SANTA CRUZ BIOTECHNOLOGY, INC.

CatSper siRNA (h): sc-42375

BACKGROUND

CatSper is an ion transport protein located on the surface of sperm cells. CatSper (for cation channel of sperm) is vital to cAMP-mediated calcium influx in sperm, sperm motility and fertilization. The gene that encodes CatSper maps to human chromosome 11q12.1. The 686 amino acid protein is a single, 6-transmembrane-spanning protein of the voltage-dependent Ca^{2+} channel four-repeat structure and is expressed exclusively in the testis. In CatSper$^{-/-}$ sperm, neither cAMP nor cGMP elicit a significant Ca^{2+} influx in both mutant and wild-type sperm. CatSper is localized to the sperm flagellum and CatSper$^{-/-}$ mice show sluggish and less directed movements. CatSper is required to penetrate the egg, but is not required for egg activation.

REFERENCES

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3. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 606389. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Carlson, A.E., et al. 2003. CatSper1 required for evoked Ca^{2+} entry and control of flagellar function in sperm. Proc. Natl. Acad. Sci. USA 100: 14864-14868.
5. Lobley, A., et al. 2003. Identification of human and mouse CatSper3 and CatSper4 genes: characterisation of a common interaction domain and evidence for expression in testis. Reprod. Biol. Endocrinol. 1: 53.
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7. Okunade, G.W., et al. 2004. Targeted ablation of plasma membrane Ca^{2+}-ATPase (PMCA) 1 and 4 indicates a major housekeeping function for PMCA1 and a critical role in hyperactivated sperm motility and male fertility for PMCA4. J. Biol. Chem. 279: 33742-33750.
8. LocusLink Report (LocusID: 117144). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: CATSPER1 (human) mapping to 11q13.1.

PRODUCT

CatSper 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 CatSper shRNA Plasmid (h): sc-42375-SH and CatSper shRNA (h) Lentiviral Particles: sc-42375-V as alternate gene silencing products.

For independent verification of CatSper (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-42375A, sc-42375B and sc-42375C.

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

CatSper siRNA (h) is recommended for the inhibition of CatSper 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 CatSper gene expression knockdown using RT-PCR Primer: CatSper (h)-PR: sc-42375-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.