

ZNF509 siRNA (m): sc-106716

BACKGROUND

Zinc-finger proteins contain DNA-binding domains and have a wide variety of functions, most of which encompass some form of transcriptional activation or repression. The majority of zinc-finger proteins contain a Krüppel-type DNA binding domain and a KRAB domain, which is thought to interact with KAP1, thereby recruiting histone modifying proteins. ZNF509 is a zinc finger protein belonging to the Krüppel C₂H₂-type zinc-finger protein family. It localizes to the nucleus and may play a role in transcriptional regulation. ZNF509 is a 765 amino acid protein that exists as four alternatively spliced isoforms, ZNF509L, ZNF509S1, -S2 and -S3. ZNF509 may play a role in inhibiting cell proliferation by activating either p21 or retinoblastoma (Rb) transcription. It is suggested that ZNF509 highly expressed in normal epithelial cells and completely repressed in tumor tissues of the colon, lung and skin, indicating a possible role as a tumor suppressor.

REFERENCES

1. Sun, Y., Gou, D.M., Liu, H., Peng, X. and Li, W.X. 2003. The KRAB domain of zinc finger gene ZNF268: a potential transcriptional repressor. *IUBMB Life* 55: 127-131.
2. Nakamura, M., Runko, A.P. and Sagerström, C.G. 2004. A novel subfamily of zinc finger genes involved in embryonic development. *J. Cell. Biochem.* 93: 887-895.
3. Englbrecht, C.C., Schoof, H. and Böhm, S. 2004. Conservation, diversification and expansion of C₂H₂ zinc finger proteins in the *Arabidopsis thaliana* genome. *BMC Genomics* 5: 39-39.
4. Li, Y., Du, X., Li, F., Deng, Y., Yang, Z., Wang, Y., Pen, Z., Wang, Z., Yuan, W., Zhu, C. and Wu, X. 2006. A novel zinc-finger protein ZNF436 suppresses transcriptional activities of AP-1 and SRE. *Mol. Biol. Rep.* 33: 287-294.
5. Zhong, Z., Wan, B., Qiu, Y., Ni, J., Tang, W., Chen, X., Yang, Y., Shen, S., Wang, Y., Bai, M., Lang, Q. and Yu, L. 2007. Identification of a novel human zinc finger gene, ZNF438, with transcription inhibition activity. *J. Biochem. Mol. Biol.* 40: 517-524.
6. O'Geen, H., Squazzo, S.L., Iyengar, S., Blahnik, K., Rinn, J.L., Chang, H.Y., Green, R. and Farnham, P.J. 2007. Genome-wide analysis of KAP1 binding suggests autoregulation of KRAB-ZNFs. *PLoS Genet.* 3: e89.
7. Jeon, B.N., Kim, M.K., Yoon, J.H., Kim, M.Y., An, H., Noh, H.J., Choi, W.I., Koh, D.I. and Hur, M.W. 2014. Two ZNF509 (ZBTB49) isoforms induce cell-cycle arrest by activating transcription of p21/CDKN1A and RB upon exposure to genotoxic stress. *Nucleic Acids Res.* 42: 11447-11461.

CHROMOSOMAL LOCATION

Genetic locus: Zbtb49 (mouse) mapping to 5 B3.

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

ZNF509 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 ZNF509 shRNA Plasmid (m): sc-106716-SH and ZNF509 shRNA (m) Lentiviral Particles: sc-106716-V as alternate gene silencing products.

For independent verification of ZNF509 (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-106716A, sc-106716B and sc-106716C.

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

ZNF509 siRNA (m) is recommended for the inhibition of ZNF509 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ZNF509 gene expression knockdown using RT-PCR Primer: ZNF509 (m)-PR: sc-106716-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.