abcam

ab98887

Anti-Rhodopsin antibody [Rho 4D2]

Anti-Rhodopsin antibody [Rho 4D2] (ab98887) is a mouse monoclonal antibody detecting Rhodopsin in **Western Blot, Flow Cytometry, IP, IHC-P, IHC-Fr, ELISA**. Suitable for **Cow, Human, Mouse, Pig, Rat, Xenopus laevis**.

- Over 50 publications
- Trusted since 2010

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Cow Rhodopsin. The exact immunogen used to generate this antibody is proprietary information. Database link P02699
Clone number	Rho 4D2
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC

Expected

Species	Mouse, Rat, Pig, Xenopus laevis, Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Drosophila melanogaster
Dilution info	-
Notes	-

IP

Expected

Species	Mouse
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

Species	Rat
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

Species	Pig
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

Species	Xenopus laevis
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

Species	Human
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

Species	Cow
Dilution info	-

Notes	1-2 ug per 100-500ug of protein.

Not recommended

Species	Drosophila melanogaster
Dilution info	-
Notes	1-2 ug per 100-500ug of protein.

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.

Expected

Species	Cow, Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Drosophila melanogaster
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Pig
Dilution info	-
Notes	-

Species	Rat
Dilution info	-

Notes	-

Species	Xenopus laevis
Dilution info	-
Notes	-

ELISA

Expected

Species	Mouse, Rat, Pig, Xenopus laevis, Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Drosophila melanogaster
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Cow
Dilution info	1/1000
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.

Notes	-

Not recommended

Species	Drosophila melanogaster, Pig, Rat, Xenopus laevis
Dilution info	-
Notes	-

IHC-P

Expected

Species	Mouse, Rat, Pig, Xenopus laevis, Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Drosophila melanogaster
Dilution info	-
Notes	-

IHC-Fr

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Drosophila melanogaster, Pig, Rat, Xenopus laevis
Dilution info	-
Notes	-

Target data

See full target information RHO

Function	Photoreceptor required for image-forming vision at low light intensity (PubMed:7846071, PubMed:8107847). Required for photoreceptor cell viability after birth (PubMed:12566452, PubMed:2215617). Light-induced isomerization of the chromophore 11-cis-retinal to all-trans-retinal triggers a conformational change that activates signaling via G-proteins (PubMed:26200343, PubMed:28524165, PubMed:28753425, PubMed:8107847). Subsequent receptor phosphorylation mediates displacement of the bound G-protein alpha subunit by the arrestin SAG and terminates signaling (PubMed:26200343, PubMed:28524165).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-Rhodopsin antibody [Rho 4D2] (ab98887) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr), ELISA in Cow, Human, Mouse, Pig, Rat, Xenopus laevis samples.

What is the molecular weight of Rhodopsin?
Anti-Rhodopsin [Rho 4D2] (ab98887) specifically detects a band for Rhodopsin (UniProt: P02699) at a molecular weight of 38kDa.

Trusted by the scientific community
Anti-Rhodopsin [Rho 4D2] (ab98887) was first used in a scientific publication in 2010 and has been cited over 50

times in peer-reviewed journals.

Supplementary info

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

Activity summary	Rhodopsin also known as visual purple is a protein found in the photoreceptor cells of the retina. It has a mass of approximately 39 kDa. This protein acts as a light-sensitive receptor playing an essential role in the function of rod cells. Rhodopsin is expressed predominantly in the rod outer segment where it transduces light signals. The crystallized form of this receptor referred to as PDB ID: 1D4 has helped researchers study its structure in detail.
Biological function summary	Rhodopsin enables night vision by absorbing photons and activating a G-protein-coupled receptor (GPCR) cascade. Rhodopsin is an integral part of a protein complex within the phototransduction pathway where it works closely with transducin to amplify the visual signal. It initiates the conversion of the photon into an electrical signal. Rhodopsin's role is triggering a structural change in response to light converting from its inactive form to a signaling state.
Pathways	Rhodopsin is deeply involved in the phototransduction and retinoid cycle pathways. Once it absorbs light the transducin it binds causes the activation of a cascade that ultimately results in hyperpolarization of the rod cells. This network of interactions also involves arrestin and recoverin which work together to regulate rhodopsin activity and signal termination. The process ensures precise response and recovery of the visual signal in low-light conditions.
Associated diseases and disorders	Rhodopsin mutations and malfunctions connect to retinitis pigmentosa and congenital stationary night blindness. Mutations can lead to improper folding or misregulation of the protein impacting its function. Visual cycle proteins like RPE65 are often affected alongside rhodopsin in retinitis pigmentosa. These associations stress rhodopsin's importance in maintaining healthy retinal function and its link to eye diseases.

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.

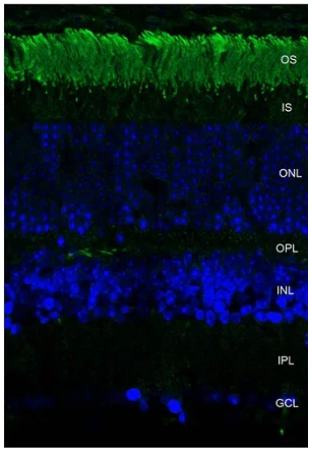
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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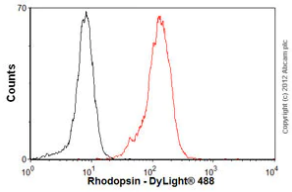
4 product images



Immunohistochemistry (Frozen sections) - Anti-Rhodopsin antibody [Rho 4D2] (ab98887)

Rhodopsin Immunohistochemistry (Frozen sections) staining using mouse Anti-Rhodopsin antibody

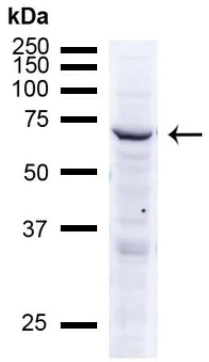
Immunohistochemistry analysis staining Rhodopsin in mouse retina with ab98887 at 1/1000 dilution. Secondary Antibody: FITC Goat Anti-Mouse (green). Counterstain: DAPI (blue) nuclear stain.
OS - photoreceptor outer segment; IS – inner segment; ONL – outer nuclear layer; OPL – outer plexiform layer; INL – inner nuclear layer; IPL – inner plexiform layer; GCL – ganglion cell layer.



Flow Cytometry - Anti-Rhodopsin antibody [Rho 4D2] (ab98887)

Rhodopsin Flow Cytometry staining using mouse Anti-Rhodopsin antibody

Overlay histogram showing Y79 (Human retinoblastoma cell line) cells stained with ab98887 (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 (ab98887, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Y79 cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Western blot - Anti-Rhodopsin antibody [Rho 4D2] (ab98887)

Band appears at ~75 kDa indicating detection of the Rhodopsin dimer.

Block: 5% Skim Milk Powder in TBST.

Color Development: Chemiluminescent for HRP for 5 min at room temperature.

All lanes:
Western blot - Anti-Rhodopsin antibody [Rho 4D2] (ab98887) at 1/1000 dilution

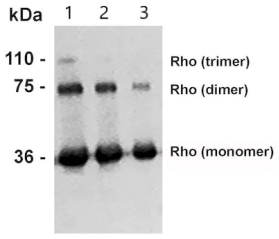
All lanes:
A549 (human lung carcinoma cell line) whole cell lysate at 15 µg

Secondary

All lanes:
Goat Anti-Mouse IgG (HRP) for 1 hour at room temperature with shaking at 1/1000 dilution

Predicted band size: 38 kDa

Observed band size: 75 kDa



Western blot - Anti-Rhodopsin antibody [Rho 4D2] (ab98887)

Rhodopsin Western blot staining using mouse Anti-Rhodopsin antibody

All lanes:
Western blot - Anti-Rhodopsin antibody [Rho 4D2] (ab98887) at 1/1000 dilution

Lane 1:
Bovine photoreceptor membrane tissue lysate at 10 µg

Lane 2:
Bovine photoreceptor membrane tissue lysate at 5 µg

Lane 3:
Bovine photoreceptor membrane tissue lysate at 2.5 µg

Predicted band size: 38 kDa

Observed band size: 110 kDa, 35 kDa, 75 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.