

DESCRIPTION

Species Reactivity	Human
Specificity	Detects a synthetic peptide specific for human Aquaporin-4 around aa 315 in Direct ELISA.
Source	Monoclonal Mouse IgG Clone # 1093722
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Synthetic Peptide Accession # P55087
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose.

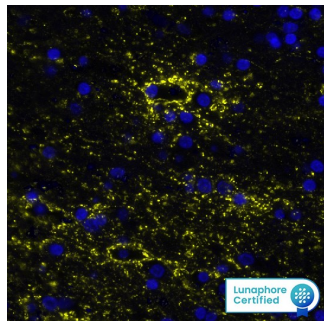
APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

	Recommended Concentration	Sample
Multiplex Immunofluorescence	25 µg/mL	Immersion fixed paraffin-embedded sections of human brain cortex
Immunohistochemistry	3-25 µg/mL	Immersion fixed paraffin-embedded sections of human brain cortex

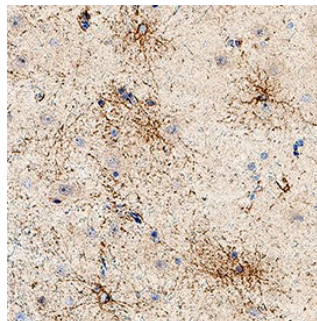
DATA

Multiplex Immunofluorescence



Detection of AQP4 in Human Brain Cortex via seqIF™ staining on COMET™ AQP4 was detected in immersion fixed paraffin-embedded sections of human brain Cortex using Mouse Anti-Human AQP4, Monoclonal Antibody (Catalog #MAB11659) at 25µg/mL at 37 ° Celsius for 8 minutes. Before incubation with the primary antibody, tissue underwent an all-in-one dewaxing and antigen retrieval preprocessing using PreTreatment Module (PT Module) and Dewax and HIER Buffer H (pH 9; EpreDia Catalog # TA-999-DHBH). Tissue was stained using the Alexa Fluor™ 647 Goat anti-Mouse IgG Secondary Antibody at 1:200 at 37 ° Celsius for 8 minutes. (Yellow; Lunaphore Catalog # DR647MS) and counterstained with DAPI (blue; Lunaphore Catalog # DR100). Specific staining was localized to the brain astrocytes. Protocol available in COMET™ Panel Builder.

Immunohistochemistry



Detection of Aquaporin 4/AQP4 in Human Brain Cortex. Aquaporin 4/AQP4 was detected in immersion fixed paraffin-embedded sections of human brain cortex using Mouse Anti-Human Aquaporin 4/AQP4 Monoclonal Antibody (Catalog # MAB11659) at 5 µg/ml for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001) or the HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using VisUCyte Antigen Retrieval Reagent-Basic (Catalog # VCTS021). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to the cell surface of astrocytes. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

PREPARATION AND STORAGE

Reconstitution	Reconstitute lyophilized material at 0.2 mg/ml in sterile PBS. For liquid material, refer to CoA for concentration.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Aquaporin 4, AQP4, is a 35kDa water channel protein that plays an important role in brain water homeostasis. AQP4 is highly expressed in the end feet of astrocytes in the brain and CNS with the largest presence in the cerebellum and spinal cord grey matter. It can also be located in epithelial cells of many organs throughout the body. The main function of AQP4 is to provide fast water transportation and homeostatic balance throughout the central nervous system.

References:

1. Jung JS, Bhat RV, Preston GM, Guggino WB, Baraban JM, Agre P. Molecular characterization of an aquaporin cDNA from brain: candidate osmoreceptor and regulator of water balance. *Proc Natl Acad Sci U S A.* 1994 Dec 20;91(26):13052-6. doi: 10.1073/pnas.91.26.13052. PMID: 7528931; PMCID: PMC45579.
2. Halsey AM, Conner AC, Bill RM, Logan A, Ahmed Z. Aquaporins and Their Regulation after Spinal Cord Injury. *Cells.* 2018 Oct 18;7(10):174. doi: 10.3390/cells7100174. PMID: 30340399; PMCID: PMC6210264.
3. Verkman AS, Phuan PW, Asavapanumas N, Tradtrantip L. Biology of AQP4 and anti-AQP4 antibody: therapeutic implications for NMO. *Brain Pathol.* 2013 Nov;23(6):684-95. doi: 10.1111/bpa.12085. PMID: 24118484; PMCID: PMC3890327.
4. Gleiser C, Wagner A, Fallier-Becker P, Wolburg H, Hirt B, Mack AF. Aquaporin-4 in Astroglial Cells in the CNS and Supporting Cells of Sensory Organs-A Comparative Perspective. *Int J Mol Sci.* 2016 Aug 26;17(9):1411. doi: 10.3390/ijms17091411. PMID: 27571065; PMCID: PMC5037691.