

PRODUCT INFORMATION



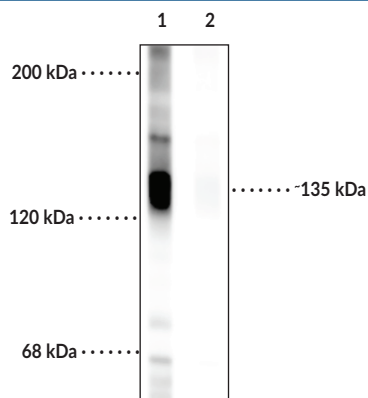
KCC2 (Phospho-Ser⁹⁴⁰) Polyclonal Antibody

Item No. 29291

Overview and Properties

Contents:	This vial contains 100 µl of affinity-purified rabbit polyclonal antibody.
Synonyms:	Electroneutral Potassium Chloride Cotransporter 2, Neuronal Potassium Chloride Cotransporter
Immunogen:	Phosphopeptide corresponding to amino acid residues surrounding the phospho-Ser ⁹⁴⁰ of rat KCC2
Molecular Weight:	~135 kDa
Cross Reactivity:	(+) KCC2 (phospho-Ser ⁹⁴⁰); (-) Non-phosphorylated KCC2
Species Reactivity:	(+) Mouse, rat
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 µg/ml BSA, and 50% glycerol
Host:	Rabbit
Applications:	Western blot (WB); the recommended starting dilution is 1:1,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: KCC2 protein phosphorylated at Ser⁹⁴⁰
Lane 2: Phosphopeptide used as antigen

WB of rat hippocampal lysate showing specific labeling of the ~135 kDa KCC2 protein phosphorylated at Ser⁹⁴⁰ in the first lane. Immunolabeling is blocked by preadsorption with the phosphopeptide used as antigen in the second lane, but not by the corresponding non-phosphopeptide (not shown).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

The neuronal-specific potassium chloride cotransporter 2 (KCC2) is a member of the SLC12 family of transporters and is encoded by *SLC12A5* in humans.¹ KCC2 is expressed in mature neurons throughout the CNS and localizes to the soma and dendrite plasma membrane where it mediates chloride ion efflux, maintaining the transmembrane chloride potential.² It consists of 12 transmembrane helices, which contain an extracellular loop subject to N-glycosylation, as well as intracellular N- and C-terminal domains with sites that are subject to phosphorylation. Phosphorylation of KCC2 at serine 940 (Ser⁹⁴⁰) is mediated by PKC and regulates KCC2 stability and expression.^{1,3} KCC2 (phospho-Ser⁹⁴⁰) levels are increased by the PKC activator phorbol 12-myristate 13-acetate (PMA; Item No. 10008014) in primary rat embryonic hippocampal neurons.³ HEK293 cells expressing a point mutation of Ser940 (S940A) in KCC2, which abolishes its phosphorylation, have a reduced rate of ion transport and decreased KCC2 endocytosis. Mice expressing S940A have reduced latency to first seizure and increased mortality in a mouse model of status epilepticus induced by kainate.⁴ Cayman's KCC2 (Phospho-Ser⁹⁴⁰) Polyclonal Antibody can be used for Western blot (WB) applications. The antibody recognizes KCC2 (Phospho-Ser⁹⁴⁰) at approximately 135 kDa from mouse and rat samples.

References

1. Côme, E., Heubl, M., Schwartz, E.J., *et al.* Reciprocal regulation of KCC2 trafficking and synaptic activity. *Front. Cell Neurosci.* **13**, 48 (2019).
2. Chamma, I., Chevy, Q., Poncer, J.C., *et al.* Role of the neuronal K-Cl co-transporter KCC2 in inhibitory and excitatory neurotransmission. *Front. Cell Neurosci.* **6**, 5 (2012).
3. Lee, H.H.C., Walker, J.A., Williams, J.R., *et al.* Direct protein kinase C-dependent phosphorylation regulates the cell surface stability and activity of the potassium chloride cotransporter KCC2. *J. Biol. Chem.* **282**(41), 29777-29784 (2007).
4. Silayeva, L., Deeb, T.Z., Hines, R.M., *et al.* KCC2 activity is critical in limiting the onset and severity of status epilepticus. *PNAS* **112**(11), 3523-3528 (2015).

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