SANTA CRUZ BIOTECHNOLOGY, INC.

CHES1 siRNA (h): sc-72324

BACKGROUND

CHES1 (checkpoint suppressor 1), also known as forkhead box protein N3 (FOXN3), is a member of the Fox family of transcription factors. The Fox family is a large group of proteins that share a common DNA binding domain termed winged-helix or forkhead domain. CHES1 contains one forkhead DNA-binding domain. It localizes to the nucleus and functions as a transcriptional repressor and is critical for control of the DNA damage checkpoint. CHES1 interacts with the transcriptional regulator protein Skip via its C-terminus and its repressor activity is likely mediated by the recruitment of repressor complexes such as that composed of mSin3A, HDAC1 and HDAC2. In response to DNA damage, CHES1 interacts with menin in an S-phase checkpoint pathway and functions as a cell cycle inhibitor. In addition, CHES1 expression is downregulated in several tumors and may play a role in tumorigenicity.

REFERENCES

1. Pati, D., et al. 1997. Reconstitution of a MEC1-independent checkpoint in yeast by expression of a novel human fork head cDNA. Mol. Cell. Biol. 17: 3037-3046.
2. Struckmann, K., et al. 2004. Impaired expression of the cell cycle regulator BTG2 is common in clear cell renal cell carcinoma. Cancer Res. 64: 1632-1638.
3. Katoh, M., et al. 2004. Human FOX gene family (Review). Int. J. Oncol. 25: 1495-1500.
4. Katoh, M., et al. 2004. Characterization of human FOXN4 gene in silico. Int. J. Mol. Med. 14: 949-953.
5. Chang, J.T., et al. 2005. Identification of differentially expressed genes in oral squamous cell carcinoma (OSCC): overexpression of NPM, CDK1 and NDRG1 and underexpression of CHES1. Int. J. Cancer 114: 942-949.
6. Scott, K.L., et al. 2005. CHES1/FOXN3 interacts with Ski-interacting protein and acts as a transcriptional repressor. Gene 359: 119-126.
7. Whitney, E.M., et al. 2006. Transcriptional profiling of the cell cycle checkpoint gene krüppel-like factor 4 reveals a global inhibitory function in macromolecular biosynthesis. Gene Expr. 13: 85-96.
8. Busygina, V., et al. 2006. Multiple endocrine neoplasia type 1 interacts with forkhead transcription factor CHES1 in DNA damage response. Cancer Res. 66: 8397-8403.
9. Wilkinson, L.J., et al. 2007. Down-regulation of gene transcripts associated with ricin tolerance in human RPMI 2650 cells. Toxicol. In Vitro 21: 509-520.

CHROMOSOMAL LOCATION

Genetic locus: FOXN3 (human) mapping to 14q31.3.

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.

PRODUCT

CHES1 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 CHES1 shRNA Plasmid (h): sc-72324-SH and CHES1 shRNA (h) Lentiviral Particles: sc-72324-V as alternate gene silencing products.

For independent verification of CHES1 (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-72324A, sc-72324B and sc-72324C.

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

CHES1 siRNA (h) is recommended for the inhibition of CHES1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CHES1 gene expression knockdown using RT-PCR Primer: CHES1 (h)-PR: sc-72324-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.