SANTA CRUZ BIOTECHNOLOGY, INC.

DACH2 siRNA (m): sc-77092

BACKGROUND

DACH2 (Dachshund homolog 2) is one of two mammalian homologues of the *Drosophila* dachschund, a transcription factor involved in cell fate determination in the eye, limb and genital disc of the fly. DACH2 is a 599 amino acid protein that contains two characteristic dachshund domains: an N-terminal domain responsible for DNA binding and a C-terminal domain responsible for protein-protein interactions. Localized to the nucleus, DACH2 functions as a transcription factor that is involved in the regulation of organogenesis. DACH2 interacts with Six1 and EYA2 to regulate myogenesis, and is also involved in the corepression of Six6 by directly repressing cyclin-dependent kinase inhibitors. Three named isoforms of DACH2 exist as a result of alternative splicing events.

REFERENCES

1. Heanue, T.A., et al. 1999. Synergistic regulation of vertebrate muscle development by Dach2, Eya2, and Six1, homologs of genes required for *Drosophila* eye formation. Genes Dev. 13: 3231-3243.
2. Mennerich, D. and Braun, T. 2001. Activation of myogenesis by the homeobox gene Lbx1 requires cell proliferation. EMBO J. 20: 7174-7183.
3. Davis, R.J., et al. 2001. Characterization of mouse Dach2, a homologue of *Drosophila* dachshund. Mech. Dev. 102: 169-179.
4. Backman, M., et al. 2003. Targeted disruption of mouse Dach1 results in postnatal lethality. Dev. Dyn. 226: 139-144.
5. Wu, K., et al. 2003. DACH1 inhibits transforming growth factor-β signaling through binding Smad4. J. Biol. Chem. 278: 51673-51684.
6. Ozaki, H., et al. 2004. Six1 controls patterning of the mouse otic vesicle. Development 131: 551-562.
7. Davis, R.J., et al. 2006. Mouse Dach2 mutants do not exhibit gross defects in eye development or brain function. Genesis 44: 84-92.
8. Tang, H. and Goldman, D. 2006. Activity-dependent gene regulation in skeletal muscle is mediated by a histone deacetylase (HDAC)-Dach2-myogenin signal transduction cascade. Proc. Natl. Acad. Sci. USA 103: 16977-16982.

CHROMOSOMAL LOCATION

Genetic locus: Dach2 (mouse) mapping to X E1.

PRODUCT

DACH2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DACH2 shRNA Plasmid (m): sc-77092-SH and DACH2 shRNA (m) Lentiviral Particles: sc-77092-V as alternate gene silencing products.

For independent verification of DACH2 (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-77092A, sc-77092B and sc-77092C.

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

DACH2 siRNA (m) is recommended for the inhibition of DACH2 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 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

DACH2 (A-5): sc-515091 is recommended as a control antibody for monitoring of DACH2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 DACH2 gene expression knockdown using RT-PCR Primer: DACH2 (m)-PR: sc-77092-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.