

ZNF281 siRNA (h): sc-88283

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. ZNF281, also known as GC-box-binding zinc-finger protein 1, ZBP-99 or ZNP-99 (zinc-finger DNA-binding protein 99), is a zinc finger protein that belongs to the Krüppel C₂H₂-type zinc-finger protein family. It is expressed ubiquitously at low levels with predominant expression in kidney, liver, lymphocytes and placenta. ZNF281 localizes to the nucleus and contains four C₂H₂-type zinc fingers. ZNF281 plays a role in repressing the transcription of a variety of genes including Gastrin and ODC (ornithine decarboxylase). In particular, ZNF281 functions by binding to the G-rich box in the enhancer region of the gene. Upon DNA damage, ZNF281 may become phosphorylated by Atm or ATR.

REFERENCES

1. Law, D.J., et al. 1999. ZBP-99 defines a conserved family of transcription factors and regulates ornithine decarboxylase gene expression. *Biochem. Biophys. Res. Commun.* 262: 113-120.
2. Lisowsky, T., et al. 1999. Identification of human GC-box-binding zinc-finger protein, a new Krüppel-like zinc-finger protein, by the yeast one-hybrid screening with a GC-rich target sequence. *FEBS Lett.* 453: 369-374.
3. Suzuki, M., et al. 2003. Hox proteins functionally cooperate with the GC box-binding protein system through distinct domains. *J. Biol. Chem.* 278: 30148-30156.
4. Zhang, X., et al. 2003. ZBP-89 represses Vimentin gene transcription by interacting with the transcriptional activator, Sp1. *Nucleic Acids Res.* 31: 2900-2914.

CHROMOSOMAL LOCATION

Genetic locus: ZNF281 (human) mapping to 1q32.1.

PRODUCT

ZNF281 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ZNF281 shRNA Plasmid (h): sc-88283-SH and ZNF281 shRNA (h) Lentiviral Particles: sc-88283-V as alternate gene silencing products.

For independent verification of ZNF281 (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-88283A, sc-88283B and sc-88283C.

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

ZNF281 siRNA (h) is recommended for the inhibition of ZNF281 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 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

ZNF281 (D-8): sc-166933 is recommended as a control antibody for monitoring of ZNF281 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 ZNF281 gene expression knockdown using RT-PCR Primer: ZNF281 (h)-PR: sc-88283-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lu, C., et al. 2022. ZNF281 drives hepatocyte senescence in alcoholic liver disease by reducing HK2-stabilized PINK1/Parkin-mediated mitophagy. *Cell Prolif.* E-published.

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.