SANTA CRUZ BIOTECHNOLOGY, INC.

TTYH1 siRNA (h): sc-97439

BACKGROUND

The tweety family of proteins are membrane bound receptors that function as chloride anion channels and may be involved in transport of iron or other divalent cations. TTYH1 (tweety homolog 1, *Drosophila melanogaster),* is a 450 amino acid multi-pass membrane protein that belongs to the tweety family and is expressed in brain, eye, ovary and testis, with lower expression in muscle, placenta, liver and lung. Composed of five predicted transmembrane segments and a C-terminus that is enriched in negatively charged residues capable of Ca^{2+} binding, TTYH1 may play a role during mitosis in early embryogenesis, possibly by maintaining Ca^{2+} homeostasis in the endoplasmic reticulum. TTYH1 exists as five alternatively spliced isoforms, where isoform 3 is considered a possible Ca^{2+}-independent and swelling-activated chloride channel, which may be involved in regulation of cell volume. TTYH1 is regulated by NEDD4-L and is encoded by a gene located on human chromosome 19q13.42.

REFERENCES

1. Maleszka, R., et al. 1996. The *Drosophila melanogaster* dodo (dod) gene, conserved in humans, is functionally interchangeable with the ESS1 cell division gene of *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA 93: 447-451.
2. Campbell, H.D., et al. 2000. Human and mouse homologues of the *Drosophila melanogaster* tweety (tty) gene: a novel gene family encoding predicted transmembrane proteins. Genomics 68: 89-92.
3. Rae, F.K., et al. 2001. TTYH2, a human homologue of the *Drosophila melanogaster* gene tweety, is located on 17q24 and upregulated in renal cell carcinoma. Genomics 77: 200-207.
4. Suzuki, M., et al. 2004. A novel human Cl^- channel family related to *Drosophila* flightless locus. J. Biol. Chem. 279: 22461-22468.
5. He, Y., et al. 2008. The ubiquitin-protein ligase Nedd4-2 differentially interacts with and regulates members of the Tweety family of chloride ion channels. J. Biol. Chem. 283: 24000-24010.
6. Kumada, T., et al. 2010. Ttyh1, a Ca(2+)-binding protein localized to the endoplasmic reticulum, is required for early embryonic development. Dev. Dyn. 239: 2233-2245.
7. Stefaniuk, M., et al. 2010. Expression of Ttyh1, a member of the Tweety family in neurons *in vitro* and *in vivo* and its potential role in brain pathology. J. Neurochem. 115: 1183-1194.
8. Stefaniuk, M. and Lukasiuk, K. 2010. Cloning of expressed sequence tags (ESTs) representing putative epileptogenesis-related genes and the localization of their expression in the normal brain. Neurosci. Lett. 482: 230-234.

CHROMOSOMAL LOCATION

Genetic locus: TTYH1 (human) mapping to 19q13.42.

PROTOCOLS

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

PRODUCT

TTYH1 siRNA (h) is a pool of 2 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 TTYH1 shRNA Plasmid (h): sc-97439-SH and TTYH1 shRNA (h) Lentiviral Particles: sc-97439-V as alternate gene silencing products.

For independent verification of TTYH1 (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-97439A and sc-97439B.

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

TTYH1 siRNA (h) is recommended for the inhibition of TTYH1 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 TTYH1 gene expression knockdown using RT-PCR Primer: TTYH1 (h)-PR: sc-97439-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.