

# plakophilin 3 (E-10): sc-166655

## 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 3 (PKP3) is a 797 amino acid protein that contains 8 arm-repeats and belongs to the  $\beta$ -catenin family. Encoded by a gene that maps to human chromosome 11p15.5, plakophilin 3 localizes to desmosomes of most simple and nearly all stratified epithelia, as well as cell lines derived therefrom, with the exception of hepatocytes and hepatocellular carcinoma cells. plakophilin 3 plays a role in both desmosome-dependent adhesion and signaling pathways, and may play a role in junctional plaques. Up-regulation of plakophilin 3 is a frequent and important feature of lung carcinogenesis, implicating plakophilin 3 as a candidate prognostic marker and therapeutic target for lung cancer.

## REFERENCES

- Schmidt, A., et al. 1999. Plakophilin 3—a novel cell-type-specific desmosomal plaque protein. *Differentiation* 64: 291-306.
- Bonné, 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.
- Borrmann, C.M., et al. 2000. Molecular diversity of plaques of epithelial-adhering junctions. *Ann. N.Y. Acad. Sci.* 915: 144-150.
- Bonné, S., et al. 2003. Defining desmosomal plakophilin 3 interactions. *J. Cell Biol.* 161: 403-416.
- Furukawa, C., et al. 2005. Plakophilin 3 oncogene as prognostic marker and therapeutic target for lung cancer. *Cancer Res.* 65: 7102-7110.

## CHROMOSOMAL LOCATION

Genetic locus: PKP3 (human) mapping to 11p15.5; Pkp3 (mouse) mapping to 7 F5.

## SOURCE

plakophilin 3 (E-10) is a mouse monoclonal antibody raised against amino acids 51-220 mapping near the N-terminus of plakophilin 3 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.

plakophilin 3 (E-10) is available conjugated to agarose (sc-166655 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166655 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166655 PE), fluorescein (sc-166655 FITC), Alexa Fluor® 488 (sc-166655 AF488), Alexa Fluor® 546 (sc-166655 AF546), Alexa Fluor® 594 (sc-166655 AF594) or Alexa Fluor® 647 (sc-166655 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166655 AF680) or Alexa Fluor® 790 (sc-166655 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

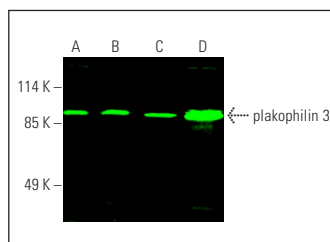
plakophilin 3 (E-10) is recommended for detection of plakophilin 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for plakophilin 3 siRNA (h): sc-62826, plakophilin 3 siRNA (m): sc-62827, plakophilin 3 shRNA Plasmid (h): sc-62826-SH, plakophilin 3 shRNA Plasmid (m): sc-62827-SH, plakophilin 3 shRNA (h) Lentiviral Particles: sc-62826-V and plakophilin 3 shRNA (m) Lentiviral Particles: sc-62827-V.

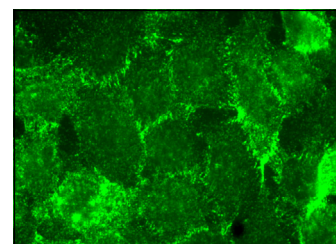
Molecular Weight of plakophilin 3: 87 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A549 cell lysate: sc-2413 or Caco-2 cell lysate: sc-2262.

## DATA



plakophilin 3 (E-10): sc-166655. Near-infrared western blot analysis of plakophilin 3 expression in HeLa (A), A549 (B), IB4 (C) and Caco-2 (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



plakophilin 3 (E-10): sc-166655. Immunofluorescence staining of formalin-fixed A-431 cells showing membrane localization.

## SELECT PRODUCT CITATIONS

- Wickline, E.D., et al. 2013.  $\gamma$ -catenin at adherens junctions: mechanism and biologic implications in hepatocellular cancer after  $\beta$ -catenin knock-down. *Neoplasia* 15: 421-434.
- Zhou, L., et al. 2015. Mice with hepatic loss of the desmosomal protein  $\gamma$ -catenin are prone to cholestatic injury and chemical carcinogenesis. *Am. J. Pathol.* 185: 3274-3289.
- Indra, I., et al. 2021. Plakophilin 3 and Par3 facilitate desmosomes' association with the apical junctional complex. *Mol. Biol. Cell* 32: 1824-1837.
- Gupta, J., et al. 2023. Plakophilin-3 binds the membrane and filamentous Actin without bundling F-Actin. *Int. J. Mol. Sci.* 24: 9458.

## 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.