SANTA CRUZ BIOTECHNOLOGY, INC.

TNP2 (K-18): sc-21106

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

During mammalian spermiogenesis, histones are transiently replaced by several low molecular weight proteins called transition proteins (TNPs). Transition proteins facilitate chromatin transformation from the nucleosome structure to the nucleoprotamine structure during spermatid differentiation. Transition protein-2, also known as TNP2 and TP2, maps to human chromosome 16p13.13 and encodes a highly basic nuclear protein. TNP2 is a spermatid-specific product of the haploid genome which replaces histone and is itself replaced in the mature sperm by the protamines. TNP2 is not a critical factor for shaping of the sperm nucleus, histone displacement, initiation of chromatin condensation, binding of protamines to DNA, or fertility. However, TNP2 is necessary for maintaining the normal processing of protamine 2 and, consequently, the completion of chromatin condensation. If TNP1 is missing, TNP2 may partially compensate for TNP1, but this dysregulation of nucleoprotein replacement results in an abnormal pattern of chromatin condensation and in reduced fertility.

REFERENCES

1. Nelson, J., et al. 1993. Linkage of human spermatid-specific basic nuclear protein genes. Definition and evolution of the P1→P2→TP2 locus. J. Biol. Chem. 268: 2932-2936.
2. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 190232. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Yu, Y., et al. 2000. Anormal spermatogenisis and reduced fertility in transition nuclear protein 1-deficient mice. Proc. Nat. Acad. Sci. USA 97: 4683-4688.
4. Zhao, M., et al. 2001. Targeted disruption of the transition protein 2 gene affects sperm chromatin structure and reduces fertility in mice. Mol. Cell. Biol. 21: 7243-7255.
5. LocusLink Report (LocusID: 7142). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: Tnp2 (mouse) mapping to 16 A1.

SOURCE

TNP2 (K-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TNP2 of mouse 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-21106 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

TNP2 (K-18) is recommended for detection of TNP2 of mouse 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).

Suitable for use as control antibody for TNP2 siRNA (m): sc-41067, TNP2 shRNA Plasmid (m): sc-41067-SH and TNP2 shRNA (m) Lentiviral Particles: sc-41067-V.

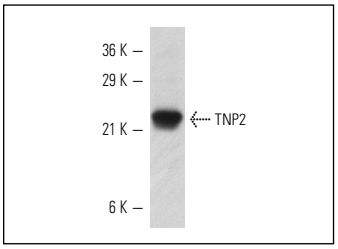
Molecular Weight of TNP2: 22 kDa.

Positive Controls: mouse testis extract: sc-2405.

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



TNP2 (K-18): sc-21106. Western blot analysis of TNP2 expression in mouse testis tissue extract.

SELECT PRODUCT CITATIONS

1. Zheng, J., et al. 2008. Erasure of the paternal transcription program during spermiogenesis: the first step in the reprogramming of sperm chromatin for zygotic development. Dev. Dyn. 237: 1463-1476.
2. Chioccarelli, T., et al. 2010. Cannabinoid receptor 1 influences chromatin remodeling in mouse spermatids by affecting content of transition protein 2 mRNA and histone displacement. Endocrinology 151: 5017-5029.

RESEARCH USE

For research use only, not for use in diagnostic procedures.