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Anti-Panopsin Antibody

Catalog # AP60798

Product Information

Application	WB, IHC, IF/IC
Primary Accession	Q9H1Y3
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	44873

Additional Information

Gene ID	23596
Other Names	ECPN; Opsin-3; Encephalopsin; Panopsin
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the center region of human Panopsin. The exact sequence is proprietary.
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500 IF/IC~~N/A
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	OPN3 (HGNC:14007)
Synonyms	ECPN
Function	G protein-coupled photoreceptor that selectively activates G(i/o) proteins in response to light, thereby decreasing intracellular cAMP levels (PubMed:28842328, PubMed:30168605, PubMed:31380578, PubMed:36869204). Activation occurs when the opsin-bound cis-retinal chromophore absorbs a photon and isomerizes to all-trans-retinal, inducing a conformational change in the opsin that triggers a G protein-mediated phototransduction cascade (PubMed:36869204). Mediates blue light-induced pigmentation in melanocytes by activating calcium/CAMK2 signaling, followed by phosphorylation of CREB, p38, ERK and MITF. Required for TYR and DCT blue light-induced complex formation in melanocytes (PubMed:28842328). Involved in keratinocyte differentiation in response to blue-light (PubMed:30168605). Plays a role in melanocyte survival through regulation of intracellular calcium levels and subsequent BCL2/RAF1 signaling. Additionally, regulates apoptosis via cytochrome c release and subsequent activation of

the caspase cascade (PubMed:31730232). Responsible for ultraviolet A (UVA)-induced keratinocytes supranuclear melanin cap formation via activating calcium/CAMK2, CREB, and Akt signal transduction, and ultimately increasing DYNC1I1 and DCTN1 expression levels, thereby playing a role in the skin response to UV radiation (PubMed:36869204). Required for the UVA-mediated induction of calcium and MAPK signaling resulting in the expression of MMP1, MMP2, MMP3, MMP9 and TIMP1 in dermal fibroblasts (PubMed:31380578). Also plays a role in light-mediated glucose uptake, mitochondrial respiration and fatty acid metabolism in brown adipocyte tissues. May be involved in photorelaxation of airway smooth muscle cells, via blue light-dependent GPCR signaling pathways (By similarity). Also inhibits melanogenesis in melanocytes by specifically inhibiting MC1R-evoked cAMP signaling in a constitutive, light-independent manner (PubMed:31097585). In the paraventricular nucleus of the hypothalamus, inhibits MC4R-mediated cAMP signaling and activates KCNJ13 channel opening in a constitutive manner, thereby promoting food intake and modulating spontaneous firing of neurons (PubMed:39951488).

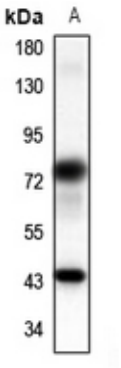
Cellular Location

Cell membrane; Multi-pass membrane protein. Cytoplasm. Note=Localized to the membrane and cytoplasm of HaCaT and HEK cells.

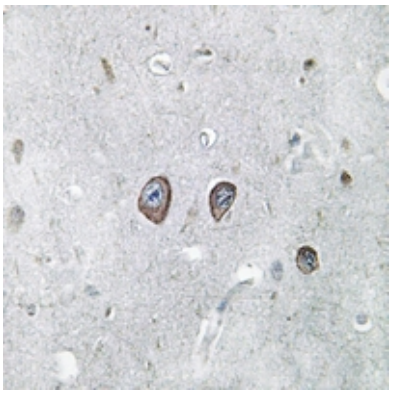
Tissue Location

Expressed throughout the epidermis and dermis, predominantly in the basal layer on the facial and abdominal skin (at protein level) (PubMed:30168605). Expressed in dermal fibroblasts (at protein level) (PubMed:31380578). Expressed in melanocytes (at protein level) (PubMed:28842328, PubMed:31097585, PubMed:31730232). Expressed in keratinocytes (PubMed:28842328). Expressed in the retina (PubMed:30284927). Expressed in tracheal airway smooth muscle (at protein level) (PubMed:30284927).

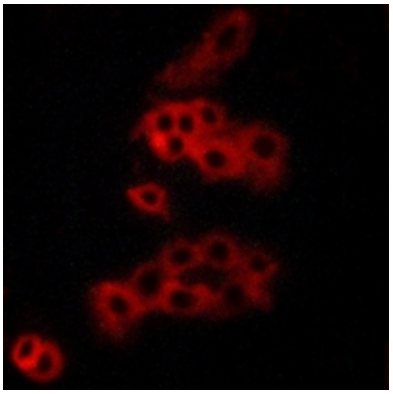
Images



Western blot analysis of Panopsin expression in rat brain (A) whole cell lysates. (Predicted band size: 44 kD; Observed band size: 45 kD)



Immunohistochemical analysis of Panopsin staining in human brain formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of Panopsin staining in MCF7 cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with a AF594-conjugated secondary antibody (red) in PBS at room temperature in the dark.

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