SANTA CRUZ BIOTECHNOLOGY, INC.

ROPN1/ROPN1B (D-14): sc-103158

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 serves as an anchoring protein for ROPN1, also designated Ropporin. ROPN1 expression is limited to testis and fetal liver in normal tissues, but can also be detected in multiple myeloma, chronic lymphocytic leukemia and acute myeloid leukemia tumor cells. ROPN1 forms a complex with rhophilin in sperm flagella to mediate its function. ROPN1B (ropporin-1B) is a 212 amino acid protein that interacts with ROPN1 and AKAP 3. ROPN1B is localized to the sperm tail, specifically to the inner surface of the fibrous sheath.

REFERENCES

1. Scott, J.D., et al. 1990. Type II regulatory subunit dimerization determines the subcellular localization of the cAMP-dependent protein kinase. J. Biol. Chem. 265: 21561-21566.
2. Coghlan, V.M., et al. 1993. A-kinase anchoring proteins: a key to selective activation of cAMP-responsive events? Mol. Cell. Biochem. 127: 309-319.
3. Coghlan, V.M., et al. 1995. Association of protein kinase A and protein phosphatase 2B with a common anchoring protein. Science 267: 108-111.
4. Fujita, A., et al. 2000. Ropporin, a sperm-specific binding protein of rhophilin, that is localized in the fibrous sheath of sperm flagella. J. Cell Sci. 113: 103-112.
5. Eddy, E.M., et al. 2003. Fibrous sheath of mammalian spermatozoa. Microsc. Res. Tech. 61: 103-115.
6. Li, Z., et al. 2007. A yeast two-hybrid system using Sp17 identified Ropporin as a novel cancer-testis antigen in hematologic malignancies. Int. J. Cancer 121: 1507-1511.
7. Newell, A.E., et al. 2008. Protein kinase A RII-like (R2D2) proteins exhibit differential localization and AKAP interaction. Cell Motil. Cytoskeleton 65: 539-552.

CHROMOSOMAL LOCATION

Genetic locus: ROPN1 (human) mapping to 3q21.1, ROPN1B (human) mapping to 3q21.2; Ropn1 (mouse) mapping to 16 B3.

SOURCE

ROPN1/ROPN1B (D-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ROPN1 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.

Blocking peptide available for competition studies, sc-103158 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ROPN1/ROPN1B (D-14) is recommended for detection of ROPN1 and ROPN1B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

ROPN1/ROPN1B (D-14) is also recommended for detection of ROPN1 and ROPN1B in additional species, including equine, canine, bovine and porcine.

Molecular Weight of ROPN1/ROPN1B: 24 kDa.

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) 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.

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 or our catalog for detailed protocols and support products.