SANTA CRUZ BIOTECHNOLOGY, INC.

CatSperβ siRNA (h): sc-92375

BACKGROUND

CatSpers (cation channel, sperm associated proteins) are ion transport proteins located on the surface of sperm cells in the principal piece of the sperm tail. CatSpers are vital to sperm motility, fertilization and cAMP-mediated calcium influx in sperm. There are four CatSper proteins in mammalian sperm, namely CatSper (or CatSper1), CatSper2, CatSper3 and CatSper4. CatSper proteins contain a single, six transmembrane-spanning segment and exhibit the voltage-dependent Ca^{2+} channel four-repeat structure. CatSper proteins are believed to assemble into a heterotetrameric complex, forming an alkalinization-activated Ca^{2+}-selective channel. Mutations in any of the genes encoding CatSper family proteins can result in male infertility. CatSperβ specifically interacts with CatSper1 and through this interaction plays an important role in the hyperactivated motility of sperm cells, a process that is required in the preparation of sperm for fertilization.

REFERENCES

1. Quill, T.A., et al. 2001. A voltage-gated ion channel expressed specifically in spermatozoa. Proc. Natl. Acad. Sci. USA 98: 12527-12531.
2. Zhang, D., et al. 2006. Association of Catsper1 or 2 with $Ca_v3.3$ leads to suppression of T-type calcium channel activity. J. Biol. Chem. 281: 22332-22341.
3. Jin, J., et al. 2007. Catsper3 and Catsper4 are essential for sperm hyperactivated motility and male fertility in the mouse. Biol. Reprod. 77: 37-44.
4. Xia, J., et al. 2007. CatSper channel-mediated Ca^{2+} entry into mouse sperm triggers a tail-to-head propagation. Biol. Reprod. 77: 551-559.
5. Liu, J., et al. 2007. CatSperβ, a novel transmembrane protein in the CatSper channel complex. J. Biol. Chem. 282: 18945-18952.
6. Li, H.G., et al. 2007. Expression of CatSper family transcripts in the mouse testis during post-natal development and human ejaculated spermatozoa: relationship to sperm motility. Mol. Hum. Reprod. 13: 299-306.

CHROMOSOMAL LOCATION

Genetic locus: CATSPERB (human) mapping to 14q32.12.

PRODUCT

CatSperβ 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 CatSperβ shRNA Plasmid (h): sc-92375-SH and CatSperβ shRNA (h) Lentiviral Particles: sc-92375-V as alternate gene silencing products.

For independent verification of CatSperβ (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-92375A, sc-92375B and sc-92375C.

PROTOCOLS

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

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

CatSperβ siRNA (h) is recommended for the inhibition of CatSperβ 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 CatSperβ gene expression knockdown using RT-PCR Primer: CatSperβ (h)-PR: sc-92375-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.