Romanienko, P.J. and Camerini-Otero, R.D. 2000. The mouse Spo11 gene is required for meiotic chromosome synapsis. Mol. Cell 6: 975-987.
3. Baudat, F., Manova, K., Yuen, J.P., Jasin, M. and Keeney, S. 2000. Chromosome synapsis defects and sexually dimorphic meiotic progression in mice lacking Spo11. Mol. Cell 6: 989-998.
4. Metzler-Guillemain, C. and de Massy, B. 2000. Identification and characterization of an Spo11 homolog in the mouse. Chromosoma 109: 133-138.
5. Celerin, M., Merino, S.T., Stone, J.E., Menzie, A.M. and Zolan, M.E. 2000. Multiple roles of Spo11 in meiotic chromosome behavior. EMBO J. 19: 2739-2750.
6. Prieler, S., Penkner, A., Borde, V. and Klein, F. 2005. The control of Spo11's interaction with meiotic recombination hotspots. Genes Dev. 19: 255-269.

CHROMOSOMAL LOCATION

Genetic locus: SPO11 (human) mapping to 20q13.31.

PRODUCT

Spo11 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 Spo11 shRNA Plasmid (h): sc-38436-SH and Spo11 shRNA (h) Lentiviral Particles: sc-38436-V as alternate gene silencing products.

For independent verification of Spo11 (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-38436A, sc-38436B and sc-38436C.

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.

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

Spo11 siRNA (h) is recommended for the inhibition of Spo11 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

Spo11 (C-4): sc-377161 is recommended as a control antibody for monitoring of Spo11 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 Spo11 gene expression knockdown using RT-PCR Primer: Spo11 (h)-PR: sc-38436-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.