



FOXM1 siRNA (m): sc-44877

BACKGROUND

The Fox family of transcription factors is a large group of proteins that share a common DNA binding domain termed a winged-helix or forkhead domain. FOXM1, also known as FKHL16, MPP2 or TRIDENT, is primarily expressed in proliferating cells. The gene encoding human FOXM1 maps to chromosome 12p13.33. The transcription element that restricts FOXM1 expression to proliferating cells is located 300 bp upstream of the start codon. FOXM1 is most abundant in thymus, testis, small intestine and colon. Alternative splicing generates FOXM1A and FOXM1B isoforms that contain PEST regions involved in rapid protein degradation. A decrease in FOXM1 expression is associated with age-related defects in cellular proliferation. Conversely, an increase in FOXM1B expression in the livers of older transgenic mice restore hepatocyte DNA replication rates to the higher rate present in young livers. FOXM1B activates the transcription of cyclin B1, cyclin D1 and Cdc25B.

REFERENCES

1. Ye, H., et al. 1997. Hepatocyte nuclear factor 3/forkhead homolog 11 is expressed in proliferating epithelial and mesenchymal cells of embryonic and adult tissues. *Mol. Cell. Biol.* 17: 1626-1641.
2. Korver, W., et al. 1997. The human TRIDENT/HFH-11/FKHL16 gene: structure, localization and promoter characterization. *Genomics* 46: 435-442.
3. Yao, K.M., et al. 1997. Molecular analysis of a novel winged-helix protein, WIN. Expression pattern, DNA binding property and alternative splicing within the DNA binding domain. *J. Biol. Chem.* 272: 19827-19836.
4. Ly, D.H., et al. 2000. Mitotic misregulation and human aging. *Science* 287: 2486-2492.
5. Wang, X., et al. 2001. Increased levels of forkhead box M1B transcription factor in transgenic mouse hepatocytes prevent age-related proliferation defects in regenerating liver. *Proc. Natl. Acad. Sci. USA* 98: 11468-11473.
6. Wang, X., et al. 2002. The forkhead box M1B transcription factor is essential for hepatocyte DNA replication and mitosis during mouse liver regeneration. *Proc. Natl. Acad. Sci. USA* 99: 16881-16886.

CHROMOSOMAL LOCATION

Genetic locus: Foxm1 (mouse) mapping to 6 F3.

PRODUCT

FOXM1 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 FOXM1 shRNA Plasmid (m): sc-44877-SH and FOXM1 shRNA (m) Lentiviral Particles: sc-44877-V as alternate gene silencing products.

For independent verification of FOXM1 (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-44877A, sc-44877B and sc-44877C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

FOXM1 siRNA (m) is recommended for the inhibition of FOXM1 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

FOXM1 (G-5): sc-376471 is recommended as a control antibody for monitoring of FOXM1 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 FOXM1 gene expression knockdown using RT-PCR Primer: FOXM1 (m)-PR: sc-44877-PR (20 μ l, 494 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pan, F., et al. 2023. FOXM1 is critical for the fitness recovery of chromosomally unstable cells. *Cell Death Dis.* 14: 430.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.