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CLCN2 (2C7) Rabbit Monoclonal Antibody

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Catalog # AP93734

Product Information

Application	WB, IHC-P, IF
Primary Accession	P51788, Q9R0A1, P35525
Reactivity	Human, Mouse, Rat
Clonality	Monoclonal
Calculated MW	98535

Additional Information

Gene ID	1181
Dilution	WB~~1:1000 IHC-P~~N/A IF~~1:50~200
Storage Conditions	-20℃

Protein Information

Name	CLCN2 {ECO:0000303|PubMed:29403011, ECO:0000312|HGNC:HGNC:2020}
Function	Voltage-gated and osmosensitive chloride channel. Forms a homodimeric channel where each subunit has its own ion conduction pathway. Conducts double-barreled currents controlled by two types of gates, two fast glutamate gates that control each subunit independently and a slow common gate that opens and shuts off both subunits simultaneously. Displays inward rectification currents activated upon membrane hyperpolarization and extracellular hypotonicity (PubMed:16155254, PubMed:17567819, PubMed:19191339, PubMed:23632988, PubMed:29403011, PubMed:29403012, PubMed:36964785, PubMed:38345841). Contributes to chloride conductance involved in neuron excitability. In hippocampal neurons, generates a significant part of resting membrane conductance and provides an additional chloride efflux pathway to prevent chloride accumulation in dendrites upon GABA receptor activation. In glia, associates with the auxiliary subunit HEPACAM/GlialCAM at astrocytic processes and myelinated fiber tracts where it may regulate transcellular chloride flux buffering extracellular chloride and potassium concentrations (PubMed:19191339, PubMed:22405205, PubMed:23707145). Regulates aldosterone production in adrenal glands. The opening of CLCN2 channels at hyperpolarized membrane potentials in the glomerulosa causes cell membrane depolarization, activation of voltage-gated calcium channels and increased expression of aldosterone synthase, the rate-limiting enzyme for aldosterone biosynthesis (PubMed:29403011, PubMed:29403012). Contributes to chloride conductance in retinal pigment epithelium involved in phagocytosis of shed photoreceptor outer segments and photoreceptor

renewal (PubMed:36964785). Conducts chloride currents at the basolateral membrane of epithelial cells with a role in chloride reabsorption rather than secretion (By similarity) (PubMed:16155254). Permeable to small monovalent anions with chloride > thiocyanate > bromide > nitrate > iodide ion selectivity (By similarity) (PubMed:29403012).

Cellular Location

Cell membrane; Multi-pass membrane protein. Basolateral cell membrane; Multi-pass membrane protein. Cell projection, dendritic spine membrane {ECO:0000250|UniProtKB:P35525}; Multi-pass membrane protein. Cell projection, axon {ECO:0000250|UniProtKB:P35525} Note=Sorting to the basolateral membrane is mediated by AP-1 clathrin adapter (PubMed:16155254). Localizes at axon initial segments and dendritic shaft and spikes. Colocalizes with HEPACAM and GFAP at astrocyte end-foot in contact with brain capillaries and other glial cells (By similarity) (PubMed:22405205, PubMed:23707145) {ECO:0000250|UniProtKB:P35525, ECO:0000250|UniProtKB:Q9R0A1, ECO:0000269|PubMed:16155254, ECO:0000269|PubMed:22405205, ECO:0000269|PubMed:23707145}

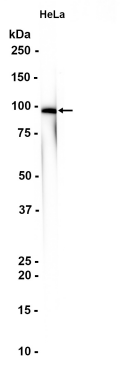
Tissue Location

Ubiquitously expressed. Moderately expressed in aortic and coronary vascular smooth muscle cells and expressed at a low level in aortic endothelial cells. Expressed in the adrenal gland, predominantly in the zona glomerulosa (PubMed:29403011). Expressed in white mater perivascular astrocytes and ependymal cells (at protein level).

Background

This gene encodes a voltage-gated chloride channel. The encoded protein is a transmembrane protein that maintains chloride ion homeostasis in various cells. Defects in this gene may be a cause of certain epilepsies. Four transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Mar 2012]

Images



Western blot analysis of extracts from HeLa cells using AP93734 at 1:1000.

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