

Protamine 1 (A-17): sc-23107

BACKGROUND

Protamines are small, arginine-rich (basic) nuclear proteins that mediate normal sperm head condensation and DNA stabilization. Mice, humans and certain fish have two or more different protamines, whereas the sperm of bull, boar, rat, rabbit, guinea pig and ram have one form of protamine. The majority of DNA in human sperm is bound to protamines with only a small proportion of DNA bound to histones in a way similar to active chromatin. The retention of histone association with sperm DNA with respect to protamine association to sperm DNA can change within as little as 400 bp of DNA, suggesting that there is fine control over haploid DNA organization. Protamines eventually replace histones late in the haploid phase of spermatogenesis. The human Protamine 1 gene maps to chromosome 16p13.13 and encodes a 51 amino acid protein. The human Protamine 2 gene maps to chromosome 16p13.13 and encodes a 102 amino acid protein.

REFERENCES

- Colleu, D., et al 1997. Changes in Protamine 1 distribution in human sperm nucleus during *in vitro* sperm-oocyte interaction: an immunoelectron microscopic study. *Fertil. Steril.* 67: 123-128.
- Gardiner-Garden, M., et al. 1998. Histone- and protamine-DNA association: conservation of different patterns within the β -globin domain in human sperm. *Mol. Cell. Biol.* 18: 3350-3356.
- Zhong, J., et al. 2001. A highly conserved sequence essential for translational repression of the Protamine 1 messenger RNA in murine spermatids. *Biol. Reprod.* 64: 1784-1789.
- Giorgini, F., et al. 2001. MSY2 and MSY4 bind a conserved sequence in the 3' untranslated region of Protamine 1 mRNA *in vitro* and *in vivo*. *Mol. Cell. Biol.* 21: 7010-7019.
- Murase, K., et al. 2001. Protamine augments stretch induced calcium increase in vascular endothelium. *Br. J. Pharmacol.* 134: 1403-1410.
- Iuchi, Y., et al. 2003. Concerted changes in the YB2/Ryb-a protein and Protamine 2 messenger RNA in the mouse testis under heat stress. *Biol. Reprod.* 68: 129-135.
- Mengual, L., et al. 2003. Marked differences in protamine content and P1/P2 ratios in sperm cells from percoll fractions between patients and controls. *J. Androl.* 24: 438-447.

CHROMOSOMAL LOCATION

Genetic locus: PRM1 (human) mapping to 16p13.13; Prm1 (mouse) mapping to 16 A1.

SOURCE

Protamine 1 (A-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Protamine 1 of mouse origin.

STORAGE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-23107 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

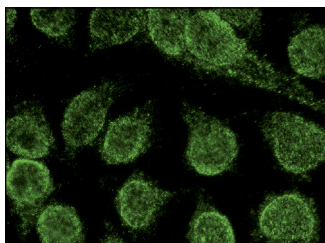
Protamine 1 (A-17) is recommended for detection of Protamine 1 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with transformer-2 protein homolog.

Positive Controls: mouse testis extract: sc-2405 or rat testis extract: sc-2400.

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) 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



Protamine 1 (A-17): sc-23107. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization

SELECT PRODUCT CITATIONS

- Flores, E., et al. 2008. Freeze-thawing induces alterations in the Protamine 1/DNA overall structure in boar sperm. *Theriogenology* 69: 1083-1094.
- Poon, H.K., et al. 2009. Absence of paternal accessory sex gland secretions disturbs epigenetic reprogramming and expression of Igf2 and Dlk1 in gold-ene hamster embryos. *Theriogenology* 71: 1367-1380.

RESEARCH USE

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