

# PRODUCT INFORMATION



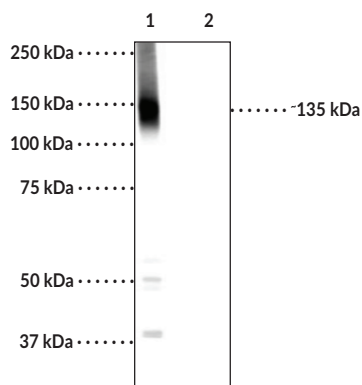
## KCC2 (Phospho-Thr<sup>1007</sup>) Polyclonal Antibody

Item No. 29292

### Overview and Properties

<b>Contents:</b>	This vial contains 100 µl of affinity-purified polyclonal antibody from pooled serum.
<b>Synonyms:</b>	Electroneutral Potassium Chloride Cotransporter 2, Neuronal Potassium Chloride Cotransporter
<b>Immunogen:</b>	Phosphopeptide corresponding to amino acid residues surrounding the phospho-Thr <sup>1007</sup> of mouse KCC2
<b>Molecular Weight:</b>	~135 kDa
<b>Cross Reactivity:</b>	(+) KCC2 (phospho-Thr <sup>1007</sup> ); (-) Unphosphorylated KCC2
<b>Species Reactivity:</b>	(+) Mouse, rat
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	≥1 year
<b>Storage Buffer:</b>	10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 µg/ml BSA, and 50% glycerol
<b>Host:</b>	Rabbit
<b>Applications:</b>	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: Rat hippocampal lysate  
Lane 2: λ-Ptase

WB of rat hippocampal lysate showing specific labeling of the ~135 kDa KCC2 protein phosphorylated at Thr<sup>1007</sup> in the first lane. Phosphospecificity is shown in the second lane, where immunolabeling is completely eliminated by blot treatment with lambda phosphatase (λ-Ptase, 1,200 units for 30 min).

**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

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The neuronal-specific potassium chloride cotransporter 2 (KCC2) is a member of the SLC12 family of transporters and is encoded by *SLC12A5* in humans.<sup>1</sup> 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.<sup>2</sup> 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 threonine 1007 (Thr<sup>1007</sup>) is mediated by lysine-deficient protein kinase 1 (WNK1) and its effectors, STE20/SPS1-related proline-alanine-rich protein kinase (SPAK) and oxidative stress-responsive kinase 1 (OSR1), resulting in reduced KCC2 activity. Phospho-Thr<sup>1007</sup> levels are decreased by the KCC2 activator N-ethylmaleimide (NEM) in HEK293 cells.<sup>1</sup> Point mutation of Thr<sup>1007</sup> (T1007E) in KCC2 mimics its phosphorylation and abolishes NEM-induced chloride ion efflux in HEK293 cells. Cayman's KCC2 (Phospho-Thr<sup>1007</sup>) Polyclonal Antibody can be used for Western blot (WB) applications. The antibody recognizes KCC2 (phospho-Thr<sup>1007</sup>) at approximately 135 kDa from mouse and rat samples.

## References

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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. Conway, L.C., Cardarelli, R.A., Moore, Y.E., *et al.* N-Ethylmaleimide increases KCC2 cotransporter activity by modulating transporter phosphorylation. *J. Biol. Chem.* **292**(52), 21253-21263 (2017).

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