

# NKCC1 (A-6): sc-514774

## BACKGROUND

Na-K-Cl cotransporters (NKCC) are channel proteins that aid in the transcellular movement of chloride across both secretory and absorptive epithelia. NKCC1 is expressed in muscle cells, neurons, and red blood cells. In the basolateral membrane of secretory epithelia, NKCC1 mediates active chloride secretion. The gene encoding human NKCC1 maps to chromosome 5q23.3. In mice, disruption of the NKCC1 gene leads to deafness and impaired balance. NKCC2 is specifically expressed in the kidney where it mediates active reabsorption of sodium chloride in the thick ascending limb of the loop of Henle. NKCC2 is sensitive to the clinically important diuretics furosemide and bumetanide. The gene encoding human NKCC2 maps to chromosome 15q21.1 and mutations in this gene lead to Bartter's syndrome, an inherited hypokalaemic alkalosis. NCCT is a thiazide-sensitive Na-Cl cotransporter that is primarily expressed in the distal convoluted tubule of the kidney where it accounts for a significant fraction of net renal sodium reabsorption. The gene for human NCCT map to chromosome 16q13. Mutations in the gene encoding NCCT cause Gitelman's syndrome, a subset of Bartter's syndrome.

## REFERENCES

- Xu, J.C., et al. 1994. Molecular cloning and functional expression of the bumetanide-sensitive Na-K-Cl cotransporter. *Proc. Natl. Acad. Sci. USA* 91: 2201-2205.
- Payne, J.A., et al. 1995. Primary structure, functional expression, and chromosomal localization of the bumetanide-sensitive Na-K-Cl cotransporter in human colon. *J. Biol. Chem.* 270: 17977-17985.
- Quaggin, S.E., et al. 1995. Localization of the renal Na-K-Cl cotransporter gene (Slc12a1) on mouse chromosome 2. *Mamm. Genome* 6: 557-558.
- Simon, D.B., et al. 1996. Gitelman's variant of Bartter's syndrome, inherited hypokalaemic alkalosis, is caused by mutations in the thiazide-sensitive Na-Cl cotransporter. *Nat. Genet.* 12: 24-30.

## CHROMOSOMAL LOCATION

Genetic locus: SLC12A2 (human) mapping to 5q23.3; Slc12a2 (mouse) mapping to 18 D3.

## SOURCE

NKCC1 (A-6) is a mouse monoclonal antibody raised against amino acids 886-1015 mapping within an internal region of NKCC1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NKCC1 (A-6) is available conjugated to agarose (sc-514774 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514774 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514774 PE), fluorescein (sc-514774 FITC), Alexa Fluor® 488 (sc-514774 AF488), Alexa Fluor® 546 (sc-514774 AF546), Alexa Fluor® 594 (sc-514774 AF594) or Alexa Fluor® 647 (sc-514774 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514774 AF680) or Alexa Fluor® 790 (sc-514774 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

NKCC1 (A-6) is recommended for detection of NKCC1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

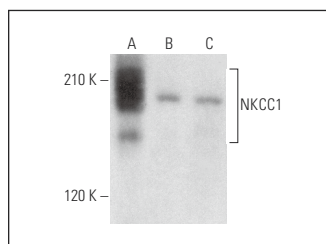
Suitable for use as control antibody for NKCC1 siRNA (h): sc-36071, NKCC1 siRNA (m): sc-36072, NKCC1 siRNA (r): sc-270468, NKCC1 shRNA Plasmid (h): sc-36071-SH, NKCC1 shRNA Plasmid (m): sc-36072-SH, NKCC1 shRNA Plasmid (r): sc-270468-SH, NKCC1 shRNA (h) Lentiviral Particles: sc-36071-V, NKCC1 shRNA (m) Lentiviral Particles: sc-36072-V and NKCC1 shRNA (r) Lentiviral Particles: sc-270468-V.

Molecular Weight of deglycosylated NKCC1: 135 kDa.

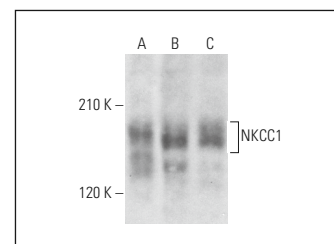
Molecular Weight of glycosylated NKCC1: 170 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, T84 whole cell lysate: sc-364797 or HeLa whole cell lysate: sc-2200.

## DATA



NKCC1 (A-6): sc-514774. Western blot analysis of NKCC1 expression in A549 (A), NIH/3T3 (B) and RAW 264.7 (C) whole cell lysates.



NKCC1 (A-6): sc-514774. Western blot analysis of NKCC1 expression in T84 (A), HeLa (B) and Jurkat (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Mekhael, W., et al. 2019. Repeated anodal *trans*-spinal direct current stimulation results in long-term reduction of spasticity in mice with spinal cord injury. *J. Physiol.* 597: 2201-2223.
- Vlachovsky, S.G., et al. 2021. Ovariectomy and high salt increase blood pressure and alter sodium transport proteins in peripheral blood mononuclear cells of adult Wistar rats. *Exp. Physiol.* 106: 2107-2123.
- Hu, J.J., et al. 2023. Emergence of consciousness from anesthesia through ubiquitin degradation of KCC2 in the ventral posteromedial nucleus of the thalamus. *Nat. Neurosci.* 26: 751-764.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

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