

# $\alpha$ ENaC (C-20): sc-22239

## BACKGROUND

The epithelial sodium channel (ENaC) is a member of the ENaC/DEG superfamily that is located on the apical surface of cells. ENaC mediates sodium reabsorption in kidney, distal colon, lung, ducts of exocrine glands and other organs. ENaC is formed by heteromultimerization of four homologous subunits,  $\alpha$ ,  $\beta$ ,  $\gamma$  and  $\delta$ . The most frequently formed heterotetramer consists of two  $\alpha$ , one  $\beta$  and one  $\gamma$  subunit, but the  $\alpha$  subunit can be replaced by a  $\delta$  subunit. The  $\alpha$ ENaC gene maps to human chromosome 12p13.31. Both the  $\beta$  and  $\gamma$ ENaC genes map to human chromosome 16p12, and the  $\gamma$ ENaC transcript is detected as a glycosylated protein. The carboxy-terminus of all ENaC subunits contains PY motifs, which interact with the ubiquitin protein ligase, Nedd4, to regulate intracellular sodium concentrations. Gain-of-function mutations involving the PY motif cause Liddle's syndrome, an autosomal dominant form of hypertension, resulting from excessive renal sodium absorption. Conversely, ENaC loss-of-function mutations result in pseudohypoaldosteronism type I, a disorder characterized by salt wasting and hypotension.

## CHROMOSOMAL LOCATION

Genetic locus: SCNN1A (human) mapping to 12p13.31; Scnn1a (mouse) mapping to 6 F3.

## SOURCE

$\alpha$ ENaC (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of  $\alpha$ ENaC of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-22239 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

$\alpha$ ENaC (C-20) is recommended for detection of  $\alpha$ ENaC of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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).

$\alpha$ ENaC (C-20) is also recommended for detection of  $\alpha$ ENaC in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for  $\alpha$ ENaC siRNA (h): sc-42404,  $\alpha$ ENaC siRNA (m): sc-42405,  $\alpha$ ENaC shRNA Plasmid (h): sc-42404-SH,  $\alpha$ ENaC shRNA Plasmid (m): sc-42405-SH,  $\alpha$ ENaC shRNA (h) Lentiviral Particles: sc-42404-V and  $\alpha$ ENaC shRNA (m) Lentiviral Particles: sc-42405-V.

Molecular Weight (predicted) of  $\alpha$ ENaC isoforms 1/2/3: 76/82/28 kDa.

Molecular Weight (predicted) of  $\alpha$ ENaC isoforms 4/5: 74/78 kDa.

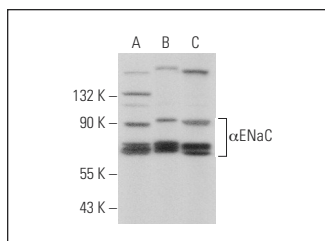
Molecular Weight (observed) of  $\alpha$ ENaC: 60/80 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, KNRK whole cell lysate: sc-2214 or HeLa whole cell lysate: sc-2200.

## 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



$\alpha$ ENaC (C-20): sc-22239. Western blot analysis of  $\alpha$ ENaC expression in KNRK (A), HeLa (B) and NIH/3T3 (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Albert, A.P., et al. 2008. AICAR decreases the activity of two distinct amiloride-sensitive  $\text{Na}^+$ -permeable channels in H441 human lung epithelial cell monolayers. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 295: 837-848.
- Mace, O.J., et al. 2008. AICAR activates AMPK and alters PIP2 association with the epithelial sodium channel ENaC to inhibit  $\text{Na}^+$  transport in H441 lung epithelial cells. *J. Physiol.* 586: 4541-4557.
- Chen, S., et al. 2009. Tonicity-dependent induction of Sgk1 expression has a potential role in dehydration-induced natriuresis in rodents. *J. Clin. Invest.* 119: 1647-1658.
- Hara, S., et al. 2010. The effect of topical amiloride eye drops on tear quantity in rabbits. *Mol. Vis.* 16: 2279-2285.
- Mu, S., et al. 2011. Epigenetic modulation of the renal  $\beta$ -adrenergic-WNK4 pathway in salt-sensitive hypertension. *Nat. Med.* 17: 573-580.
- Ruan, Y.C., et al. 2012. Activation of the epithelial  $\text{Na}^+$  channel triggers prostaglandin E2 release and production required for embryo implantation. *Nat. Med.* 18: 1112-1117.

## 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.