

DACH1 siRNA (h): sc-77089

BACKGROUND

DACH1 (dachshund homolog 1), also known as DACH, is a 758 amino acid homolog of the *Drosophila* dachshund gene that encodes a nuclear factor involved in eye, leg and nervous system development. Localized to the nucleus and expressed throughout the body, DACH1 is a transcription factor that regulates the activation of a variety of genes involved in organogenesis and is crucial in proper eye formation. Through association with Smad4 and NCOR1, DACH1 is able to inhibit the TGF β signaling pathway and, via its DACHbox-N domain, can bind directly to chromatin, where it regulates transcription. Additionally, DACH1 can block cellular proliferation and growth of human breast cancer cells, suggesting a possible role in tumor suppression. Four isoforms of DACH1 exist due to alternative splicing events.

REFERENCES

1. Ayres, J.A., et al. 2001. DACH: genomic characterization, evaluation as a candidate for postaxial polydactyly type A2, and developmental expression pattern of the mouse homologue. *Genomics* 77: 18-26.
2. Heanue, T.A., et al. 2002. DACH1, a vertebrate homologue of *Drosophila* dachshund, is expressed in the developing eye and ear of both chick and mouse and is regulated independently of Pax and Eya genes. *Mech. Dev.* 111: 75-87.
3. Wu, K., et al. 2003. DACH1 inhibits transforming growth factor β signaling through binding Smad4. *J. Biol. Chem.* 278: 51673-51684.
4. Wu, K., et al. 2006. DACH1 is a cell fate determination factor that inhibits cyclin D1 and breast tumor growth. *Mol. Cell. Biol.* 26: 7116-7129.

CHROMOSOMAL LOCATION

Genetic locus: DACH1 (human) mapping to 13q21.33.

PRODUCT

DACH1 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 DACH1 shRNA Plasmid (h): sc-77089-SH and DACH1 shRNA (h) Lentiviral Particles: sc-77089-V as alternate gene silencing products.

For independent verification of DACH1 (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-77089A, sc-77089B and sc-77089C.

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

DACH1 siRNA (h) is recommended for the inhibition of DACH1 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

DACH1 (A-6): sc-398706 is recommended as a control antibody for monitoring of DACH1 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 DACH1 gene expression knockdown using RT-PCR Primer: DACH1 (h)-PR: sc-77089-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. Ge, X., et al. 2022. Chromium (VI)-induced ALDH1A1/EGF axis promotes lung cancer progression. *Clin. Transl. Med.* 12: e1136.

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.