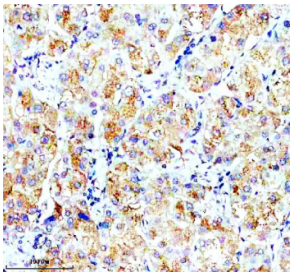
OPN5 Antibody / Opsin 5 / Neuropsin (FY12752)

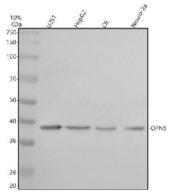
Catalog No.	Formulation	Size
FY12752	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

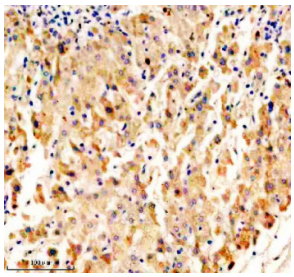
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q6U736
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Immunofluorescence : 5ug/ml
Limitations	This OPN5 antibody is available for research use only.



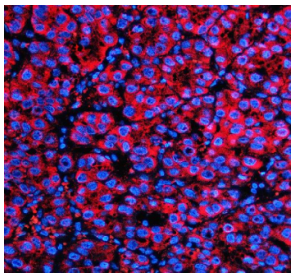
Immunohistochemical staining of OPN5 using anti-OPN5 antibody. OPN5 was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-OPN5 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Western blot analysis of OPN5 using anti-OPN5 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human U251 whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: rat C6 whole cell lysates, Lane 4: mouse Neuro-2a whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-OPN5 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. The predicted molecular weight of OPN5 is ~40 kDa.



Immunohistochemical staining of OPN5 using anti-OPN5 antibody. OPN5 was detected in a paraffin-embedded section of human liver tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-OPN5 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunofluorescent staining of OPN5 using anti-OPN5 antibody. OPN5 was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/ml rabbit anti-OPN5 antibody overnight at 4oC. Cy3 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.

Description

OPN5 antibody detects Opsin-5 (also known as Neuropsin or G protein-coupled receptor 136), a light-sensitive G protein-coupled receptor involved in non-visual photoreception. Encoded by the OPN5 gene on chromosome 6p12.3, this protein belongs to the opsin family of photoreceptive GPCRs that use retinaldehyde chromophores to detect light. Opsin-5 absorbs near-ultraviolet light and activates intracellular signaling via inhibitory G proteins (Gi/Go), modulating circadian rhythms and neuroendocrine responses independent of classical retinal photoreceptors.

OPN5 is expressed in brain regions such as the hypothalamus and preoptic area, as well as in peripheral tissues including retina, cornea, skin, and reproductive organs. It functions as a UV-sensitive photoreceptor regulating local circadian oscillators and hormone secretion. In the eye, OPN5 contributes to light entrainment of retinal and non-retinal cells, while in the skin and reproductive tissues, it influences seasonal and environmental light-dependent physiology. The receptor's activation triggers G protein signaling that modulates cyclic AMP levels, gene expression, and ion channel activity.

The OPN5 antibody is a valuable tool for neurobiology, circadian rhythm, and sensory physiology research. Western blot analysis detects a 40 kilodalton band corresponding to Opsin-5, while immunofluorescence and immunohistochemistry reveal membrane localization in neuronal and epithelial tissues. This antibody supports the study of light-dependent signaling outside the visual system and enables mapping of Opsin-5 expression across tissues.

Dysregulation of OPN5 signaling has been linked to altered circadian rhythms, hormonal imbalances, and impaired photic entrainment. In animal models, OPN5 influences melatonin secretion and reproductive seasonality, connecting environmental lighting cues to endocrine function. The OPN5 antibody facilitates the exploration of these mechanisms by

providing specific detection of Opsin-5 in experimental systems. NSJ Bioreagents offers this antibody validated for its applications, ensuring consistent and high-quality performance for light-sensing and circadian biology research.

Application Notes

Optimal dilution of the OPN5 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human OPN5 was used as the immunogen for the OPN5 antibody.

Storage

After reconstitution, the OPN5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.