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# Protamine 2 siRNA (bovine): sc-270072

## BACKGROUND

Protamines are small, arginine-rich (basic), nuclear proteins that mediate normal sperm head condensation and DNA stabilization. Mice, humans, and certain fish have 2 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 16p13.2 and encodes a 51 amino acid protein. The human protamine 2 gene maps to chromosome 16p13.2 and encodes a 102 amino acid protein.

## REFERENCES

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2. Gardiner-Garden, M., et al. 1998. Histone- and protamine-DNA association: conservation of different patterns within the  $\beta$ -globin domain in human sperm. *Mol. Cell. Biol.* 18: 3350-3356.
3. 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.
4. 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.
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6. 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.
7. 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.
8. Brewer, L., et al. 2003. Dynamics of Protamine 1 binding to single DNA molecules. *J. Biol. Chem.* 278: 42403-42408.
9. Mylonis, I., et al. 2004. Temporal association of Protamine 1 with the inner nuclear membrane protein Lamin B receptor during spermiogenesis. *J. Biol. Chem.* 279: 11626-11631.

## CHROMOSOMAL LOCATION

Genetic locus: PRM2 (bovine) mapping to 25.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## PRODUCT

Protamine 2 siRNA (bovine) is a target-specific 19-25 nt siRNA 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 Protamine 2 shRNA Plasmid (bovine): sc-270072-SH and Protamine 2 shRNA (bovine) Lentiviral Particles: sc-270072-V as alternate gene silencing products.

## 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

Protamine 2 siRNA (bovine) is recommended for the inhibition of Protamine 2 expression in bovine 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 66  $\mu$ 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 Protamine 2 gene expression knockdown using RT-PCR Primer: Protamine 2 (bovine)-PR: sc-270072-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.