SANTA CRUZ BIOTECHNOLOGY, INC.

αENaC (N-20): sc-22237

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, α, β, γ and δ. The most frequently formed heterotetramer consists of two α, one β, and one γ subunit, but the α subunit can be replaced by a δ subunit. The αENaC gene maps to human chromosome 12p13.31. Both the β and γENaC genes map to human chromosome 16p12, and the γENaC 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.

REFERENCES

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2. Voilley, N., et al. 1995. Cloning, chromosomal localization, and physical linkage of the β and γ subunits (SCNN1B and SCNN1G) of the human epithelial amiloride-sensitive sodium channel. Genomics 28: 560-565.
3. Ludwig, M., et al. 1998. Structural organization of the gene encoding the α-subunit of the human amiloride-sensitive epithelial sodium channel. Hum. Genet. 102: 576-581.
4. Masilamani, S., et al. 1999. Aldosterone-mediated regulation of ENaC α, β, and γ subunit proteins in rat kidney. J. Clin. Invest. 104: R19-23.
5. Hanwell, D., et al. 2002. Trafficking and cell surface stability of the epithelial Na^+ channel expressed in epithelial Madin-Darby canine kidney cells. J. Biol. Chem. 277: 9772-9779.
6. Brockway, L.M., et al. 2002. Rabbit retinal neurons and glia express a variety of ENaC/DEG subunits. Am. J. Physiol. Cell. Physiol. 283: C126-C134.
7. Snyder, P.M. 2002. The epithelial Na^+ channel: cell surface insertion and retrieval in Na^+ homeostasis and hypertension. Endocr. Rev. 23: 258-275.

CHROMOSOMAL LOCATION

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

SOURCE

αENaC (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of αENaC of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-22237 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

αENaC (N-20) is recommended for detection of αENaC of human and, to a lesser extent, mouse and rat 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 αENaC siRNA (h): sc-42404, αENaC siRNA (m): sc-42405, αENaC shRNA Plasmid (h): sc-42404-SH, αENaC shRNA Plasmid (m): sc-42405-SH, αENaC shRNA (h) Lentiviral Particles: sc-42404-V and αENaC shRNA (m) Lentiviral Particles: sc-42405-V.

Molecular Weight (predicted) of αENaC isoforms 1/2/3: 76/82/28 kDa.

Molecular Weight (predicted) of αENaC isoforms 4/5: 74/78 kDa.

Molecular Weight (observed) of αENaC: 60/80 kDa.

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. Varelogianni, G., et al. 2013. Effect of ambroxol on chloride transport, CFTR and ENaC in cystic fibrosis airway epithelial cells. Cell Biol. Int. E-Published.

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.

PROTOCOLS

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