Aquaporin 4 Recombinant Antibody [PSH06-38] - Rat IgG1 (Chimeric)

HA601462

Product Type:	Recombinant Chimeric Antibody, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	IHC-Fr, IHC-P, WB
Molecular Wt:	Predicted band size: 35 kDa
Clone number:	PSH06-38

Description: Aquaporin-4, also known as AQP-4, is a water channel protein encoded by the AQP4 gene in humans. AQP-4 belongs to the aquaporin family of integral membrane proteins that conduct water through the cell membrane. A limited number of aquaporins are found within the central nervous system (CNS): AQP1, 3, 4, 5, 8, 9, and 11, but more exclusive representation of AQP1, 4, and 9 are found in the brain and spinal cord. AQP4 shows the largest presence in the cerebellum and spinal cord grey matter. In the CNS, AQP4 is the most prevalent aquaporin channel, specifically located at the perimicrovessel astrocyte foot processes, glia limitans, and ependyma. In addition, this channel is commonly found facilitating water movement near cerebrospinal fluid and vasculature. Aquaporin-4 was first identified in 1986. It was the first evidence of the existence of water transport channels. The method that was used to discover the existence of the transport channels was through knockout experiments. With this technique they were able to show the significant role of AQP4 in CNS injuries and brain water imbalances. In 1994 the channel was successfully cloned and initially named Mercury-Insensitive Water Channel.

Immunogen: Recombinant protein within human 224-323.

Positive control: Human brain tissue, human kidney tissue, mouse brain tissue, mouse kidney tissue, rat brain tissue, rat kidney tissue, Mouse brain tissue lysate.

Subcellular location: Cell membrane, Basolateral cell membrane, Endosome membrane, Cell membrane, sarcolemma, Cell projection.

Database links: SwissProt: P55087 Human | P55088 Mouse | P47863 Rat

Recommended Dilutions:

IHC-Fr	1:500
IHC-P	1:1,000
WB	1:2,000

Storage Buffer: 1*PBS (pH7.4), 0.1% BSA, 40% Glycerol, 0.2% Proclean 950.

Storage Instruction: Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.

Purity: Protein A affinity purified.

Images

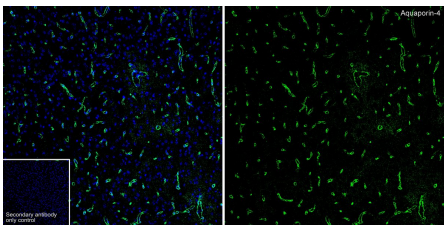

Fig1: Application: IHC-Fr

Species: Mouse

Site: brain

Sample: Frozen section

Antibody concentration: 1/500

Antigen retrieval: Not required

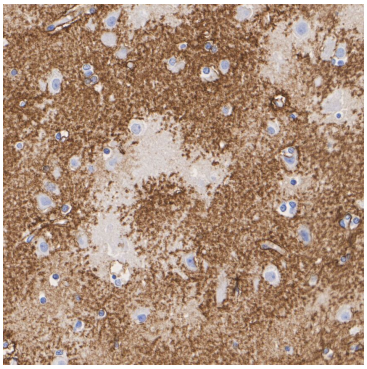

Fig2: Immunohistochemical analysis of paraffin-embedded human brain tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

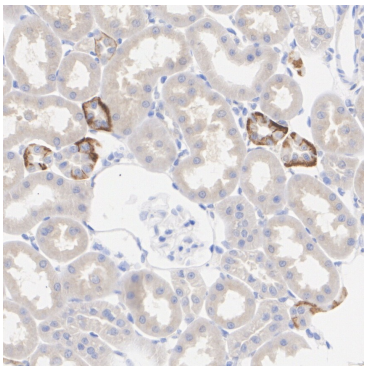

Fig3: Immunohistochemical analysis of paraffin-embedded human kidney tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

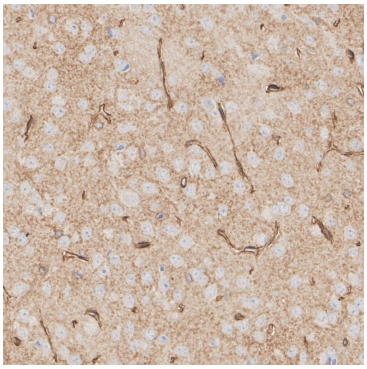

Fig4: Immunohistochemical analysis of paraffin-embedded mouse brain tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

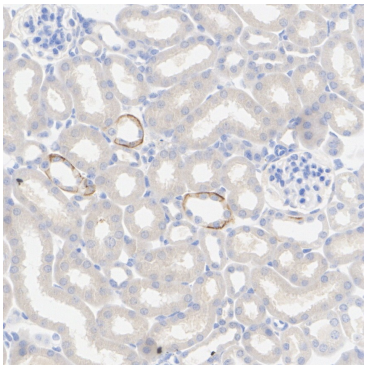

Fig5: Immunohistochemical analysis of paraffin-embedded mouse kidney tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

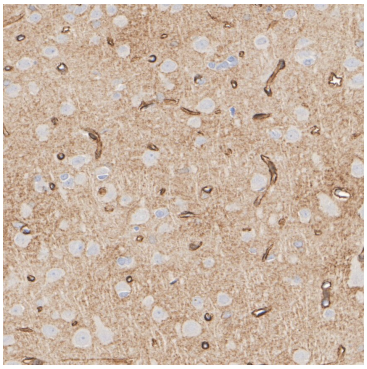

Fig6: Immunohistochemical analysis of paraffin-embedded rat brain tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

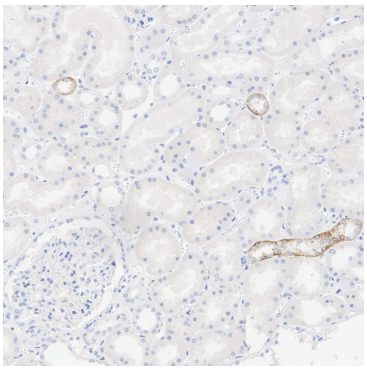

Fig7: Immunohistochemical analysis of paraffin-embedded rat kidney tissue with Rat anti-Aquaporin 4 antibody (HA601462) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601462) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

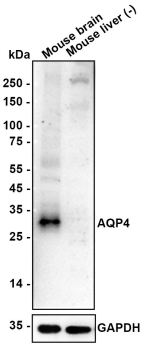

Fig8: Western blot analysis of Aquaporin 4 on different lysates with Rat anti-Aquaporin 4 antibody (HA601462) at 1/2,000 dilution.

Lane 1: Mouse brain tissue lysate
Lane 2: Mouse liver tissue lysate (negative)

Lysates/proteins at 20 µg/Lane.

Predicted band size: 35 kDa
Observed band size: 30 kDa

Exposure time: 1 minute; ECL: K1801;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (HA601462) at 1/2,000 dilution was used in primary antibody dilution (K1803) at 4℃ overnight. Goat Anti-Rat IgG H&L - HRP Secondary Antibody (HA1023) at 1/50,000 dilution was used for 1 hour at room temperature.

Background References

1. Pittock SJ et al. Ravulizumab in Aquaporin-4-Positive Neuromyelitis Optica Spectrum Disorder. Ann Neurol. 2023 Jun
2. Kitchen P et al. Targeting Aquaporin-4 Subcellular Localization to Treat Central Nervous System Edema. Cell. 2020 May