

# CatSper3 (H-216): sc-98702

## BACKGROUND

CatSper (cation channel, sperm associated proteins) are ion transport proteins located on the surface of sperm cells in the principal piece of the sperm tail. CatSper 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 alkalization-activated  $Ca^{2+}$ -selective channel. Mutations in any of the genes encoding CatSper family proteins can result in male infertility. CatSper3 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  $Ca(v)3.3$  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. CatSper $\beta$ , 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.
7. Marquez, B., et al. 2007. Contributions of extracellular and intracellular  $Ca^{2+}$  to regulation of sperm motility: Release of intracellular stores can hyperactivate CatSper1 and CatSper2 null sperm. *Dev. Biol.* 303: 214-221.
8. 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.

## CHROMOSOMAL LOCATION

Genetic locus: CATSPER3 (human) mapping to 5q31.1; Catsper3 (mouse) mapping to 13 B1.

## SOURCE

CatSper3 (H-216) is a rabbit polyclonal antibody raised against amino acids 85-300 mapping within an internal region of CatSper3 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

CatSper3 (H-216) is recommended for detection of CatSper3 of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CatSper3 siRNA (h): sc-72811, CatSper3 siRNA (m): sc-72812, CatSper3 shRNA Plasmid (h): sc-72811-SH, CatSper3 shRNA Plasmid (m): sc-72812-SH, CatSper3 shRNA (h) Lentiviral Particles: sc-72811-V and CatSper3 shRNA (m) Lentiviral Particles: sc-72812-V.

Molecular Weight of CatSper3: 44 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## 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) or our catalog for detailed protocols and support products.