SANTA CRUZ BIOTECHNOLOGY, INC.

AKAP 10 (YY2): sc-100644

BACKGROUND

The type II cAMP-protein kinase (PKA) is a multifunctional kinase with a broad range of substrates. Specificity of PKA signaling is thought to be mediated by the compartmentalization of the kinase to specific sites within the cell. To maintain this specific localization, the regulatory (R) subunits (RI and RII) of PKA interact with specific R-anchoring proteins designated AKAPs (A-kinase anchoring proteins). AKAP 10 (A kinase anchor protein 10), also known as PRKA10 or D-AKAP2 (dual-specific A kinase-anchoring protein 2), is a 662 amino acid mitochondrial membrane protein that belongs to the AKAP family. AKAP 10 is a dual specificity protein that binds to both type I and type II regulatory subunits of PKA and anchors them to the plasma membrane or the mitochondria. When anchored to the mitochondria, PKA can phosphorylate and, thus, inactivate the proapoptotic protein Bad. This suggests that AKAP 10 indirectly regulates Bad-induced apoptosis by mediating the mitochondrial attachment of PKA. Additionally, AKAP 10 may facilitate G protein-coupled signal transduction and could act as an adaptor in the assembly of multi-protein complexes.

REFERENCES

1. Huang, L.J., et al. 1997. D-AKAP2, a novel protein kinase A anchoring protein with a putative RGS domain. Proc. Natl. Acad. Sci. USA 94: 11184-11189.
2. Wang, L., et al. 2001. Cloning and mitochondrial localization of full-length D-AKAP2, a protein kinase A anchoring protein. Proc. Natl. Acad. Sci. USA 98: 3220-3225.
3. Perkins, G.A., et al. 2001. PKA, PKC, and AKAP localization in and around the neuromuscular junction. BMC Neurosci. 2: 17.
4. Hamuro, Y., et al. 2002. Domain organization of D-AKAP2 revealed by enhanced deuterium exchange-mass spectrometry (DXMS). J. Mol. Biol. 321: 703-714.
5. Burns, L.L., et al. 2003. Isoform specific differences in binding of a dual-specificity A-kinase anchoring protein to type I and type II regulatory subunits of PKA. Biochemistry 42: 5754-5763.

CHROMOSOMAL LOCATION

Genetic locus: AKAP10 (human) mapping to 17p11.2; Akap10 (mouse) mapping to 11 B2.

SOURCE

AKAP 10 (YY2) is a mouse monoclonal antibody raised against recombinant AKAP 10 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

AKAP 10 (YY2) is recommended for detection of AKAP 10 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), immunohistochemistry (including paraffin-embedded sections) (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 AKAP 10 siRNA (h): sc-93998, AKAP 10 siRNA (m): sc-140974, AKAP 10 shRNA Plasmid (h): sc-93998-SH, AKAP 10 shRNA Plasmid (m): sc-140974-SH, AKAP 10 shRNA (h) Lentiviral Particles: sc-93998-V and AKAP 10 shRNA (m) Lentiviral Particles: sc-140974-V.

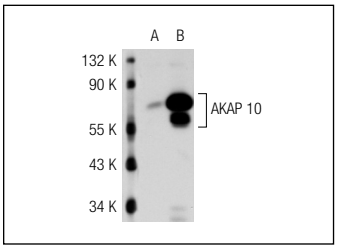
Molecular Weight of AKAP 10: 74 kDa.

Positive Controls: AKAP 10 (h): 293T Lysate: sc-113119, AKAP 10 (h2): 293T Lysate: sc-174163 or AKAP 10 (h3): 293T Lysate: sc-174184.

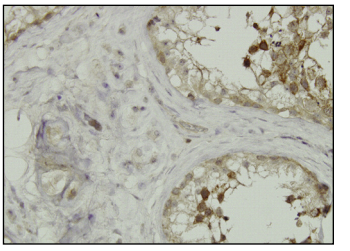
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



AKAP 10 (YY2): sc-100644. Western blot analysis of AKAP 10 expression in non-transfected: sc-117752 (**A**) and human AKAP 10 transfected: sc-113119 (**B**) 293T whole cell lysates.



AKAP 10 (YY2): sc-100644. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing membrane and cytoplasmic localization.

RESEARCH USE

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

PROTOCOLS

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