

# Na<sup>+</sup> CP type IX $\alpha$ (5A11): sc-293298

## BACKGROUND

Voltage-gated sodium channels are selective ion channels that regulate the permeability of sodium ions in excitable cells. During the propagation of an action potential, sodium channels allow an influx of sodium ions, which rapidly depolarizes the cell. Na<sup>+</sup> CP type IX $\alpha$ , also known as SCN9A (sodium channel protein type 9 subunit  $\alpha$ ), NENA, PN1, Na<sub>v</sub>1.7 or ETHA, is a 1,988 amino acid multi-pass membrane protein that belongs to the voltage-gated sodium channel family. Expressed in dorsal root ganglion, smooth muscle cells and in the central and peripheral nervous system, Na<sup>+</sup> CP type IX $\alpha$  functions to mediate the voltage-dependent sodium ion permeability of membranes, specifically forming a sodium-selective ion channel through which sodium may pass. Via its ability to control the flow of sodium in and out of excitable membranes, Na<sup>+</sup> CP type IX $\alpha$  plays an important role in the inflammatory pain response. Defects in the gene encoding Na<sup>+</sup> CP type IX $\alpha$  are the cause of primary erythralgia, autosomal recessive congenital indifference to pain and paroxysmal extreme pain disorder (PEPD), all of which are genetic pain disorders.

## REFERENCES

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3. Raymond, C.K., et al. 2004. Expression of alternatively spliced sodium channel  $\alpha$ -subunit genes. Unique splicing patterns are observed in dorsal root ganglia. *J. Biol. Chem.* 279: 46234-46241.
4. Yang, Y., et al. 2004. Mutations in SCN9A, encoding a sodium channel  $\alpha$  subunit, in patients with primary erythralgia. *J. Med. Genet.* 41: 171-174.
5. Ahmad, S., et al. 2007. A stop codon mutation in SCN9A causes lack of pain sensation. *Hum. Mol. Genet.* 16: 2114-2121.
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7. Sheets, P.L., et al. 2007. A Na<sub>v</sub>1.7 channel mutation associated with hereditary erythralgia contributes to neuronal hyperexcitability and displays reduced lidocaine sensitivity. *J. Physiol.* 581: 1019-1031.
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## CHROMOSOMAL LOCATION

Genetic locus: SCN9A (human) mapping to 2q24.3; Scn9a (mouse) mapping to 2 C1.3.

## SOURCE

Na<sup>+</sup> CP type IX $\alpha$  (5A11) is a mouse monoclonal antibody raised against amino acids 269-339 of Na<sup>+</sup> CP type IX $\alpha$  of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Na<sup>+</sup> CP type IX $\alpha$  (5A11) is recommended for detection of Na<sup>+</sup> CP type IX $\alpha$  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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Na<sup>+</sup> CP type IX $\alpha$  siRNA (h): sc-94458, Na<sup>+</sup> CP type IX $\alpha$  siRNA (m): sc-149784, Na<sup>+</sup> CP type IX $\alpha$  shRNA Plasmid (h): sc-94458-SH, Na<sup>+</sup> CP type IX $\alpha$  shRNA Plasmid (m): sc-149784-SH, Na<sup>+</sup> CP type IX $\alpha$  shRNA (h) Lentiviral Particles: sc-94458-V and Na<sup>+</sup> CP type IX $\alpha$  shRNA (m) Lentiviral Particles: sc-149784-V.

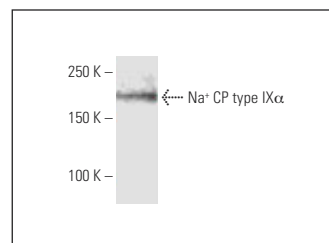
Molecular Weight of Na<sup>+</sup> CP type IX $\alpha$ : 226 kDa.

Positive Control: rat testis extract: sc-2400.

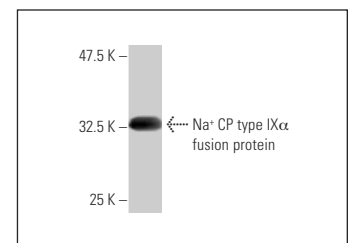
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



Na<sup>+</sup> CP type IX $\alpha$  (5A11): sc-293298. Western blot analysis of Na<sup>+</sup> CP type IX $\alpha$  expression in rat testis tissue extract.



Na<sup>+</sup> CP type IX $\alpha$  (5A11): sc-293298. Western blot analysis of human recombinant Na<sup>+</sup> CP type IX $\alpha$  fusion protein.

## 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.