

# Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135): sc-71640

## BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na<sup>+</sup>/K<sup>+</sup>-ATPase) exists as a oligomeric plasma membrane complex that couples the hydrolysis of one molecule of ATP to the importation of three Na<sup>+</sup> ions and two K<sup>+</sup> ions against their respective electrochemical gradients. As a member of the P-type family of ion motives, Na<sup>+</sup>/K<sup>+</sup>-ATPase plays a critical role in maintaining cellular volume, resting membrane potential and Na<sup>+</sup>-coupled solute transport. Multiple isoforms of three subunits, α, β and γ, comprise the Na<sup>+</sup>/K<sup>+</sup>-ATPase oligomer. The α subunit contains the binding sites for ATP and the cations; the glycosylated β subunit ensures correct folding and membrane insertion of the α subunits. The small γ subunit co-localizes with the α subunit in nephron segments, where it increases the affinity of Na<sup>+</sup>/K<sup>+</sup>-ATPase for ATP. The β subunit, but not the γ subunit, is essential for normal activity of Na<sup>+</sup>/K<sup>+</sup>-ATPase.

## REFERENCES

- Hardwicke, P.M., et al. 1981. A proteolipid associated with Na,K-ATPase is not essential for ATPase activity. *Biochem. Biophys. Res. Commun.* 102: 250-257.
- McDonough, A.A., et al. 1990. The sodium pump needs its β subunit. *FASEB J.* 4: 1598-1605.

## CHROMOSOMAL LOCATION

Genetic locus: ATP1A3 (human) mapping to 19q13.2; Atp1a3 (mouse) mapping to 7 A3.

## SOURCE

Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135) is a mouse monoclonal antibody raised against cardiac microsomes of canine origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135) is recommended for detection of Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation (1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135) is also recommended for detection of Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 in additional species, including canine.

Suitable for use as control antibody for Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 siRNA (h): sc-36012, Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 siRNA (m): sc-36013, Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 shRNA Plasmid (h): sc-36012-SH, Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 shRNA Plasmid (m): sc-36013-SH, Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 shRNA (h) Lentiviral Particles: sc-36012-V and Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 shRNA (m) Lentiviral Particles: sc-36013-V.

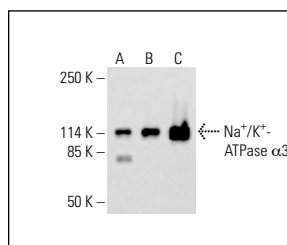
Molecular Weight of Na<sup>+</sup>/K<sup>+</sup>-ATPase α3: 113 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, Y79 cell lysate: sc-2240 or AN3 CA cell lysate: sc-24662.

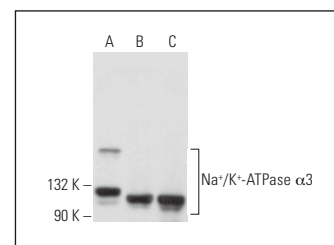
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135): sc-71640. Western blot analysis of Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 expression in HeLa (A), K-562 (B) and HCT-116 (C) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 (6D135): sc-71640. Western blot analysis of Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 expression in THP-1 (A), Y79 (B) and AN3 CA (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Xiao, Y., et al. 2017. Ouabain targets the Na<sup>+</sup>/K<sup>+</sup>-ATPase α3 isoform to inhibit cancer cell proliferation and induce apoptosis. *Oncol. Lett.* 14: 6678-6684.
- Su, Q., et al. 2022. Na<sup>+</sup>/K<sup>+</sup>-ATPase α2 isoform elicits Rac1-dependent oxidative stress and TLR4-induced inflammation in the hypothalamic paraventricular nucleus in high salt-induced hypertension. *Antioxidants* 11: 288.

## 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](http://www.scbt.com) for detailed protocols and support products.



See **Na<sup>+</sup>/K<sup>+</sup>-ATPase α (M7-PB-E9): sc-58628** for Na<sup>+</sup>/K<sup>+</sup>-ATPase α antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.