abcam

ab151402

Anti-Plakophilin 2/PKP2 antibody [8H6]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.1% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human PKP2 aa 1-350. The exact immunogen used to generate this antibody is proprietary information. Database link Q99959
Clone number	8H6
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1/100
Notes	-

Target data

See full target information PKP2

Function

A component of desmosome cell-cell junctions which are required for positive regulation of cellular adhesion (PubMed:25208567). Regulates focal adhesion turnover resulting in changes in focal adhesion size, cell adhesion and cell spreading, potentially via transcriptional modulation of beta-integrins (PubMed:23884246). Required to maintain gingival epithelial barrier function (PubMed:34368962). Important component of the desmosome that is also required for localization of desmosome component proteins such as DSC2, DSG2 and JUP to the desmosome cell-cell junction (PubMed:22781308, PubMed:25208567). Required for the formation of desmosome cell junctions in cardiomyocytes, thereby required for the correct formation of the heart, specifically trabeculation and formation of the atria walls (By similarity). Loss of desmosome cell junctions leads to mis-localization of DSP and DSG2 resulting in disruption of cell-cell adhesion and disordered intermediate filaments (By similarity). Modulates profibrotic gene expression in cardiomyocytes via regulation of DSP expression and subsequent activation of downstream TGFB1 and MAPK14/p38 MAPK signaling (By similarity). Required for cardiac sodium current propagation and electrical synchrony in cardiac myocytes, via ANK3 stabilization and modulation of SCN5A/Nav1.5 localization to cell-cell junctions (By similarity). Required for mitochondrial function, nuclear envelope integrity and positive regulation of SIRT3 transcription via maintaining DES localization at its nuclear envelope and cell tip anchoring points, and thereby preserving regulation of the transcriptional program (PubMed:35959657). Maintenance of nuclear envelope integrity protects against DNA damage and transcriptional dysregulation of genes, especially those involved in the electron transport chain, thereby preserving mitochondrial function and protecting against superoxide radical anion generation (PubMed:35959657). Binds single-stranded DNA (ssDNA) (PubMed:20613778). May regulate the localization of GJA1 to gap junctions in intercalated disks of the heart (PubMed:18662195). Involved in the inhibition of viral infection by influenza A viruses (IAV) (PubMed:28169297). Acts as a host restriction factor for IAV viral propagation, potentially via disrupting the interaction of IAV polymerase complex proteins (PubMed:28169297).

Storage

Shipped at conditions	Blue Ice

Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Plakophilin 2 also known as PKP2 is a protein integral to the function of cell junctions specifically within desmosomes. It is one of the plakophilins a subgroup of the armadillo family proteins. The protein has an approximate molecular weight of 97 kDa. PKP2 is extensively expressed in tissues where cells require strong mechanical adhesion such as cardiac and epidermal tissues. It plays an essential role by anchoring intermediate filaments contributing to structural integrity.
Biological function summary	PKP2 participates in forming and maintaining stable desmosomal connections in cells. It operates as part of the desmosome complex binding to cadherins and linking them to cytoskeletal filaments. This role is important for maintaining cell-cell adhesion during tissue stress particularly in tissues subject to mechanical stress such as the heart. Its interaction with cadherins and intermediate filaments highlights its role in managing cellular integrity and communication.
Pathways	PKP2 is fundamentally involved in cell signaling and junction-related pathways. It forms part of the desmosomal complex pathway which ensures robust cell adhesion and signaling integrity. PKP2 interacts with other proteins in the pathway such as desmoplakin and plakoglobin aiding mechanical stability and signal transduction necessary for tissue integrity and repair.
Associated diseases and disorders	PKP2 mutations are closely associated with arrhythmogenic right ventricular cardiomyopathy (ARVC) a disease impacting cardiac function. The disorder links PKP2 to desmosomal dysfunction affecting heart muscle integrity and resulting in arrhythmias. Furthermore in the context of skin disorders PKP2 interactions with other desmosomal proteins like desmoglein might influence conditions involving epidermal fragility or blistering.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

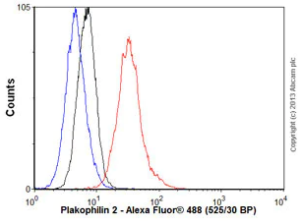
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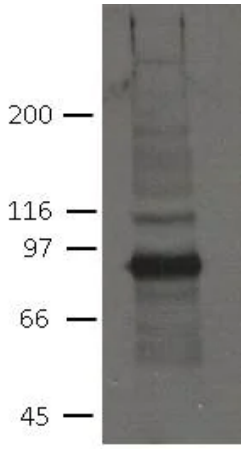
2 product images



Flow Cytometry - Anti-Plakophilin 2/PKP2 antibody [8H6] (ab151402)

Plakophilin 2/PKP2 Flow Cytometry staining using mouse Anti-Plakophilin 2/PKP2 antibody

Overlay histogram showing HeLa cells stained with ab151402 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab151402, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H&L) (ab150113) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.



Western blot - Anti-Plakophilin 2/PKP2 antibody [8H6] (ab151402)

All lanes:
Western blot - Anti-Plakophilin 2/PKP2 antibody [8H6] (ab151402) at 1/100 dilution

All lanes:
HaCat Human keratinocyte cells

Predicted band size: 97 kDa

Observed band size: 92 kDa

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