SANTA CRUZ BIOTECHNOLOGY, INC.

Protogenin siRNA (h): sc-90236

BACKGROUND

Protogenin, also known as PRTG, protein Shen-Dan, protogenin homolog or IGDCC5 (immunoglobulin superfamily, DCC subclass, member 5), is a 1,150 amino acid single-pass membrane protein that belongs to the immunoglobulin superfamily and the DCC family. Closely related to both DCC and NEO1, two genes that guide migratory cells and axons during development, Protogenin is likely involved in cell migration and axon growth. Protogenin is expressed on the surface of ingressing and migrating cells during paraxial mesoderm development, suggesting that it mediates cell adhesion. Initiation of Protogenin expression prior to somitogenesis, as well as its maintenance role in neural tube and paraxial mesoderm, indicate a conserved role in anteroposterior axis elongation. Protogenin is linked to the suppression of premature neuronal differentiation during early neural development, and may also be linked to both ADHD and tooth germ development. The gene that encodes Protogenin maps to human chromosome 15q21.3.

REFERENCES

1. Toyoda, R., Nakamura, H. and Watanabe, Y. 2005. Identification of protogenin, a novel immunoglobulin superfamily gene expressed during early chick embryogenesis. Gene Expr. Patterns 5: 778-785.
2. Vesque, C., Anselme, I., Couvε, E., Charnay, P. and Schneider-Maunoury, S. 2006. Cloning of vertebrate Protogenin (Prtg) and comparative expression analysis during axis elongation. Dev. Dyn. 235: 2836-2844.
3. Wigg, K.G., Feng, Y., Crosbie, J., Tannock, R., Kennedy, J.L., Ickowicz, A., Malone, M., Schachar, R. and Barr, C.L. 2008. Association of ADHD and the Protogenin gene in the chromosome 15q21.3 reading disabilities linkage region. Genes Brain Behav. 7: 877-886.
4. Takahashi, K.F., Kiyoshima, T., Kobayashi, I., Xie, M., Yamaza, H., Fujiwara, H., Ookuma, Y., Nagata, K., Wada, H., Sakai, T., Terada, Y. and Sakai, H. 2010. Protogenin, a new member of the immunoglobulin superfamily, is implicated in the development of the mouse lower first molar. BMC Dev. Biol. 10: 115.
5. Ito, K., Nakamura, H. and Watanabe, Y. 2010. Protogenin mediates cell adhesion for ingression and re-epithelialization of paraxial mesodermal cells. Dev. Biol. 351: 13-24.
6. Wong, Y.H., Lu, A.C., Wang, Y.C., Cheng, H.C., Chang, C., Chen, P.H., Yu, J.Y. and Fann, M.J. 2010. Protogenin defines a transition stage during embryonic neurogenesis and prevents precocious neuronal differentiation. J. Neurosci. 30: 4428-4439.
7. Buonincontri, R., Bache, I., Silahtaroglu, A., Elbro, C., Nielsen, A.M., Ullmann, R., Arkesteijn, G. and Tommerup, N. 2011. A cohort of balanced reciprocal translocations associated with Dyslexia: identification of two putative candidate genes at DYX1. Behav. Genet. 41: 125-133.

CHROMOSOMAL LOCATION

Genetic locus: PRTG (human) mapping to 15q21.3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

Protogenin 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 Protogenin shRNA Plasmid (h): sc-90236-SH and Protogenin shRNA (h) Lentiviral Particles: sc-90236-V as alternate gene silencing products.

For independent verification of Protogenin (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-90236A, sc-90236B and sc-90236C.

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

Protogenin siRNA (h) is recommended for the inhibition of Protogenin 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Protogenin gene expression knockdown using RT-PCR Primer: Protogenin (h)-PR: sc-90236-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.