

ADAM3 (M-135): sc-50483

BACKGROUND

ADAMs (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 tissues. They catalyze proteolysis, adhesion, fusion and intracellular signaling. ADAMs are membrane-anchored, glycosylated, Zn²⁺ 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. and Kudo, A. 2004. The mechanism of sperm-oocyte fusion in mammals. *Reproduction* 127: 423-429.
2. Kim, E., Nishimura, H., Iwase, S., Yamagata, K., Kashiwabara, S. and Baba, T. 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. and Kierszenbaum, A.L. 2005. The ADAM-integrin-tetraspanin complex in fetal and postnatal testicular cords. *Birth Defects Res. C Embryo Today* 75: 130-141.
4. Kim, T., Oh, J., Woo, J.M., Choi, E., Im, S.H., Yoo, Y.J., Kim, D.H., Nishimura, H. and Cho, C. 2006. Expression and relationship of male reproductive ADAMs in mouse. *Biol. Reprod.* 74: 744-750.
5. Yamaguchi, R., Yamagata, K., Ikawa, M., Moss, S.B. and Okabe, M. 2006. Aberrant distribution of ADAM3 in sperm from both angiotensin-converting enzyme (Ace)- and calmeglin (C1gn)-deficient mice. *Biol. Reprod.* 75: 760-766.
6. Rubinstein, E., Ziyat, A., Wolf, J.P., Le Naour, F. and Boucheix, C. 2006. The molecular players of sperm-egg fusion in mammals. *Semin. Cell Dev. Biol.* 17: 254-263.
7. Kierszenbaum, A.L., Rosselot, C., Rivkin, E. and Tres, L.L. 2006. Role of integrins, tetraspanins and ADAM proteins during the development of apoptotic bodies by spermatogenic cells. *Mol. Reprod. Dev.* 73: 906-917.
8. Kim, E., Yamashita, M., Nakanishi, T., Park, K.E., Kimura, M., Kashiwabara, S. and Baba, T. 2006. Mouse sperm lacking ADAM1b/ADAM2 fertilin can fuse with the egg plasma membrane and effect fertilization. *J. Biol. Chem.* 281: 5634-5639.
9. Nishimura, H., Myles, D.G. and Primakoff, P. 2007. Identification of an ADAM2-ADAM3 complex on the surface of mouse testicular germ cells and cauda epididymal sperm. *J. Biol. Chem.* 282: 17900-17907.

CHROMOSOMAL LOCATION

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

RESEARCH USE

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

SOURCE

ADAM3 (M-135) is a rabbit polyclonal antibody raised against amino acids 461-595 mapping within an internal region of ADAM3 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.

APPLICATIONS

ADAM3 (M-135) is recommended for detection of ADAM3 of mouse and rat 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 ADAM3 siRNA (m): sc-61941, ADAM3 shRNA Plasmid (m): sc-61941-SH and ADAM3 shRNA (m) Lentiviral Particles: sc-61941-V.

Molecular Weight of mature ADAM3: 42 kDa.

Molecular Weight of ADAM3 precursor: 110 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

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



Try **ADAM3 (F-4): sc-365288**, our highly recommended monoclonal alternative to ADAM3 (M-135).