SANTA CRUZ BIOTECHNOLOGY, INC.

melanopsin (R-16): sc-26962

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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., et al. 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., et al. 1983. The structure of bovine rhodopsin. Biophys. Struct. Mech. 9:235-244.
3. Iiri, T., et al. 1998. G protein diseases furnish a model for the turn-on switch. Nature 394: 35-38.
4. Palczewski, K., et al. 2000. Crystal structure of rhodopsin: a G protein-coupled receptor. Science 289: 739-745.
5. Provencio, I., et al. 2000. A novel human opsin in the inner retina. J. Neurosci. 20:600-605.
6. Ruby, N.F., et al. 2002. Role of melanopsin in circadian responses to light. Science 298: 2211-2213.

CHROMOSOMAL LOCATION

Genetic locus: Opn4 (mouse) mapping to 14 B.

SOURCE

melanopsin (R-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of melanopsin of rat 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-26962 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

melanopsin (R-16) is recommended for detection of melanopsin of rat and, to a lesser extent, mouse 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 (m): sc-40147, melanopsin shRNA Plasmid (m): sc-40147-SH and melanopsin shRNA (m) Lentiviral Particles: sc-40147-V.

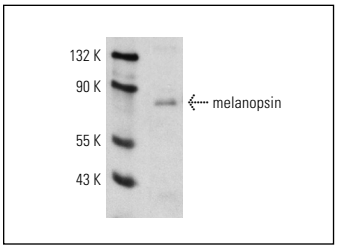
Molecular Weight of melanopsin: 65 kDa.

Positive Controls: rat brain extract: sc-2392.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



melanopsin (R-16): sc-26962. Western blot analysis of melanopsin expression in rat brain tissue extract.

SELECT PRODUCT CITATIONS

1. Graham, D.M., et al. 2008. Melanopsin ganglion cells use a membrane-associated rhabdomeric phototransduction cascade. J. Neurophysiol. 99: 2522-2532.
2. Liu, F., et al. 2011. Gene expression and protein distribution of orexins and orexin receptors in rat retina. Neuroscience 189: 146-155.
3. Sheng, W.L., et al. 2015. Co-expression of two subtypes of melatonin receptor on rat M1-type intrinsically photosensitive retinal ganglion cells. PLoS ONE 10: e0117967.

RESEARCH USE

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