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Anti-ENaC Beta Antibody

Rabbit Anti-Rat ENaC Beta Polyclonal
Catalog No. SPC-404



Discovery through partnership | Excellence through quality

Overview

Product Name

ENaC Beta Antibody

Description

Rabbit Anti-Rat ENaC Beta Polyclonal

Species Reactivity

Human, Mouse, Rat, African clawed frog (*Xenopus laevis*), Hamster

Applications

WB, IHC, ICC/IF, IP

Antibody Dilution

WB (1:1000), IHC (1:100); optimal dilutions for assays should be determined by the user.

Host Species

Rabbit

Immunogen Species

Rat

Immunogen

Produced against the C-terminal tail (amino acids 617-638) of rat beta ENaC (antibody designation 3755-2)

Concentration

1 mg/ml

Conjugates

Alkaline Phosphatase, APC, ATTO 390, ATTO 488, ATTO 565, ATTO 594, ATTO 633, ATTO 655, ATTO 680, ATTO 700, Biotin, FITC, HRP, PE/ATTO 594, PerCP, RPE, Streptavidin, Unconjugated

Properties

Storage Buffer

PBS, 50% glycerol, 0.09% sodium azide

Storage Temperature

-20°C

Shipping Temperature

Blue Ice or 4°C

Purification

Protein A purified

Clonality

Polyclonal

Specificity

Detects ~87kDa.

Cite This Product

Rabbit Anti-Rat ENaC Polyclonal (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPC-404)

Certificate Of Analysis

1 µg/ml of SPC-404 was sufficient for detection of beta-ENaC in 20 µg of rat kidney tissue lysate by colorimetric immunoblot analysis using Goat anti-rabbit IgG:HRP as the secondary antibody.

Biological Description

Alternative Names

SCNN1B Antibody, Amiloride sensitive sodium channel subunit beta Antibody, Amiloride-sensitive sodium channel beta-subunit Antibody, Beta ENaC Antibody, Beta NaCH Antibody, ENaC beta Antibody, ENaCB Antibody, Epithelial Na(+) channel subunit beta Antibody, Epithelial Na+ channel beta subunit Antibody, Epithelial Na+ channel subunit beta Antibody, Epithelial sodium channel beta 2 subunit Antibody, Epithelial sodium channel beta 3 subunit Antibody, Nonvoltage gated sodium channel 1 beta subunit Antibody, Nonvoltage gated sodium channel 1 subunit beta Antibody, Nonvoltage-gated sodium channel 1 beta subunit Antibody, SCNEB Antibody, SCNN 1B Antibody, Sodium channel nonvoltage gated 1 beta (Liddle syndrome) Antibody, Sodium channel nonvoltage gated 1 beta Antibody

Research Areas

Epithelial Sodium Channels (ENaC), Ion Channels, Neuroscience, Sodium Channels

Cellular Localization

Apical cell membrane

Accession Number

NP_036780

Gene ID

24767

Swiss Prot

P37090

Scientific Background

The Epithelial Sodium Channel (ENaC) is a membrane ion channel permeable to Na⁺ ions. It is located in the apical plasma membrane of epithelia in the kidneys, lung, colon, and other tissues where it plays a role in trans epithelial Na⁺-ion transport (1). Specifically Na⁺ transport via ENaC occurs across many epithelial surfaces, and plays a key role in regulating salt and water absorption (2).

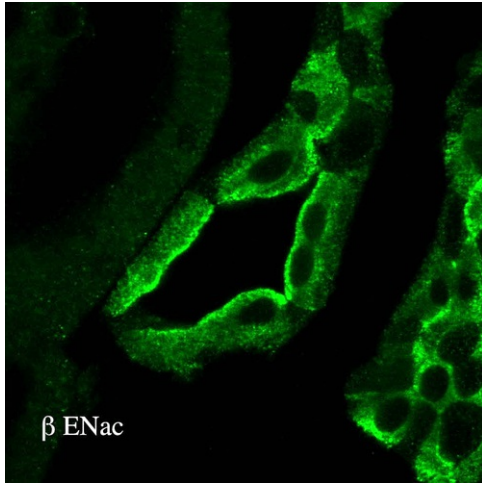
ENaCs are composed of three structurally related subunits that form a tetrameric channel, α, β, and γ. The expression of its alpha and beta subunits is enhanced as keratinocytes differentiate (3, 4). The beta and gamma-ENaC subunits are essential for edema fluid to exert its maximal effect on net fluid absorption by distal lung epithelia(5). And it has been concluded that the subunits are differentially expressed in the retina of mice with ocular hypertension, therefore the up-regulation of alpha-ENaC proteins could serve as a protection mechanism against elevated intraocular pressure (6).

References

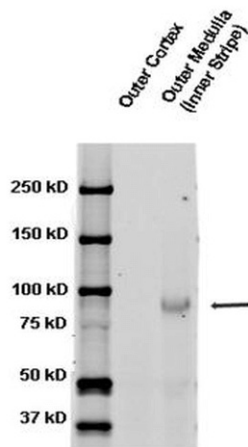
1. Kakizoe Y., et al. (2009) J Hypertens. 27(8): 1679-1689.

2. Gu Y. (2008) J Cell Physiol. 216(2):453-457.
3. Bruns J.B. (2003) Am J Physiol Renal Physiol. 285(4): F600-F609.
4. Mauro T., et al. (2002) J Invest Dermatol. 118(4): 589-594.
5. Elias N., et al. (2007) Am J Physiol Lung Cell Mol Physiol. 293(3): L537-45.
6. Dyka F.M., May C.A. and Enz R. (2005) J Neurochem. 94(1): 120-128.

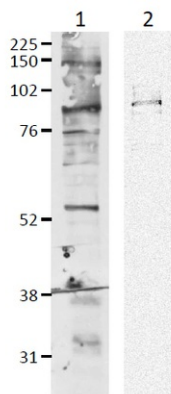
Product Images



Immunohistochemistry analysis using Rabbit Anti-ENaC Polyclonal Antibody (SPC-404). Tissue: kidney tissue. Species: Rat. Primary Antibody: Rabbit Anti-ENaC Polyclonal Antibody (SPC-404) at 1:100. Secondary Antibody: FITC Goat Anti-Rabbit (green).



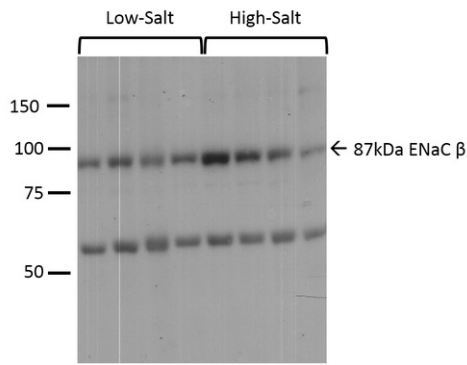
Western blot analysis of Rat kidney tissue lysates showing detection of ENaC protein using Rabbit Anti-ENaC Polyclonal Antibody (SPC-404). Primary Antibody: Rabbit Anti-ENaC Polyclonal Antibody (SPC-404) at 1:1000.



Western blot analysis of Mouse mpkCCD cell lysates showing detection of ENaC protein using Rabbit Anti-ENaC Polyclonal Antibody (SPC-404). Primary Antibody: Rabbit Anti-ENaC Polyclonal Antibody (SPC-404) at 1:1000.

- 1- mpkCCD cell lysate (mouse)
- 2- FRT expressing tagged β -mENaC

Western blot analysis of Mouse kidney cortex showing detection of ENaC protein using Rabbit Anti-ENaC Polyclonal Antibody (SPC-404). Primary Antibody: Rabbit Anti-ENaC Polyclonal Antibody (SPC-404) at 1:1000. Low-salt diet (lanes 1-4) compared to a high-salt diet (lanes 5-8).



Product Citations (25)

Western Blot

Renal sodium transport in renin-deficient Dahl salt-sensitive rats.

Pavlov, T.S., Levchenko, V., Ilatovskaya, D.V., Moreno, C. and Staruschenko, A. (2016) *J Renin Angiotensin Aldosterone Syst.* 17(3).

PubMed ID: 27443990 **Reactivity:** Rat **Applications:** Western Blot

(Pro)Renin Receptor Regulates Potassium Homeostasis through a Local Mechanism.

Xu, C. et al. (2016) *Am J Physiol Renal Physiol.* [Epub ahead of print]

PubMed ID: 27440776 **Reactivity:** Rat **Applications:** Western Blot

SPAK and OSR1 play essential roles in potassium homeostasis through actions on the distal convoluted tubule.

Ferdaus, M.Z. et al. (2016) *J Physiol.* [Epub ahead of print]

PubMed ID: 27068441 **Reactivity:** Mouse **Applications:** Western Blot

Renal tubular epithelial cell prorenin receptor regulates blood pressure and sodium transport.

Ramkumar, N. et al. (2016) *Am J Physiol Renal Physiol.* [Epub ahead of print]

PubMed ID: 27053687 **Reactivity:** Mouse **Applications:** Western Blot

The Role of Epithelial Sodium Channel ENaC and the Apical Cl⁻/HCO₃⁻ Exchanger Pendrin in Compensatory Salt Reabsorption in the Setting of Na-Cl Cotransporter (NCC) Inactivation.

Patel-Chamberlin, M. et al. (2016) *PLoS One.* 11(3):e0150918.

PubMed ID: 26963391 **Reactivity:** Mouse **Applications:** Western Blot

The Thiazide-Sensitive Co-Transporter Promotes the Development of Sodium Retention in Mice with Diet-Induced Obesity.

Davies, M. R. P. et al. (2015) *Kidney Blood Press Res.* 40(5):509-519.

PubMed ID: 26418861 **Reactivity:** Mouse **Applications:** Western Blot

Inhibition of Mitochondrial Complex-1 Prevents the Downregulation of NKCC2 and ENaC? in Obstructive Kidney Disease.

Zhang, Y. et al. (2015) *Sci Rep.* 5:12480.

PubMed ID: 26207612 **Reactivity:** Mouse **Applications:** Western Blot

Compositions And Methods Of Use For (PRO)Renin Receptor.

Feng, Y. and Yang, T. (2015) United States Patent Application 20150025013.

PubMed ID: **Reactivity:** Rat **Applications:** Western Blot

Intersubunit conformational changes mediate epithelial sodium channel gating.

Collier, D.M., Tomkovicz, V.R., Peterson, Z.J., Benson, C.J., and Snyder, P.M. (2014) *J Gen Physiol.* 144(4):337-48.

PubMed ID: 25225551 **Reactivity:** Human **Applications:** Western Blot

Role of Rho GDP-dissociation inhibitor alpha in control of ENaC-mediated sodium reabsorption.

Pavlov, T. S., Levchenko, V. and Staruschenko, A. (2014) *J Biol Chem.* 289(41):28651-9.

PubMed ID: 25164814 **Reactivity:** Mouse **Applications:** Western Blot

Collecting duct specific knock-out of renin attenuates angiotensin-II induced hypertension.

Ramkumar, N. et al. (2014) *Am J Physiol Renal Physiol.* 307(8):F931-8.

PubMed ID: 25122048 **Reactivity:** Mouse **Applications:** Western Blot

Novel Mechanisms of Sodium Retention in Obesity: Phosphorylation of NKCC2 and Regulation of SPAK/OSR1 by AMPK.

Davies, M. R. P. et al. (2014) *Am J Physiol.* 307(1):F96-F106.

PubMed ID: 24808538 **Reactivity:** Mouse **Applications:** Western Blot

Functional coupling of renal K⁺ and Na⁺ handling causes high blood pressure in Na⁺ replete mice.

Vitzthum, H. et al. (2014) *J Physiol.* 592(Pt 5):1139-57.

PubMed ID: 24396058 **Reactivity:** Mouse **Applications:** Western Blot

Double Knockout of Carbonic Anhydrase II (CAII) and Na⁺-Cl⁻ Cotransporter (NCC) Causes Salt Wasting and Volume Depletion.

Xu, J., Barone, S., Brooks, M.B., Soleimani, M. (2013) *Cell Physiol Biochem.* 32(suppl 1):173-183.

PubMed ID: 24429824 **Reactivity:** Mouse **Applications:** Western Blot

Adenylyl Cyclase VI Mediates Vasopressin-Stimulated ENaC Activity.

Roos, K.P. et al. (2012) *JASN.* 24 (2): 218-227.

PubMed ID: 23264685 **Reactivity:** Mouse **Applications:** Western Blot

Regional differences in rat conjunctival ion transport activities.

Yu, D. et al. (2012) *Am J Physiol Cell Physiol.* 303 (7): 767-780.

PubMed ID: 22814399 **Reactivity:** *Xenopus laevis* **Applications:** Western Blot

The Epithelial Sodium Channel (ENaC) Establishes a Trafficking Vesicle Pool Responsible for Its Regulation.

Edinger, R.S. et al. (2012) *PLoS ONE.* 7(9): e46593.

PubMed ID: 23029554 **Reactivity:** Mouse **Applications:** Western Blot

Double Knockout of pendrein and NaCl cotransporter (NCC) causes severe salt wasting, volume depletion and renal failure.

Soleimani, M. et al. (2012) *Proc Natl Acad Sci U S A.* 109 (33): 13368-13373.

PubMed ID: 22847418 **Reactivity:** Mouse **Applications:** Western Blot

Aldosterone does not require angiotensin II to activate NCC through a WNK4SPAKdependent pathway.

van der Lubbe, N. et al. (2012) *Euro J Physiol.* 463 (6): 853-863.

PubMed ID: 22549242 **Reactivity:** Rat **Applications:** Western Blot

Cortical actin binding protein cortactin mediates ENaC activity via Arp2/3 complex.

Ilatovskaya, D.V., Pavlov, T.S., Levchenko, V., Negulyaev, Y.A. and Staruschenko, A. (2011) *FASEB J.* 25 (8): 2688-2699.

PubMed ID: 21536685 **Reactivity:** Hamster **Applications:** Western Blot

Cortical actin binding protein cortactin mediates ENaC activity via Arp2/3 complex.

Ilatovskaya, D.V., Pavlov, T.S., Levchenko, V., Negulyaev, Y.A. and Staruschenko, A. (2011) FASEB J. 25 (8): 2688-2699.

PubMed ID: 21536685 **Reactivity:** Mouse **Applications:** Western Blot

Immunohistochemistry

Epoxyeicosatrienoic Acid (EET) Analog Lowers Blood Pressure Through Vasodilation And Sodium Channel Inhibition.

Khan, M. A., et al. (2014) Clin Sci (Lond). 127(7):463-74.

PubMed ID: 24707975 **Reactivity:** Rat **Applications:** Immunohistochemistry

Novel Mechanisms of Sodium Retention in Obesity: Phosphorylation of NKCC2 and Regulation of SPAK/OSR1 by AMPK.

Davies, M. R. P. et al. (2014) Am J Physiol. 307(1):F96-F106.

PubMed ID: 24808538 **Reactivity:** Mouse **Applications:** Immunohistochemistry

ENaC α -expressing astrocytes in the circumventricular organs, white matter, and ventral medullary surface: sites for Na⁺ regulation by glial cells.

Miller, R.L. and Loewy, A.D. (2013) J Chem Neuroanat. 53:72-80.

PubMed ID: 24145067 **Reactivity:** Rat **Applications:** Immunohistochemistry

Regulation of ENaC in mice lacking renal insulin receptors in the collecting duct.

Pavlov, T.S. et. al. (2013) FASEB J. 27(7):2723-32.

PubMed ID: 23558339 **Reactivity:** Mouse **Applications:** Immunohistochemistry

Reviews

Based on validation through cited publications.



StressMarq Biosciences

June 15, 2016: