

AKAP 3 (N-14): sc-47789

BACKGROUND

The type II cAMP-dependent protein kinase (PKA) is a multifunctional kinase with a broad range of substrates. Specificity of PKA signaling is mediated by the compartmentalization of the kinase to specific sites within the cell. To maintain this specific localization, the R subunit (RII) of PKA interacts with specific RII-anchoring proteins, designated A-kinase anchoring proteins (AKAP). AKAP 3, also known as AKAP 110, FSP95, PRKA3 and SOB1, binds both PKA and PDE4A and functions as a scaffolding protein in spermatozoa to regulate local cAMP concentrations and modulate sperm functions. Expression of AKAP 3 in normal tissues is restricted to the testis, where bicarbonate stimulates tyrosine phosphorylation of AKAP 3, thereby increasing its recruitment of PKA. AKAP-3 also exhibits high expression in patients with epithelial ovarian cancer (EOC). It demonstrates tumor-restricted expression and appears to be associated with worse overall survival, which make AKAP 3 a potential target for antigen-specific immunotherapy in EOC.

REFERENCES

1. Vijayaraghavan, S., et al. 1999. Isolation and molecular characterization of AKAP 110, a novel, sperm-specific protein kinase A-anchoring protein. *Mol. Endocrinol.* 13: 705-717.
2. Niu, J., et al. 2001. Interaction of heterotrimeric G13 protein with an A-kinase-anchoring protein 110 (AKAP 110) mediates cAMP-independent PKA activation. *Curr. Biol.* 11: 1686-1690.
3. Turner, R.M., et al. 2001. Molecular genetic analysis of two human sperm fibrous sheath proteins, AKAP 4 and AKAP 3, in men with dysplasia of the fibrous sheath. *J. Androl.* 22: 302-315.
4. Hasegawa, K., et al. 2003. AKAP 3 messenger RNA expression in ovarian cancer and its implication on prognosis. *Int. J. Cancer* 108: 86-90.
5. Lea, I.A., et al. 2004. Association of sperm protein 17 with AKAP 3 in flagella. *Reprod. Biol. Endocrinol.* 2: 57.
6. Luconi, M., et al. 2004. Tyrosine phosphorylation of the AKAP3 and soluble adenylate cyclase are involved in the increase of human sperm motility by bicarbonate. *Biol. Reprod.* 72: 22-32.

CHROMOSOMAL LOCATION

Genetic locus: AKAP3 (human) mapping to 12p13.32; Akap3 (mouse) mapping to 6 F3.

SOURCE

AKAP 3 (N-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of AKAP 3 of human origin.

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.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-47789 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

AKAP 3 (N-14) is recommended for detection of AKAP 3 of mouse, rat and human 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).

AKAP 3 (N-14) is also recommended for detection of AKAP 3 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for AKAP 3 siRNA (h): sc-60143, AKAP 3 siRNA (m): sc-60144, AKAP 3 shRNA Plasmid (h): sc-60143-SH, AKAP 3 shRNA Plasmid (m): sc-60144-SH, AKAP 3 shRNA (h) Lentiviral Particles: sc-60143-V and AKAP 3 shRNA (m) Lentiviral Particles: sc-60144-V.

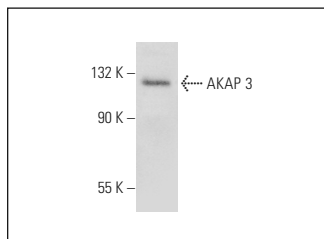
Molecular Weight of AKAP 3: 95 kDa.

Positive Controls: F9 cell lysate: sc-2245.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



AKAP 3 (N-14): sc-47789. Western blot analysis of AKAP 3 expression in F9 whole cell lysate.

RESEARCH USE

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