

rhodopsin (1D4): sc-57432



The Power to Question

BACKGROUND

G protein-coupled receptors (GPCRs), which are characterized as containing seven transmembrane α helices, elicit G protein-mediated signaling cascades in response to a variety of stimuli. The opsin subfamily, which represents approximately 90% of all GPCRs, is comprised of photoreceptors that are activated by light, and they include the red-, green- and blue-sensitive opsins and rhodopsin. The opsin subfamily consists of an apoprotein covalently linked to 11-*cis*-retinal, which undergoes isomerization upon the absorption of photons. This isomerization leads to a conformational change of the protein, which results in the activation of hundreds of G proteins. Specifically, rhodopsin exhibits a maximal absorption at 495 nm and mediates vision in dim light. Mutations in the rhodopsin gene lead to retinitis pigmentosa, which can be inherited as an autosomal dominant, an autosomal recessive or an X-linked recessive disorder.

CHROMOSOMAL LOCATION

Genetic locus: RHO (human) mapping to 3q22.1; Rho (mouse) mapping to 6 E3.

SOURCE

rhodopsin (1D4) is a mouse monoclonal antibody raised against full length rhodopsin of bovine origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

rhodopsin (1D4) is available conjugated to agarose (sc-57432 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-57432 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-57432 PE), fluorescein (sc-57432 FITC), Alexa Fluor® 488 (sc-57432 AF488), Alexa Fluor® 546 (sc-57432 AF546), Alexa Fluor® 594 (sc-57432 AF594) or Alexa Fluor® 647 (sc-57432 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-57432 AF680) or Alexa Fluor® 790 (sc-57432 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

rhodopsin (1D4) is recommended for detection of rhodopsin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

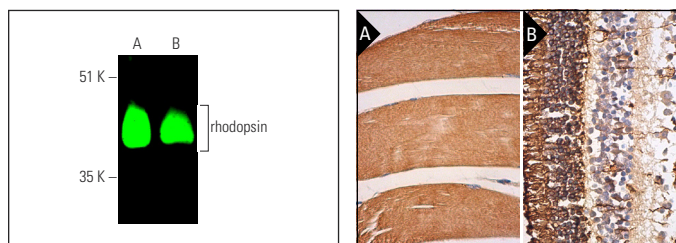
rhodopsin (1D4) is also recommended for detection of rhodopsin in additional species, including bovine.

Suitable for use as control antibody for rhodopsin siRNA (h): sc-40150, rhodopsin siRNA (m): sc-40151, rhodopsin shRNA Plasmid (h): sc-40150-SH, rhodopsin shRNA Plasmid (m): sc-40151-SH, rhodopsin shRNA (h) Lentiviral Particles: sc-40150-V and rhodopsin shRNA (m) Lentiviral Particles: sc-40151-V.

Molecular Weight of rhodopsin: 40 kDa.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA

rhodopsin (1D4): sc-57432. Near-infrared western blot analysis of rhodopsin expression in mouse eye (A) and rat eye (B) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

rhodopsin (1D4): sc-57432. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fetal eye tissue showing membrane and cytoplasmic staining of cells in photoreceptor layer (B).

SELECT PRODUCT CITATIONS

- Bandyopadhyay, M. and Rohrer, B. 2010. Photoreceptor structure and function is maintained in organotypic cultures of mouse retinas. *Mol. Vis.* 16: 1178-1185.
- Baltazar, G.C., et al. 2012. Acidic nanoparticles are trafficked to lysosomes and restore an acidic lysosomal pH and degradative function to compromised ARPE-19 cells. *PLoS ONE* 7: e49635.
- Sinha, S., et al. 2014. Essential role of the chaperonin CCT in rod outer segment biogenesis. *Invest. Ophthalmol. Vis. Sci.* 55: 3775-3785.
- Yan, R., et al. 2015. Spinoculation enhances HBV infection in NTCP-reconstituted hepatocytes. *PLoS ONE* 10: e0129889.
- Bengoa-Vergniory, N., et al. 2016. Identification of noncanonical Wnt receptors required for Wnt-3a-induced early differentiation of human neural stem cells. *Mol. Neurobiol.* 54: 6213-6224.
- Koch, S.F., et al. 2017. Genetic rescue models refute nonautonomous rod cell death in retinitis pigmentosa. *Proc. Natl. Acad. Sci. USA* 114: 5259-5264.
- Katschke, K.J., et al. 2018. Classical and alternative complement activation on photoreceptor outer segments drives monocyte-dependent retinal atrophy. *Sci. Rep.* 8: 7348.
- Liang, Q., et al. 2019. Single-nuclei RNA-seq on human retinal tissue provides improved transcriptome profiling. *Nat. Commun.* 10: 5743.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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