

# AKAP 3 (H-50): sc-135146

## 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

- 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.
- Niu, J., et al. 2001. Interaction of heterotrimeric G<sub>13</sub> protein with an A-kinase-anchoring protein 110 (AKAP 110) mediates cAMP-independent PKA activation. *Curr. Biol.* 11: 1686-1690.
- 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.
- Hasegawa, K., et al. 2003. AKAP 3 messenger RNA expression in ovarian cancer and its implication on prognosis. *Int. J. Cancer* 108: 86-90.
- Lea, I.A., et al. 2004. Association of sperm protein 17 with AKAP 3 in flagella. *Reprod. Biol. Endocrinol.* 2: 57.
- Luconi, M., et al. 2004. Tyrosine phosphorylation of the AKAP 3 and soluble adenylate cyclase are involved in the increase of human sperm motility by bicarbonate. *Biol. Reprod.* 72: 22-32.
- Bajpai, M., et al. 2005. AKAP 3 selectively binds PDE4A isoforms in bovine spermatozoa. *Biol. Reprod.* 74: 109-118.
- Sharma, S., et al. 2005. AKAP 3 messenger RNA expression correlates with poor prognosis in epithelial ovarian cancer. *Gynecol. Oncol.* 99: 183-188.

## CHROMOSOMAL LOCATION

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

## SOURCE

AKAP 3 (H-50) is a rabbit polyclonal antibody raised against amino acids 781-830 mapping near the C-terminus of AKAP 3 of human origin.

## PRODUCT

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

## APPLICATIONS

AKAP 3 (H-50) 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 (H-50) is also recommended for detection of AKAP 3 in additional species, including equine, 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.

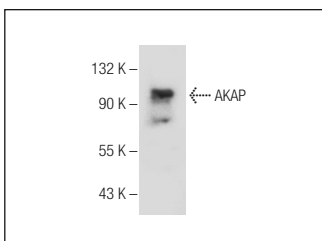
Molecular Weight of AKAP 3: 95 kDa.

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 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.

## DATA



AKAP 3 (H-50): sc-135146. Western blot analysis of AKAP 3 expression in F9 whole cell lysate.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.