

Product Information

Anti-K⁺/Cl⁻ Cotransporter (KCC2)

produced in rabbit, IgG fraction of antiserum

Catalog Number **C2366**

Product Description

Anti-K⁺/Cl⁻ Cotransporter (KCC2) is produced in rabbit using as immunogen an N-terminal His-tagged fusion protein corresponding to residues 932-1043 of rat K⁺/Cl⁻ cotransporter (KCC2). There is species cross-reactivity with rat and dog. A wide range of species cross-reactivity is expected due to sequence homology.

Anti-K⁺/Cl⁻ Cotransporter (KCC2) specifically recognizes K⁺/Cl⁻ cotransporter (KCC2) in rat brain membrane preparations by immunoblotting and Madin Darby Canine Kidney (MDCK) cells by immunocytochemistry.

Transporters and exchangers play a critical role in the generation and dissipation of action potentials in nerve cells and in the maintenance of normal cell volume. They are also involved in a variety of mechanisms pertaining to the control of neuronal growth, maturation, synaptic plasticity and neuroendocrine functions.¹

The cation-chloride cotransporters (CCCs) are glycoproteins involved in transport of ions, including chloride, across the cell membrane without an accompanying net charge movement; thus this type of transport is driven without the direct hydrolysis of ATP. The energy for the transport is derived from the cation gradient generated by the Na⁺/K⁺/ATPase. The CCCs also play a critical role in influencing GABA- and glycine-mediated signaling. Other transporters that participate in chloride homeostasis include Na⁺-dependent and Na⁺-independent anion exchangers, which exchange chloride for HCO₃⁻ ions. Three cotransporters belonging to this family include sodium-chloride (Na⁺/Cl⁻) cotransporters (NCCs), sodium-potassium-chloride (Na⁺/K⁺/2Cl⁻) cotransporters (NKCCs) and potassium-chloride (K⁺/Cl⁻) cotransporters (KCCs)¹.

K⁺/Cl⁻ cotransporter (KCC2) is the major neuronal chloride transporter. It has been proposed to play a role in the modulation of neuronal responses to γ -aminobutyric acid (GABA). GABA-mediated fast-hyperpolarizing inhibition depends on extrusion of chloride by KCC2.² In conditions of neuronal damage, where neuronal excitability is increased, and in spinal cord in models of neuropathic pain, the expression of the KCC2 transporter is decreased.³

Reagent

Supplied in 0.1 M Tris-Glycine, pH 7.4, 0.15 M NaCl, 0.05% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C. For extended storage, freeze in working aliquots at -20 °C. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. Centrifuge before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: the recommended working antibody concentration is 0.5-2.0 μ g/ml using rat brain membranes

Note: In order to obtain the best results in various techniques and preparations, we recommend determining optimal working concentration by titration.

References

1. Payne, J.A., et al., *Trends Neurosciences*, **26**, 199-206 (2003).
2. Rivera, C., et al., *J Neurosci.*, **24**, 4683-4691 (2004).
3. Morales-Aza, B.M., et al., *Neurobiol. Dis.*, **17**, 62-69 (2004).

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