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ProductInformation

**MONOCLONAL ANTI-OPSIN,
CLONE RET-P1
Mouse Ascites Fluid**

Product Number **O 4886**

Product Description

Monoclonal Anti-Opsin (rhodopsin) (mouse IgG1 isotype) is derived from the RET-P1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with rat retinal membranes.[1,2] The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Opsin recognizes an epitope located in amino acid residues 4-10 at the N-terminus of the rhodopsin molecule.[3-5] In immunoblotting of rat retina, the antibody labels a closely spaced doublet of 39 kDa and less intense bands of 78 and 115 kDa, representing rhodopsin monomer and aggregates.[2] Higher M.W. bands are stained in pituitary (251 and 288 kDa) and in hypothalamus (269 and 331 kDa) in addition to several lower M.W. bands.[5] The product specifically labels the cell bodies, outer and inner segments (rods but not cones) of rat photoreceptor surface.[1] It may be used in immunoblotting,[2,5] immunocytochemistry of cultured cells,[6-8] immunohistochemistry (paraformaldehyde/ glutaraldehyde-fixed,[1,2,4,5,9,10] paraformaldehyde perfusion-fixed,[6] frozen sections[11]), immunoelectron microscopy,[2,12] ELISA,[3] competitive ELISA,[3] and solid phase RIA.[4] The antibody reacts with rod photoreceptors of many vertebrate phyla, including mammals (human,[13] bovine,[2-5] rabbit,[5] rat,[1,2,4-13] mouse[1,5,13]) avian (dove,[5] quail,[5] duck[5]), reptiles (turtle,[5] tiger salamander[1,5]) amphibians[2,3] and fish (goldfish[5]).

The vertebrate retina is a highly ordered structure specialized for the detection and transduction of light energy into electrical signals. The retinal tissue consists mainly of Müller glial cells, photoreceptors (rods and cones) and a variety of neurons, all of which develop from retinal neuroepithelial cells. Photoreceptors are responsible for the initial step in visual processing, converting the signal of photon absorption into synaptic transmission.

The visual pigment in vertebrate rods, responsible for the absorption of light quanta is rhodopsin (also called opsin). Rhodopsin comprises >95% of the rod outer segments (ROS) intrinsic membrane protein and is a glycoprotein possessing two asparagine-linked oligosaccharide groups at amino acid residues 2 and 15 of the N-terminus. The structure of these carbohydrate units has been determined as predominantly short hexasaccharides of mannose and N-acetylglucos-amine. Light is absorbed by rhodopsin, and the subsequent conformational change leads to the activation of a cyclic GMP phosphodiesterase through a specific G-protein intermediate, transducin. Antibodies to rhodopsin have been prepared and employed in the study of rhodopsin location, functional properties and molecular mechanisms governing rod photoreceptor differentiation. Monoclonal antibodies are extremely sensitive and specific probes that can be used to correlate anatomical findings with biochemical findings in the study of the retina and its constituents applying a variety of immunochemical techniques.[9,10]

Reagents

The product is provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at 2-8 °C for up to one month.

For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
A minimum working dilution of 1:10,000 is determined by indirect immunofluorescence staining of acetone-fixed frozen sections of rat eye.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

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