



# CatSper<sup>y</sup> siRNA (h): sc-97593

## BACKGROUND

CatSper<sup>s</sup> (cation channel, sperm associated proteins) are ion transport proteins located on the surface of sperm cells in the principal piece of the sperm tail. Vital to sperm motility, fertilization and cAMP-mediated calcium influx in sperm, CatSper<sup>s</sup> contain a single, six-transmembrane-spanning segment and exhibit the voltage-dependent Ca<sup>2+</sup> channel four-repeat structure. CatSper<sup>s</sup> proteins are believed to assemble into a heterotetrameric complex, forming an alkalization-activated Ca<sup>2+</sup>-selective channel. Mutations in any of the genes encoding CatSper<sup>s</sup> family proteins can result in male infertility. CatSper<sup>y</sup> (cation channel sperm-associated protein subunit  $\gamma$ ) is a 1,159 amino acid single-pass type I membrane protein and component of the sperm calcium channel that is involved in male fertility and sperm motility. CatSper<sup>y</sup> is encoded by a gene that maps to human chromosome 19q13.1.

## REFERENCES

1. Jin, J., et al. Catsper3 and Catsper4 are essential for sperm hyperactivated motility and male fertility in the mouse. *Biol. Reprod.* 77: 37-44.
2. Xia, J., et al. 2007. CATSPER channel-mediated Ca<sup>2+</sup> entry into mouse sperm triggers a tail-to-head propagation. *Biol. Reprod.* 77: 551-559.
3. 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.
4. Qi, H., et al. 2007. All four CatSper ion channel proteins are required for male fertility and sperm cell hyperactivated motility. *Proc. Natl. Acad. Sci. USA* 104: 1219-1223.
5. Suarez, S.S., et al. 2007. Different regulatory systems operate in the mid-piece and principal piece of the mammalian sperm flagellum. *Soc. Reprod. Fertil. Suppl.* 65: 331-334.
6. Wang, H., et al. 2009. A novel, single, transmembrane protein CATSPERG is associated with CATSPER1 channel protein. *Biol. Reprod.* 81: 539-544.
7. Online Mendelian Inheritance in Man, OMIM™. 2010. Johns Hopkins University, Baltimore, MD. MIM Number: 613452. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: CATSPERG (human) mapping to 19q13.1.

## PRODUCT

CatSper<sup>y</sup> 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CatSper<sup>y</sup> shRNA Plasmid (h): sc-97593-SH and CatSper<sup>y</sup> shRNA (h) Lentiviral Particles: sc-97593-V as alternate gene silencing products.

For independent verification of CatSper<sup>y</sup> (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-97593A, sc-97593B and sc-97593C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

CatSper<sup>y</sup> siRNA (h) is recommended for the inhibition of CatSper<sup>y</sup> 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  $\mu$ M in 60  $\mu$ l. 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<sup>y</sup> gene expression knockdown using RT-PCR Primer: CatSper<sup>y</sup> (h)-PR: sc-97593-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.