SANTA CRUZ BIOTECHNOLOGY, INC.

Recoverin (N-16): sc-20353

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Light triggers the phototransduction cascade by activating the visual pigment rhodopsin. Phosphorylation of Rho by rhodopsin kinase is required for the recovery of sensitivity after intense illumination. Ca^{2+} ions act through Ca^{2+}-binding proteins and are implicated in the desensitization of phototransduction. Recoverin is implicated in the regulation of rhodopsin kinase activity that contributes to the adaptation to background illumination in retinal photoreceptor cells. Recoverin, a Ca^{2+}-binding photoreceptor protein, is recognized as an autoantigen of cancer-associated retinopathy (CAR), which is a rare paraneoplastic neurological syndrome characterized by the degeneration of retinal photoreceptors and associated with small-cell lung cancer. Recoverin is a heterogeneously myristoylated protein that inhibits rhodopsin kinase by inhibiting its phosphorylation. Ca^{2+} is required for Recoverin to bind rhodopsin kinase. In addition, the binding of Recoverin-rhodopsin kinase is weakened by autophosphorylation of the kinase and is strengthened by the presence of ADP. Upon accommodating two Ca^{2+} ions, Recoverin extrudes a myristoyl group and associates with the lipid bilayer membrane.

REFERENCES

1. Thirkill, C.E., et al. 1992. The cancer-associated retinopathy antigen is a Recoverin-like protein. Invest. Ophthalmol. Vis. Sci. 33: 2768-2772.
2. Matsubara, S., et al. 1996. Expression of a photoreceptor protein, Recoverin, as a cancer-associated retinopathy autoantigen in human lung cancer cell lines. Br. J. Cancer 74: 1419-1422.
3. Satpaev, D.K., et al. 1998. Autophosphorylation and ADP regulate the Ca^{2+}-dependent interaction of Recoverin with rhodopsin kinase. Biochemistry 37: 10256-10262.
4. Otto-Bruc, A.E., et al. 1998. Phosphorylation of photolyzed rhodopsin in calcium-insensitive in retina permeabilized by α-toxin. Proc. Natl. Acad. Sci. USA 95: 15014-15019.

CHROMOSOMAL LOCATION

Genetic locus: RCV1 (human) mapping to 17p13.1; Rcvrn (mouse) mapping to 11 B3.

SOURCE

Recoverin (N-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Recoverin 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-20353 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.

APPLICATIONS

Recoverin (N-16) is recommended for detection of Recoverin 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).

Recoverin (N-16) is also recommended for detection of Recoverin in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Recoverin siRNA (h): sc-40905, Recoverin siRNA (m): sc-40906, Recoverin shRNA Plasmid (h): sc-40905-SH, Recoverin shRNA Plasmid (m): sc-40906-SH, Recoverin shRNA (h) Lentiviral Particles: sc-40905-V and Recoverin shRNA (m) Lentiviral Particles: sc-40906-V.

Molecular Weight of Recoverin: 23 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.

SELECT PRODUCT CITATIONS

1. van der Spuy, J., et al. 2005. Predominant rod photoreceptor degeneration in Leber congenital amaurosis. Mol. Vis. 11: 542-553.
2. Semo, M., et al. 2007. Paradoxical opsin expressing cells in the inner retina that are augmented following retinal degeneration. Eur. J. Neurosci. 25: 2296-2306.
3. Wang, Z., et al. 2011. Differentiation of neuronal cells from NIH/3T3 fibroblasts under defined conditions. Dev. Growth Differ. 53: 357-365.
4. Wang, Z., et al. 2012. Notch signaling pathway regulates proliferation and differentiation of immortalized Müller cells under hypoxic conditions *in vitro*. Neuroscience 214: 171-180.

RESEARCH USE

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