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Anti-Plakophilin-1 (PKP1) Antibody

Mouse Monoclonal Antibody
Catalog # AH13436

Product Information

Application	WB, IF, FC
Primary Accession	Q13835
Other Accession	497350
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG1
Clone Names	10B2
Calculated MW	82861

Additional Information

Gene ID	5317
Other Names	B6P; Band 6 protein; PKP1; Plakophilin-1 (ectodermal dysplasia/skin fragility syndrome)
Application Note	Flow Cytometry (0.5-1ug/million cells); ,Immunofluorescence (1-2ug/ml); ,Western Blotting (0.5-1.0ug/ml),Optimal dilution for a specific application should be determined.
Format	200ug/ml of Ab purified from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with 0.05% BSA & 0.05% azide. Also available WITHOUT BSA & azide at 1.0mg/ml.
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	Anti-Plakophilin-1 (PKP1) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PKP1
Function	A component of desmosome cell-cell junctions which are required for positive regulation of cellular adhesion (PubMed:23444369). Plays a role in desmosome protein expression regulation and localization to the desmosomal plaque, thereby maintaining cell sheet integrity and anchorage of desmosomes to intermediate filaments (PubMed:10852826, PubMed:23444369). Required for localization of DSG3 and YAP1 to the cell membrane in keratinocytes in response to mechanical strain, via the

	formation of an interaction complex composed of DSG3, YAP1, PKP1 and YWHAG (PubMed:31835537). Positively regulates differentiation of keratinocytes, potentially via promoting localization of DSG1 at desmosome cell junctions (By similarity). Required for calcium-independent development and maturation of desmosome plaques specifically at lateral cell-cell contacts in differentiating keratinocytes (By similarity). Plays a role in the maintenance of DSG3 protein abundance, DSG3 clustering and localization of these clusters to the cell membrane in keratinocytes (By similarity). May also promote keratinocyte proliferation and morphogenesis during postnatal development (PubMed:9326952). Required for tight junction inside-out transepidermal barrier function of the skin (By similarity). Promotes Wnt-mediated proliferation and differentiation of ameloblasts, via facilitating TJP1/ZO-1 localization to tight junctions (By similarity). Binds single-stranded DNA (ssDNA), and may thereby play a role in sensing DNA damage and promoting cell survival (PubMed:20613778). Positively regulates cap-dependent translation and as a result cell proliferation, via recruitment of EIF4A1 to the initiation complex and promotion of EIF4A1 ATPase activity (PubMed:20156963, PubMed:23444369). Regulates the mRNA stability and protein abundance of desmosome components PKP2, PKP3, DSC2 and DSP, potentially via its interaction with FXR1 (PubMed:25225333).
Cellular Location	[Isoform 1]: Cell junction, desmosome Nucleus. Cytoplasm, perinuclear region. Cytoplasm. Cell junction, desmosome. Cell membrane Cytoplasm, Stress granule Note=Colocalizes with EIF4A1 in stress granules following arsenate or hydrogen peroxide treatment (PubMed:20156963). Localizes to nucleoli following DNA damage (PubMed:20613778). Located in the cytoplasm during early tooth development, however localizes to the cell membrane in ameloblasts during molar growth (By similarity). Ca(2+)-mediated localization to the cell membrane in dental epithelial cells is inhibited via WNT3A (By similarity). Localizes to the cytoplasm when the phosphorylated form interacts with YWHAG (By similarity). Initially localized to the cytoplasm however as keratinocyte differentiation proceeds becomes localized to cell junctions as early cell-cell contacts become linear as part of membrane sealing (By similarity) Localized to lateral cell contacts in colocalization with DSP as epithelial sheet formation completes (By similarity). Protein stability is increased and localizes to the cytoplasm when phosphorylated at the N-terminus by AKT2 (PubMed:23444369). The unphosphorylated form is preferentially localized to desmosomes (PubMed:23444369) {ECO:0000250|UniProtKB:P97350, ECO:0000269|PubMed:20156963, ECO:0000269|PubMed:20613778, ECO:0000269|PubMed:23444369}
Tissue Location	[Isoform 1]: Expressed in stratified squamous, complex, glandular duct and bladder epithelia (at protein level)

Background

Recognizes a protein of 75kDa, identified as Plakophilin-1. Its epitope maps between aa 1-27 human Plakophilin-1. 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 2 is important for desmosome assembly and is an essential morphogenic factor and architectural component of the heart.

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