SANTA CRUZ BIOTECHNOLOGY, INC.

OPN1SW (P-13): sc-31628

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Mutations in the OPN1MW and OPN1LW encoded opsins lead to the X-linked disorders protanopia and deuteranopia, respectively. Mutations in the OPN1SW encoded opsin leads to tritanopia, an autosomal dominant disorder, which is characterized by decreased sensitivity to blue light.

REFERENCES

1. Fung, B.K., et al. 1980. Flow of information in the light-triggered cyclic nucleotide cascade of vision. Proc. Natl. Acad. Sci. USA 78: 152-156.
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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: OPN1SW (human) mapping to 7q32.1; Opn1sw (mouse) mapping to 6 A3.3.

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.

SOURCE

OPN1SW (P-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an extracellular domain of the opsin protein encoded by OPN1SW 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.

Blocking peptide available for competition studies, sc-31628 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

OPN1SW (P-13) is recommended for detection of the opsin protein encoded by OPN1SW of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

OPN1SW (P-13) is also recommended for detection of the opsin protein encoded by OPN1SW in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for OPN1SW siRNA (h): sc-40142, OPN1SW siRNA (m): sc-40143, OPN1SW shRNA Plasmid (h): sc-40142-SH, OPN1SW shRNA Plasmid (m): sc-40143-SH, OPN1SW shRNA (h) Lentiviral Particles: sc-40142-V and OPN1SW shRNA (m) Lentiviral Particles: sc-40143-V.

Molecular Weight of OPN1SW: 40 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

PROTOCOLS

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