SANTA CRUZ BIOTECHNOLOGY, INC.

ADAM3 siRNA (m): sc-61941

BACKGROUND

ADAMs (a disintegrin and metalloproteinase domain), also known as MDCs (metalloproteinase, disintegrin, and cysteine-rich domain) or cellular disintegrins, are a family of proteins that are expressed in numerous different tissues. They catalyze proteolysis, adhesion, fusion and intracellular signaling. ADAMs are membrane-anchored, glycosylated, Zn^{2+} dependent proteases and there are over 30 different members in the family with many diverse functions. ADAM3, also called cyritestin, is exclusively expressed on the surface of sperm. In the early development of sperm, ADAM3 forms a complex with ADAM2. Disruption of this complex can impair the function and structure of ADAM3. ADAM3 plays a significant role in sperm-oocyte binding. Sperm lacking functional ADAM3 cannot bind to the zona pellucida and fertilization cannot take place.

REFERENCES

1. Kaji, K., et al. 2004. The mechanism of sperm-oocyte fusion in mammals. Reproduction 127: 423-429.
2. Kim, E., et al. 2004. Synthesis, processing, and subcellular localization of mouse ADAM3 during spermatogenesis and epididymal sperm transport. J. Reprod. Dev. 50: 571-578.
3. Tres, L.L., et al. 2005. The ADAM-integrin-tetraspanin complex in fetal and postnatal testicular cords. Birth Defects Res. C Embryo Today 75: 130-141.
4. Rubinstein, E., et al. 2006. The molecular players of sperm-egg fusion in mammals. Semin. Cell Dev. Biol. 17: 254-263.
5. Yamaguchi, R., et al. 2006. Aberrant distribution of ADAM3 in sperm from both angiotensin-converting enzyme (Ace)- and calmegin (Clgn)-deficient mice. Biol. Reprod. 75: 760-766.
6. Kierszenbaum, A.L., et al. 2006. Role of integrins, tetraspanins, and ADAM proteins during the development of apoptotic bodies by spermatogenic cells. Mol. Reprod. Dev. 73: 906-917.

CHROMOSOMAL LOCATION

Genetic locus: Adam3 (mouse) mapping to 8 A2.

PRODUCT

ADAM3 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs 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 ADAM3 shRNA Plasmid (m): sc-61941-SH and ADAM3 shRNA (m) Lentiviral Particles: sc-61941-V as alternate gene silencing products.

For independent verification of ADAM3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61941A, sc-61941B and sc-61941C.

PROTOCOLS

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

ADAM3 siRNA (m) is recommended for the inhibition of ADAM3 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.

GENE EXPRESSION MONITORING

ADAM3 (F-4): sc-365288 is recommended as a control antibody for monitoring of ADAM3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ADAM3 gene expression knockdown using RT-PCR Primer: ADAM3 (m)-PR: sc-61941-PR (20 µl). 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.