

melanopsin (H-300): sc-32870

BACKGROUND

G protein-coupled receptors (GPCRs) contain seven transmembrane helices and elicit G protein-mediated signaling cascades. The opsin family represents approximately 90 percent of all GPCRs and includes red, green, and blue-sensitive opsins, rhodopsin and melanopsin. Opsins consist of an apoprotein covalently linked to 11-*cis*-retinal that undergoes isomerization upon photon absorption. The photon-induced conformation change of opsin activates hundreds of G proteins. Mammalian melanopsin expression selectively occurs in the inner retina and not in the photoreceptor cells critical for vision. Melanopsin plays a nonessential role in the transduction of photic stimuli for light/dark entrainment.

REFERENCES

1. Fung, B.K., Hurley, J.B. and Stryer, L. 1980. Flow of information in the light-triggered cyclic nucleotide cascade of vision. *Proc. Natl. Acad. Sci. USA* 78: 152-156.
2. Hargrave, P.A., McDowell, J.H., Curtis, D.R., Wang, J.K., Juszczak, E., Fong, S.L., Rao, J.K. and Argos, P. 1983. The structure of bovine rhodopsin. *Biophys. Struct. Mech.* 9: 235-244.
3. Iiri, T., Farfel, Z. and Bourne, H.R. 1998. G protein diseases furnish a model for the turn-on switch. *Nature* 394: 35-38.
4. Palczewski, K., Kumasaka, T., Hori, T., Behnke, C.A., Motoshima, H., Fox, B.A., Le Trong, I., Teller, D.C., Okada, T., Stenkamp, R.E., Yamamoto, M. and Miyano, M. 2000. Crystal structure of rhodopsin: a G protein-coupled receptor. *Science* 289: 739-745.
5. Provencio, I., Rodriguez, I.R., Jiang, G., Hayes, W.P., Moreira, E.F. and Rollag, M.D. 2000. A novel human opsin in the inner retina. *J. Neurosci.* 20: 600-605.
6. Ruby, N.F., Brennan, T.J., Xie, X., Cao, V., Franken, P., Heller, H.C. and O'Hara, B.F. 2002. Role of melanopsin in circadian responses to light. *Science* 298: 2211-2213.

CHROMOSOMAL LOCATION

Genetic locus: OPN4 (human) mapping to 10q23.2; Opn4 (mouse) mapping to 14 B.

SOURCE

melanopsin (H-300) is a rabbit polyclonal antibody raised against amino acids 379-478 mapping at the C-terminus of melanopsin of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

melanopsin (H-300) is recommended for detection of melanopsin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for melanopsin siRNA (h): sc-40146, melanopsin siRNA (m): sc-40147, melanopsin shRNA Plasmid (h): sc-40146-SH, melanopsin shRNA Plasmid (m): sc-40147-SH, melanopsin shRNA (h) Lentiviral Particles: sc-40146-V and melanopsin shRNA (m) Lentiviral Particles: sc-40147-V.

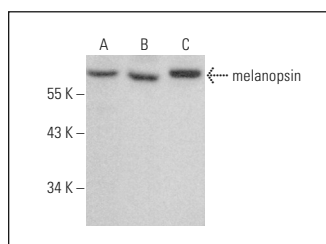
Molecular Weight of melanopsin: 65 kDa.

Positive Controls: RPE-J cell lysate: sc-24771, Hep G2 cell lysate: sc-2227 or ARPE-19 whole cell lysate: sc-364357.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



melanopsin (H-300): sc-32870. Western blot analysis of melanopsin expression in Hep G2 (A), ARPE-19 (B) and RPE-J (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Carmona, F.D., Glösmann, M., Ou, J., Jiménez, R. and Collinson, J.M. 2010. Retinal development and function in a "blind" mole. *Proc. Biol. Sci.* 277: 1513-1522.

RESEARCH USE

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