

AKAP 82 (25): sc-135827

BACKGROUND

AKAP (A-kinase anchoring proteins) is a family of proteins that interact with the R subunit of PKA to anchor it to specific sites within the cell in order to maintain the specificity of PKA signalling. Members of this family display differential tissue specificity and localization. AKAP 82, also known as PRKA4 (protein kinase A-anchoring protein 4), major sperm fibrous sheath protein or FSC1, is expressed in spermatid during spermiogenesis. AKAP 82 plays an important role in spermatid development, completing the fibrous sheath assembly. AKAP 82 has two binding sites for PKA, one specific for RI α and one that can bind either RI α or RII α . AKAP 82 also binds to AKAP 3. These two proteins together make up most of the insoluble fibrous sheath. In AKAP 82 knockout spermatozoa, a significant reduction or loss of AKAP 3, RII α , SP17 and GAPDS results. Abnormal sperm expression of AKAP 82 may be involved in asthenospermia.

REFERENCES

1. Turner, R.M., et al. 1999. Relationship between sperm motility and the processing and tyrosine phosphorylation of two human sperm fibrous sheath proteins, pro-hAKAP82 and hAKAP82. *Mol. Hum. Reprod.* 5: 816-824.
2. Moss, S.B., et al. 1999. Conservation and function of a bovine sperm A-kinase anchor protein homologous to mouse AKAP82. *Biol. Reprod.* 61: 335-342.
3. Brown, P.R., et al. 2003. A-kinase anchoring protein 4 binding proteins in the fibrous sheath of the sperm flagellum. *Biol. Reprod.* 68: 2241-2248.
4. Lea, I.A., et al. 2004. Association of sperm protein 17 with A-kinase anchoring protein 3 in flagella. *Reprod. Biol. Endocrinol.* 2: 57.
5. Nipper, R.W., et al. 2005. Differential RNA expression and polyribosome loading of alternative transcripts of the AKAP4 gene in murine spermatids. *Mol. Reprod. Dev.* 70: 397-405.
6. Huang, Z., et al. 2005. Changes in intracellular distribution and activity of protein phosphatase PP1 γ 2 and its regulating proteins in spermatozoa lacking AKAP4. *Biol. Reprod.* 72: 384-392.
7. Moretti, E., et al. 2006. Transmission electron microscopy, immunocytochemical and fluorescence *in situ* hybridisation studies in a case of 100% necrozoospermia: case report. *Andrologia* 38: 233-238.
8. Carlson, C.R., et al. 2006. Delineation of type I protein kinase A-selective signaling events using an RI anchoring disruptor. *J. Biol. Chem.* 281: 21535-21545.

CHROMOSOMAL LOCATION

Genetic locus: Akap4 (mouse) mapping to X A1.1.

SOURCE

AKAP 82 (25) is a mouse monoclonal antibody raised against amino acids 555-675 of AKAP 82 of mouse origin.

RESEARCH USE

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

PRODUCT

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

APPLICATIONS

AKAP 82 (25) is recommended for detection of AKAP 82 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for AKAP 82 siRNA (m): sc-61963, AKAP 82 shRNA Plasmid (m): sc-61963-SH and AKAP 82 shRNA (m) Lentiviral Particles: sc-61963-V.

Molecular Weight of AKAP 82: 82 kDa.

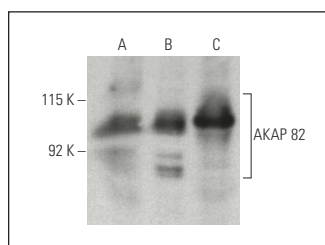
Positive Controls: rat epididymis extract: sc-364804, rat testis extract: sc-2400 or mouse testis extract: sc-2405.

RECOMMENDED SUPPORT REAGENTS

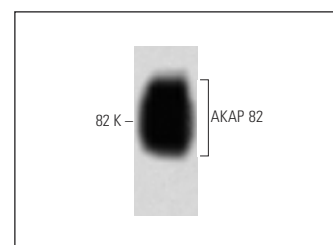
To ensure optimal results, the following support reagents are recommended:

1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



AKAP 82 (25): sc-135827. Western blot analysis of AKAP 82 expression in mouse testis (A), rat testis (B) and rat epididymis (C) tissue extracts. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



AKAP 82 (25): sc-135827. Western blot analysis of AKAP 82 expression in rat testis tissue extract.

SELECT PRODUCT CITATIONS

1. Kashiwabara, S.I., et al. 2016. Functional compensation for the loss of testis-specific poly(A)-binding protein, PABPC2, during mouse spermatogenesis. *J. Reprod. Dev.* 62: 305-310.
2. Kashiwabara, S.I., et al. 2016. Adenylation by testis-specific cytoplasmic poly(A) polymerase, PAPOLB/TPAP, is essential for spermatogenesis. *J. Reprod. Dev.* 62: 607-614.

STORAGE

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