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www.rockland.com
tech@rockland.com
+1 484.791.3823

Datasheet for 600-101-MP7

S Opsin Antibody

Overview

Description:	Anti-S Opsin (GOAT) Antibody - 600-101-MP7
Item No.:	600-101-MP7
Size:	100 µg
Applications:	IHC, IF
Reactivity:	Mouse
Host Species:	Goat

Product Details

Background:	Short-wave-sensitive opsin 1 belongs to the G-protein coupled receptor 1 family, opsin subfamily. It encodes the blue cone pigment gene which is one of three types of cone photoreceptors responsible for normal color vision. Visual pigments are the light-absorbing molecules that mediate vision. They consist of an apoprotein, opsin, covalently linked to cis-retinal. Required for the maintenance of cone outer segment organization in the ventral retina, but not essential for the maintenance of functioning cone photoreceptors. Involved in ensuring correct abundance and localization of retinal membrane proteins. May increase spectral sensitivity in dim light. Defects in this gene are the cause of tritan color blindness (tritanopia). Affected individuals lack blue and yellow sensory mechanisms while retaining those for red and green. Defective blue vision is characteristic. Anti-S Ospin Antibody is useful for researchers interested in Color Blindness, Metabolism of fat-soluble vitamins, and Peptide ligand-binding receptors.
Synonyms:	Goat Anti-Short-wave-sensitive opsin 1 Antibody, S opsin, Blue cone photoreceptor pigment, Blue-sensitive opsin, BOP, Short wavelength-sensitive cone opsin, Bcp, Opn1sw
Host Species:	Goat
Clonality:	Polyclonal
Format:	IgG

Target Details

Gene Name:	Opn1sw
Reactivity:	Mouse

Immunogen Type:	Conjugated Peptide
Immunogen:	Anti-S Opsin antibody was prepared from whole goat serum produced by repeated immunizations with a synthetic peptide corresponding to a N-terminal portion of mouse S Opsin conjugated to Keyhole Limpet Hemocyanin (KLH).
Purity/Specificity:	This affinity purified antibody is directed against mouse S Ospin. This product was affinity purified from monospecific antiserum by immunoaffinity purification. A BLAST analysis was used to suggest cross-reactivity with the antigen based on 100% homology with the immunizing sequence to mouse.
Relevant Links:	• UniProtKB - P51491 • NCBI - NP_031564.1 • GeneID - 12057

Application Details

Tested Applications:	IHC
Suggested Applications:	IF (Based on references)
Application Note:	Anti-S Ospin Antibody has been tested in ELISA and IHC. Expect a band at ~39kDa in western blot using appropriate tissues and lysates. Positive control used: Mouse eye tissue in Immunohistochemistry.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:10,000 - 1:50,000
IHC:	1:100
Other:	The 1:100 H1-20 provides optimal staining with staining of structures in multiple layers. These layers have been shown to express S-opsin in the cited reference. For staining only in the outer segment layer, the 1:200 and 1:300 H2-20 appears to be ideal.

Formulation

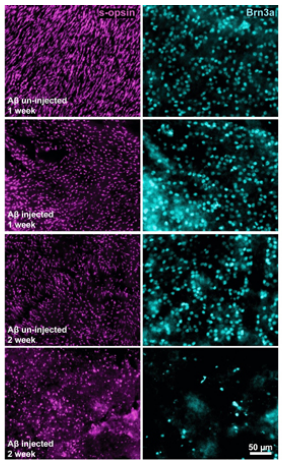
Physical State:	Liquid (sterile filtered)
Concentration:	1.1 mg/ml by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide

Stabilizer:	None

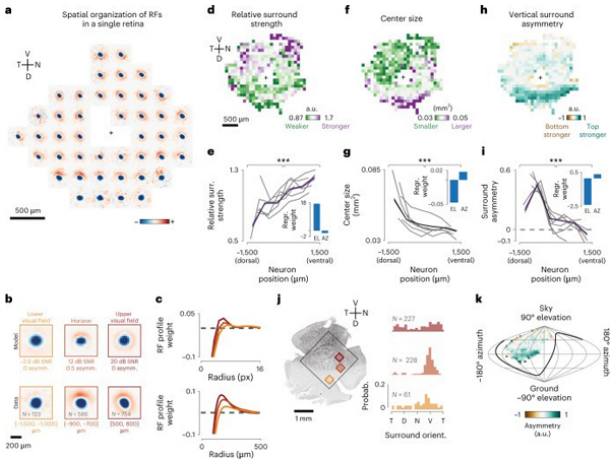
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

Images

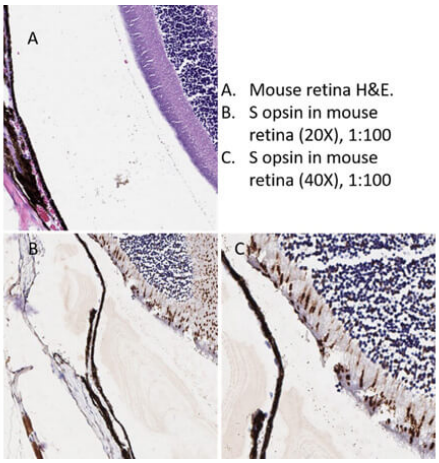


Immunofluorescence Microscopy
Photoreceptor damage in Aβ injected and contralateral, un-treated retinas. S-opsin expressing photoreceptors in the inferior retinal quadrant corresponding to areas of diffuse Brn3a loss or extensive sectorial loss appear to have roughly proportional density reductions and/or morphological changes. Further analysis is required to explore and confirm differences in photoreceptors due to Aβ. Figure S1.
PMID: 33122075



Immunohistochemistry

a, Average spatial RFs of all RGCs pooled from square bins of 300 µm in size at different positions of one retina (n = 64 ± 52 cells per bin; black cross indicates the optic nerve head). b, Top row, optimal RFs predicted by the model at different elevations of the visual scene. Bottom row, average spatial RFs of neurons along different dorsoventral locations on the retina. c, Top, radial profiles of model RFs at different SNR levels. Bottom, mean radial profiles of RGC RFs in bins along the dorsoventral axis. d, Mean relative surround strengths of RGCs within 100-µm bins, pooled from n = 6 retinas. e, Relative surround strengths for RGCs within six equally spaced bins along the dorsoventral axis (color indicates the mean and s.e.m. pooled from n = 15,686 RFs, gray lines denote individual retinas, and the inset shows linear regression weights of RF parameter on elevation (EL) and azimuth (AZ)). f,h, Same as d, but for center size and vertical surround asymmetry, respectively. g,i, Same as e, but for center size and vertical surround asymmetry, respectively. j, Left, one of the retinas, immunostained for S-opsin. Black box shows the region imaged for RF mapping. Right, normalized histograms of surround orientations of RGCs within corresponding bins marked on the left. k, Data from h overlaid on a sinusoidal projection of visual space (n = 6 retinas). The animal is centered at 0° latitude and 0° longitude facing toward the viewer, and the black line shows the area of the visual field viewed by one eye. P values for two-sided Kolmogorov–Smirnov test: 6.11 × 10−5 (e), 2.84 × 10−4 (g) and 1.16 × 10−5 (i); see Extended Data Fig. 6 for extensive statistical comparisons). V, ventral; N, nasal; D, dorsal; T, temporal. a.u., arbitrary units. Fig 3.
PMID: 36959418



Immunohistochemistry
Immunohistochemistry of Goat Anti-S Opsin Antibody. Tissue: Mouse Eye Tissue (retina). Antigen Retrieval: HIER using Citrate buffer for 20mins. Fixative: none. Primary Antibody: Anti-S Ospin at 1:100 for 30 mins at RT. Secondary Antibody: Donkey Anti-Goat HRP at 4µL/mL for 20mins at RT. Counterstain: Hematoxylin. Analysis Results: S opsin is expected to stain the outer rod cells of the retina, which it does at a dilution of 1:100.

References

- Gupta D et al. Panoramic visual statistics shape retina-wide organization of receptive fields. *Nat Neurosci.* (2023)
- Simons ES. et al. Retinal ganglion cell loss and gliosis in the retinofugal projection following intravitreal exposure to amyloid-beta. *Neurobiol Dis.* (2020)

Disclaimer

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