SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+ CP type Vα (H-10): sc-271255

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Voltage-gated sodium channels drive the initial depolarization phase of the cardiac action potential and, therefore, critically determine conduction of excitation through the heart. The sodium channel gene SCN5A, which encodes the Na^+ CP type Vα protein, possesses two fundamental properties, ion conduction and gating. The human SCN5A gene maps to chromosome 3p22.2. Deletions or loss-of-function mutations in SCN5A result in a wide range of arrhythmias, including bradycardia, atrioventricular conduction delay and ventricular fibrillation. Specifically, patients with Brugada syndrome have mutations in the SCN5A gene, which reduces the sodium current. Additionally, gain-of-function mutations are associated with long QT syndrome type III (LQT3), a cardiac disorder that causes sudden death from ventricular tachyarrhythmias, specifically torsade de pointes. The SCN5A gene is expressed in human atrial and ventricular cardiac muscle, but not in adult skeletal muscle, brain, myometrium, liver or spleen.

REFERENCES

1. Wang, Q., et al. 1998. The molecular basis of long QT syndrome and prospects for therapy. Mol. Med. Today 4: 382-388.
2. Wang, Q., et al. 1998. Genetics, molecular mechanisms and management of long QT syndrome. Ann. Med. 30: 58-65.
3. Cerrone, M., et al. 2001. Long QT syndrome and Brugada syndrome: 2 aspects of the same disease? Ital. Heart J. Suppl. 2: 253-257.

CHROMOSOMAL LOCATION

Genetic locus: SCN5A (human) mapping to 3p22.2; Scn5a (mouse) mapping to 9 F3.

SOURCE

Na^+ CP type Vα (H-10) is a mouse monoclonal antibody raised against amino acids 971-1140 mapping within an internal region of Na^+ CP type Vα of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Na^+ CP type Vα (H-10) is available conjugated to agarose (sc-271255 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271255 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271255 PE), fluorescein (sc-271255 FITC), Alexa Fluor® 488 (sc-271255 AF488), Alexa Fluor® 546 (sc-271255 AF546), Alexa Fluor® 594 (sc-271255 AF594) or Alexa Fluor® 647 (sc-271255 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271255 AF680) or Alexa Fluor® 790 (sc-271255 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

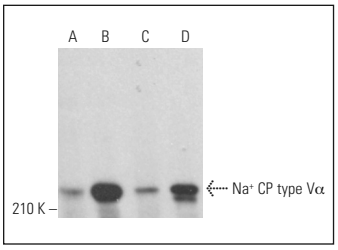
Na^+ CP type Vα (H-10) is recommended for detection of Na^+ CP type Vα of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, 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 Na^+ CP type Vα siRNA (h): sc-42640, Na^+ CP type Vα siRNA (m): sc-42641, Na^+ CP type Vα shRNA Plasmid (h): sc-42640-SH, Na^+ CP type Vα shRNA Plasmid (m): sc-42641-SH, Na^+ CP type Vα shRNA (h) Lentiviral Particles: sc-42640-V and Na^+ CP type Vα shRNA (m) Lentiviral Particles: sc-42641-V.

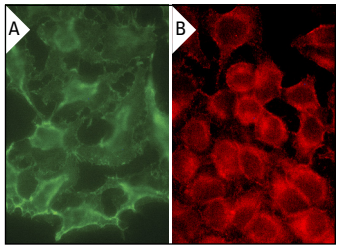
Molecular Weight of Na^+ CP type Vα: 260 kDa.

Positive Controls: C2C12 whole cell lysate: sc-364188, L6 whole cell lysate: sc-364196 or A-10 cell lysate: sc-3806.

DATA



Na^+ CP type Vα (H-10): sc-271255. Western blot analysis of Na^+ CP type Vα expression in Sol8 (**A**), C2C12 (**B**), A-10 (**C**) and L6 (**D**) whole cell lysates.



Na^+ CP type Vα (H-10): sc-271255. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (**A**,**B**).

SELECT PRODUCT CITATIONS

1. Beltran-Alvarez, P., et al. 2014. Identification of N-terminal protein acetylation and arginine methylation of the voltage-gated sodium channel in end-stage heart failure human heart. J. Mol. Cell. Cardiol. 76: 126-129.
2. Ribeiro da Silva, A., et al. 2020. NOTCH1 is critical for fibroblast-mediated induction of cardiomyocyte specialization into ventricular conduction system-like cells *in vitro*. Sci. Rep. 10: 16163.
3. Ning, S., et al. 2021. Protein 4.1 family and ion channel proteins interact to regulate the process of heart failure in rats. Acta Histochem. 123: 151748.
4. Joviano-Santos, J.V., et al. 2021. SCN5A compound heterozygosity mutation in Brugada syndrome: functional consequences and the implication for pharmacological treatment. Life Sci. 278: 119646.
5. Lopez-Charcas, O., et al. 2022. Voltage-gated sodium channel NaV1.5 controls NHE-1-dependent invasive properties in colon cancer cells. Cancers 15: 46.

RESEARCH USE

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