SANTA CRUZ BIOTECHNOLOGY, INC.

ZW10 siRNA (h): sc-63259

BACKGROUND

ZW10 is the human homolog of the *Drosophila melanogaster* ZW10 protein and is involved in proper chromosome segregation and kinetochore function during cell division. An essential component of the mitotic checkpoint, ZW10 binds to centromeres during prophase and anaphase and to kinetochrore microtubules during metaphase, thereby preventing the cell from prematurely exiting mitosis. ZW10 localization varies throughout the cell cycle, beginning in the cytoplasm during interphase, then moving to the kinetochore and spindle midzone during metaphase and late anaphase, respectively. A widely expressed protein, ZW10 is also involved in membrane trafficking between the Golgi and the endoplasmic reticulum (ER) via interaction with the SNARE complex. Both overexpression and silencing of ZW10 disrupts the ER-Golgi transport system, as well as the morphology of the ER-Golgi intermediate compartment. This suggests that ZW10 plays a critical role in proper inter-compartmental protein transport.

REFERENCES

1. Starr, D.A., et al. 1998. ZW10 helps recruit Dynactin and Dynein to the kinetochore. J. Cell Biol. 142: 763-774.
2. Scaërou, F., et al. 2001. The ZW10 and Rough Deal checkpoint proteins function together in a large, evolutionarily conserved complex targeted to the kinetochore. J. Cell Sci. 114: 3103-3114.
3. Hirose, H., et al. 2004. Implication of ZW10 in membrane trafficking between the endoplasmic reticulum and Golgi. EMBO J. 23: 1267-1278.
4. Kops, G.J., et al. 2005. ZW10 links mitotic checkpoint signaling to the structural kinetochore. J. Cell Biol. 169: 49-60.

=CHROMOSOMAL LOCATION

Genetic locus: ZW10 (human) mapping to 11q23.2.

PRODUCT

ZW10 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 ZW10 shRNA Plasmid (h): sc-63259-SH and ZW10 shRNA (h) Lentiviral Particles: sc-63259-V as alternate gene silencing products.

For independent verification of ZW10 (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-63259A, sc-63259B and sc-63259C.

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

ZW10 siRNA (h) is recommended for the inhibition of ZW10 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

ZW10 (3363C4a): sc-81430 is recommended as a control antibody for monitoring of ZW10 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 ZW10 gene expression knockdown using RT-PCR Primer: ZW10 (h)-PR: sc-63259-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Dharan, A., et al. 2017. Bicaudal D2 facilitates the cytoplasmic trafficking and nuclear import of HIV-1 genomes during infection. Proc. Natl. Acad. Sci. USA 114: E10707-E10716.
2. Petsalaki, E., et al. 2018. The ESCRT protein CHMP4C regulates mitotic spindle checkpoint signaling. J. Cell Biol. 217: 861-876.

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.