SANTA CRUZ BIOTECHNOLOGY, INC.

plakophilin 2 (A-20): sc-18976

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The Power to Question

BACKGROUND

Plakophilins 1, 2, 3 and 4 (PKP1-4) influence development and participate in linking cadherins to cytoskeletal intermediate filaments. Plakophilins 1-4 contain arm-repeat (armadillo) domains, and localize to nuclei and cell desmosomes (cell-cell junctions found in suprabasal layers of stratifying epithelia that undergo mechanical stress). Plakophilin 1 mediates increases in desmosomal protein content, desmosome assembly, and regulation of cell migration. Plakophilin 2 is important for desmosome assembly and is an essential morphogenic factor and architectural component of the heart. Plakophilin 4 is a component of desmosomal adhesion plaques that regulates junctional plaque organization and cadherin function.

REFERENCES

1. Mertens, C., et al. 1999. Desmosomal plakophilin 2 as a differentiation marker in normal and malignant tissues. Differentiation 64: 277-290.
2. Bonne, S., et al. 1999. Plakophilin 3, a novel armadillo-like protein present in nuclei and desmosomes of epithelial cells. J. Cell Sci. 112: 2265-2276.
3. Hatzfeld, M., et al. 2000. The function of plakophilin 1 in desmosome assembly and Actin filament organization. J. Cell Biol. 149: 209-222.
4. Bornslaeger, E.A., et al. 2001. Plakophilin 1 interferes with plakoglobin binding to desmoplakin, yet together with plakoglobin promotes clustering of desmosomal plaque complexes at cell-cell borders. J. Cell Sci. 114: 727-738.
5. Mertens, C., et al. 2001. Nuclear particles containing RNA polymerase III complexes associated with the junctional plaque protein plakophilin 2. Proc. Natl. Acad. Sci. USA 98: 7795-7800.
6. Chen, X., et al. 2002. Protein binding and functional characterization of plakophilin 2. Evidence for its diverse roles in desmosomes and β-catenin signaling. J. Biol. Chem. 277: 10512-10522.
7. Bonne, S., et al. 2003. Defining desmosomal plakophilin 3 interactions. J. Cell Biol. 161: 403-416.
8. South, A.P., et al. 2003. Lack of plakophilin 1 increases keratinocyte migration and reduces desmosome stability. J. Cell Sci. 116: 3303-3314.

CHROMOSOMAL LOCATION

Genetic locus: PKP2 (human) mapping to 12p11.21; Pkp2 (mouse) mapping to 16 A2.

SOURCE

plakophilin 2 (A-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of plakophilin 2 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-18976 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

plakophilin 2 (A-20) is recommended for detection of plakophilin 2 of human and, to a lesser extent, mouse and rat 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).

plakophilin 2 (A-20) is also recommended for detection of plakophilin 2 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for plakophilin 2 siRNA (h): sc-43182, plakophilin 2 siRNA (m): sc-43183, plakophilin 2 shRNA Plasmid (h): sc-43182-SH, plakophilin 2 shRNA Plasmid (m): sc-43183-SH, plakophilin 2 shRNA (h) Lentiviral Particles: sc-43182-V and plakophilin 2 shRNA (m) Lentiviral Particles: sc-43183-V.

Molecular Weight of plakophilin 2: 100 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

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.

SELECT PRODUCT CITATIONS

1. Li, M.W., et al. 2009. Connexin 43 and plakophilin 2 as a protein complex that regulates blood-testis barrier dynamics. Proc. Natl. Acad. Sci. USA 106: 10213-10218.
2. Tang, E.I., et al. 2012. Microtubule affinity-regulating kinase 4 (MARK4) is a component of the ectoplasmic specialization in the rat testis. Spermatogenesis 2: 117-126.

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.