

# Yotiao (7): sc-136177

## 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. This family of proteins is designated A-kinase anchoring proteins (AKAP). AKAP 9, also designated AKAP 450, is a 3,911 amino acid protein which undergoes alternative splicing resulting in multiple isoforms including, AKAP 350 and Yotiao. Research has found AKAP 9 localized to both centrosomes and the Golgi apparatus throughout the cell cycle, and it is suggested that AKAP 9 may function as a scaffolding protein assembling protein kinases and phosphatases based on substrate-specific phosphorylation. An N-terminal sequence from amino acids 1-1,626 is identical between the AKAP 9 and Yotiao proteins. The unique C-terminus of the Yotiao isoform contains an additional 12 amino acid sequence not shared with AKAP 9. Yotiao is expressed primarily in pancreas and skeletal muscle. Yotiao interacts with the NR1 subunit of the NMDA receptor. Co-assembly of Yotiao/PKAII complexes with NR1 subunits promote cAMP-dependent modulation of NMDA receptor activity at synapses, thereby influencing brain development and synaptic plasticity.

## REFERENCES

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2. Feliciello, A., et al. 1999. Yotiao protein, a ligand for the NMDA receptor, binds and targets cAMP-dependent protein kinase II<sup>1</sup>. *FEBS Lett.* 464: 174-178.
3. Marx, S.O., et al. 2002. Requirement of a macromolecular signaling complex for  $\beta$  adrenergic receptor modulation of the KCNQ1-KCNE1 potassium channel. *Science* 295: 496-799.
4. Saucerman, J.J., et al. 2004. Proarrhythmic consequences of a KCNQ1 AKAP-binding domain mutation: computational models of whole cells and heterogeneous tissue. *Circ. Res.* 95: 1216-1224.
5. Kurokawa, J., et al. 2004. Regulatory actions of the A-kinase anchoring protein Yotiao on a heart potassium channel downstream of PKA phosphorylation. *Proc. Natl. Acad. Sci. USA* 101: 16374-16378.
6. Kanki, H., et al. 2004. A structural requirement for processing the cardiac K<sup>+</sup> channel KCNQ1. *J. Biol. Chem.* 279: 33976-33983.
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## CHROMOSOMAL LOCATION

Genetic locus: AKAP9 (human) mapping to 7q21.2.

## SOURCE

Yotiao (7) is a mouse monoclonal antibody raised against amino acids 17-130 of Yotiao of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Yotiao (7) is recommended for detection of Yotiao and full-length AKAP 9 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for AKAP 9 siRNA (h): sc-45364, AKAP 9 shRNA Plasmid (h): sc-45364-SH and AKAP 9 shRNA (h) Lentiviral Particles: sc-45364-V.

Molecular Weight of Yotiao isoform: 230 kDa.

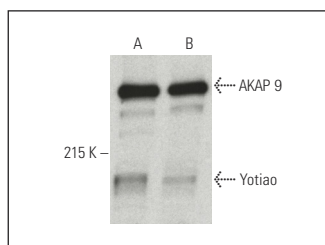
Molecular Weight of AKAP 9: 453 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218 or K-562 whole cell lysate: sc-2203.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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).  
 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Yotiao (7): sc-136177. Western blot analysis of Yotiao expression in SK-BR-3 (A) and K-562 (B) whole cell lysates. Detection reagent used: m-IgG $\kappa$  BP-HRP: sc-516102.

## 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.