

CatSper (H-20): sc-21181

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 11q13.1. 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

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. Ren, D., et al. 2001. A sperm ion channel required for sperm motility and male fertility. *Nature* 413: 603-609.
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.
6. Nikpoor, P., et al. 2004. CatSper gene expression in postnatal development of mouse testis and in subfertile men with deficient sperm motility. *Hum. Reprod.* 19: 124-128.
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.
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CHROMOSOMAL LOCATION

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

SOURCE

CatSper (H-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of CatSper of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-21181 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CatSper (H-20) is recommended for detection of CatSper of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

CatSper (H-20) is also recommended for detection of CatSper in additional species, including porcine.

Suitable for use as control antibody for CatSper siRNA (h): sc-42375, CatSper shRNA Plasmid (h): sc-42375-SH and CatSper shRNA (h) Lentiviral Particles: sc-42375-V.

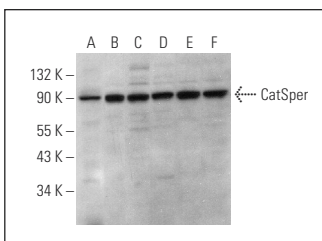
Molecular Weight of CatSper: 82 kDa.

Positive Controls: human testis extract: sc-363781, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



CatSper (H-20): sc-21181. Western blot analysis of CatSper expression in human testis tissue extract (A) and Hep G2 (B), NTERA-2 cl.D1 (C), HeLa (D), Jurkat (E) and K-562 (F) whole cell lysates.

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.