

plakophilin 2 (28): sc-136039

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-3 plays a role in both desmosome-dependent adhesion and signaling pathways. Plakophilin-4 is a component of desmosomal adhesion plaques that regulates junctional plaque organization and cadherin function.

REFERENCES

- Mertens, C., et al. 1999. Desmosomal plakophilin 2 as a differentiation marker in normal and malignant tissues. *Differentiation* 64: 277-290.
- 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.
- Hatzfeld, M., et al. 2000. The function of plakophilin 1 in desmosome assembly and actin filament organization. *J. Cell Biol.* 149: 209-222.
- 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.
- 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.
- 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.
- Bonne, S., et al. 2003. Defining desmosomal plakophilin-3 interactions. *J. Cell Biol.* 161: 403-416.
- 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.

SOURCE

plakophilin 2 (28) is a mouse monoclonal antibody raised against amino acids 19-183 of plakophilin 2 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ in 1.0 ml of 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

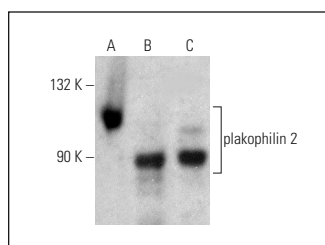
plakophilin 2 (28) is recommended for detection of plakophilin 2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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

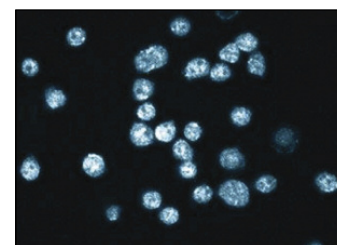
Molecular Weight of plakophilin 2: 100 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Caco-2 cell lysate: sc-2262 or HT-29 whole cell lysate: sc-364232.

DATA



plakophilin 2 (28): sc-136039. Western blot analysis of plakophilin 2 expression in Caco-2 (A) and HT-29 (B) whole cell lysates and HeLa nuclear extract (C).



plakophilin 2 (28): sc-136039. Immunofluorescence staining of HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Rasmussen, T.B., et al. 2014. Truncating plakophilin-2 mutations in arrhythmic cardiomyopathy are associated with protein haploinsufficiency in both myocardium and epidermis. *Circ. Cardiovasc. Genet.* 7: 230-240.
- Niell, N., et al. 2018. The human PKP2/plakophilin-2 gene is induced by Wnt/ β -catenin in normal and colon cancer-associated fibroblasts. *Int. J. Cancer* 142: 792-804.

RESEARCH USE

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

PROTOCOLS

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