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SANTA CRUZ BIOTECHNOLOGY, INC.

FOXM1 siRNA (h): sc-43769

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.

CHROMOSOMAL LOCATION

Genetic locus: FOXM1 (human) mapping to 12p13.33.

PRODUCT

FOXM1 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 FOXM1 shRNA Plasmid (h): sc-43769-SH and FOXM1 shRNA (h) Lentiviral Particles: sc-43769-V as alternate gene silencing products.

For independent verification of FOXM1 (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-43769A, sc-43769B and sc-43769C.

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

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

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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FOXM1 gene expression knockdown using RT-PCR Primer: FOXM1 (h)-PR: sc-43769-PR (20 µl, 491 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, Z., et al. 2007. Down-regulation of forkhead box M1 transcription factor leads to the inhibition of invasion and angiogenesis of pancreatic cancer cells. Cancer Res. 67: 8293-8300.
2. Ahmad, A., et al. 2011. 3,3'-diindolylmethane enhances taxotere-induced growth inhibition of breast cancer cells through downregulation of FOXM1. Int. J. Cancer 129: 1781-1791.
3. Jin, B., et al. 2017. Anthelmintic niclosamide disrupts the interplay of p65 and FOXM1/β-catenin and eradicates leukemia stem cells in chronic myelogenous leukemia. Clin. Cancer Res. 23: 789-803.
4. Zhu, X., et al. 2018. The FoxM1-ABCC4 axis mediates carboplatin resistance in human retinoblastoma Y-79 cells. Acta Biochim. Biophys. Sin. 50: 914-920.
5. Im, J., et al. 2018. FOXM1-dependent Rad51 and BRCA2 signaling protects idiopathic pulmonary fibrosis fibroblasts from radiation-induced cell death. Cell Death Dis. 9: 584.
6. Nicolau-Neto, P., et al. 2018. Esophageal squamous cell carcinoma transcriptome reveals the effect of FOXM1 on patient outcome through novel PIK3R3 mediated activation of PI3K signaling pathway. Oncotarget 9: 16634-16647.
7. Ciamporcero, E., et al. 2018. Crosstalk between Nrf2 and YAP contributes to maintaining the antioxidant potential and chemoresistance in bladder cancer. Free Radic. Biol. Med. 115: 447-457.

RESEARCH USE

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