



red/green-sensitive opsin (7G8): sc-517301

BACKGROUND

G protein-coupled receptors (GPCRs), which are characterized by 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 percent of all GPCRs, is comprised of photoreceptors that are activated by light. It includes 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. Color is perceived in humans by three pigments, which localize to retinal cone photoreceptor cells. They are the blue-, green- and red-sensitive opsins, which are encoded by OPN1SW, OPN1MW and OPN1LW, respectively. Red-sensitive opsin has an absorption maximum at 560nm and green-sensitive opsin has an absorption maximum at 530nm. Deficiency of green- and red-sensitive opsins results in protanopia and deuteranopia color blindness, respectively.

REFERENCES

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2. Hargrave, P.A., et al. 1983. The structure of bovine rhodopsin. *Biophys. Struct. Mech.* 9: 235-244.
3. Drummond-Borg, M., et al. 1988. Molecular basis of abnormal red-green color vision: a family with three types of color vision defects. *Am. J. Hum. Genet.* 43: 675-683.
4. Oprian, D.D., et al. 1991. Design, chemical synthesis, and expression of genes for the three human color vision pigments. *Biochemistry* 30: 11367-11372.
5. Weitz, C.J., et al. 1992. Human tritanopia associated with two amino acid substitutions in the blue-sensitive opsin. *Am. J. Hum. Genet.* 50: 498-507.
6. Merbs, S.L., et al. 1992. Absorption spectra of human cone pigments. *Nature* 356: 433-435.
7. Iiri, T., et al. 1998. G-protein diseases furnish a model for the turn-on switch. *Nature* 394: 35-38.
8. Palczewski, K., et al. 2000. Crystal structure of rhodopsin: a G protein-coupled receptor. *Science* 289: 739-745.

CHROMOSOMAL LOCATION

Genetic locus: OPN1LW (human) mapping to Xq28.

SOURCE

red/green-sensitive opsin (7G8) is a mouse monoclonal antibody raised against purified red/green cone opsin of human 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.

APPLICATIONS

red/green-sensitive opsin (7G8) is recommended for detection of red/green-sensitive opsin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for OPN1LW/MW/MW2 siRNA (h): sc-44074, OPN1LW/MW/MW2 shRNA Plasmid (h): sc-44074-SH and OPN1LW/MW/MW2 shRNA (h) Lentiviral Particles: sc-44074-V.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

SELECT PRODUCT CITATIONS

1. El-Mansi, A.A., et al. 2020. Visual adaptability and retinal characterization of the Egyptian fruit bat (*Rousettus aegyptiacus*, Pteropodidae): new insights into photoreceptors spatial distribution and melanosomal activity. *Micron* 137: 102897.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.