SANTA CRUZ BIOTECHNOLOGY, INC.

Protamine 3 siRNA (m): sc-152484

BACKGROUND

Protamines are small, arginine-rich (basic), nuclear proteins that mediate normal sperm head condensation and DNA stabilization. Mice, humans and certain fish possess two or more different protamines, whereas 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 fine control over haploid DNA organization. Protamines eventually replace histones late in the haploid phase of spermatogenesis. Protamine 3, also known as PRM3 or sperm protamine P3, is a 103 amino acid protein that belongs to the protamine-P3 family and localizes to nucleus. Protamine 3 is encoded by a gene that maps to human chromosome 16p13.13.

REFERENCES

1. Balhorn, R., Reed, S. and Tanphaichitr, N. 1988. Aberrant Protamine 1/Protamine 2 ratios in sperm of infertile human males. Experientia 44: 52-55.
2. Braun, R.E., Peschon, J.J., Behringer, R.R., Brinster, R.L. and Palmiter, R.D. 1989. Protamine 3'-untranslated sequences regulate temporal translational control and subcellular localization of growth hormone in spermatids of transgenic mice. Genes Dev. 3: 793-802.
3. Schlüter, G. and Engel, W. 1995. The rat Prm3 gene is an intronless member of the protamine gene cluster and is expressed in haploid male germ cells. Cytogenet. Cell Genet. 71: 352-355.
4. Colleu, D., Lescoat, D., Thomas, D. and Gouranton, J. 1997. Changes in Protamine 1 distribution in human sperm nucleus during *in vitro* spermoocyte interaction: an immunoelectron microscopic study. Fertil. Steril. 67: 123-128.
5. Gardiner-Garden, M., Ballesteros, M., Gordon, M. and Tam, P.P. 1998. Histone- and protamine-DNA association: conservation of different patterns within the β-globin domain in human sperm. Mol. Cell. Biol. 18: 3350-3356.
6. Zhong, J., Peters, A.H., Kafer, K. and Braun, R.E. 2001. A highly conserved sequence essential for translational repression of the Protamine 1 messenger rna in murine spermatids. Biol. Reprod. 64: 1784-1789.
7. Murase, K., Naruse, K., Kimura, A., Okumura, K., Hayakawa, T. and Sokabe, M. 2001. Protamine augments stretch induced calcium increase in vascular endothelium. Br. J. Pharmacol. 134: 1403-1410.
8. Giorgini, F., Davies, H.G. and Braun, R.E. 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.
9. Grzmil, P., Boinska, D., Kleene, K.C., Adham, I., Schlüter, G., Kämper, M., Buyandelger, B., Meinhardt, A., Wolf, S. and Engel, W. 2008. Prm3, the fourth gene in the mouse protamine gene cluster, encodes a conserved acidic protein that affects sperm motility. Biol. Reprod. 78: 958-967.

CHROMOSOMAL LOCATION

Genetic locus: Prm3 (mouse) mapping to 16 A1.

PRODUCT

Protamine 3 siRNA (m) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Protamine 3 shRNA Plasmid (m): sc-152484-SH and Protamine 3 shRNA (m) Lentiviral Particles: sc-152484-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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Protamine 3 siRNA (m) is recommended for the inhibition of Protamine 3 expression in mouse 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 µM in 66 µl. 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.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.