

CLC-KA (K-16): sc-21297

BACKGROUND

The family of voltage-dependent chloride channels (CLCs) regulate cellular trafficking of chloride ions, a critical component of all living cells. CLCs regulate excitability in muscle and nerve cells, aid in organic solute transport, and maintain cellular volume. CLC-KA is a kidney-specific chloride channel that mediates transepithelial chloride transport in the thin ascending limb of the Henle loop in the inner medulla. CLC-KA plays a crucial role in urine concentration. The gene encoding human CLC-KA maps to chromosome 1p36. Mutations in this gene may be associated with nephrogenic diabetes insipidus in those cases where mutations in the Vasopressin V2 receptor and the AQP2 water channel are lacking. CLC-KB mediates basolateral chloride ion efflux in the thick ascending limb and in more distal nephron segments. The gene encoding human CLC-KB maps to chromosome 1p36. Mutations in this gene cause type III Bartter's syndrome which is characterized by renal salt-wasting and low blood pressure.

REFERENCES

1. Saito-Ohara, F., et al. 1996. Assignment of the genes encoding the human chloride channels, CLCNKA and CLCNKB, to 1p36 and of CLCN3 to 4q32-q33 by *in situ* hybridization. *Genomics* 36: 372-374.
2. Simon, D.B., et al. 1997. Mutations in the chloride channel gene, CLCNKB, cause Bartter's syndrome type III. *Nat. Genet.* 17: 171-178.
3. Matsumura, Y., et al. 1999. Overt nephrogenic diabetes insipidus in mice lacking the CLC-K1 chloride channel. *Nat. Genet.* 21: 95-98.
4. Gyomory, K., et al. 2000. Expression of the chloride channel CLC-2 in the murine small intestine epithelium. *Am. J. Physiol. Cell. Physiol.* 279: 1787-1794.
5. Estevez, R., et al. 2001. Barttin is a Cl⁻ channel β -subunit crucial for renal Cl⁻ reabsorption and inner ear K⁺ secretion. *Nature* 414: 558-561.

CHROMOSOMAL LOCATION

Genetic locus: CLCNKA (human) mapping to 1p36.13; Clcnka (mouse) mapping to 4 E1.

SOURCE

CLC-KA (K-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a cytoplasmic domain of CLC-KA of rat origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-21297 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

CLC-KA (K-16) is recommended for detection of CLC-KA of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 CLC-KA siRNA (h): sc-105209, CLC-KA siRNA (m): sc-142368, CLC-KA shRNA Plasmid (h): sc-105209-SH, CLC-KA shRNA Plasmid (m): sc-142368-SH, CLC-KA shRNA (h) Lentiviral Particles: sc-105209-V and CLC-KA shRNA (m) Lentiviral Particles: sc-142368-V.

Molecular Weight of CLC-KA: 63 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214 or NRK whole cell lysate: sc-364197.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Angelotti, M.L., et al. 2012. Characterization of renal progenitors committed toward tubular lineage and their regenerative potential in renal tubular injury. *Stem Cells* 30: 1714-1725.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.