SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase α3 (H-4): sc-365744

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na^+/K^+-ATPase) exists as a oligomeric plasma membrane complex that couples the hydrolysis of one molecule of ATP to the importation of three Na^+ ions and two K^+ ions against their respective electrochemical gradients. As a member of the P-type family of ion motives, Na^+/K^+-ATPase plays a critical role in maintaining cellular volume, resting membrane potential and Na^+-coupled solute transport. Multiple isoforms of three subunits, α, β and γ, comprise the Na^+/K^+-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^+/K^+-ATPase for ATP. The β subunit, but not the γ subunit, is essential for normal activity of Na^+/K^+-ATPase.

REFERENCES

1. 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.
2. Ackermann, U., et al. 1990. Mutual dependence of Na,K-ATPase α- and β-subunits for correct post-translational processing and intracellular transport. FEBS Lett. 269: 105-108.

CHROMOSOMAL LOCATION

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

SOURCE

Na^+/K^+-ATPase α3 (H-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 419-446 within an internal region of Na^+/K^+-ATPase α3 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^+/K^+-ATPase α3 (H-4) is available conjugated to agarose (sc-365744 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365744 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365744 PE), fluorescein (sc-365744 FITC), Alexa Fluor® 488 (sc-365744 AF488), Alexa Fluor® 546 (sc-365744 AF546), Alexa Fluor® 594 (sc-365744 AF594) or Alexa Fluor® 647 (sc-365744 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365744 AF680) or Alexa Fluor® 790 (sc-365744 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365744 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

Na^+/K^+-ATPase α3 (H-4) is recommended for detection of Na^+/K^+-ATPase α3 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).

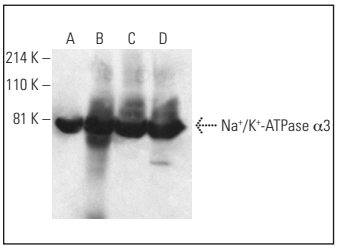
Na^+/K^+-ATPase α3 (H-4) is also recommended for detection of Na^+/K^+-ATPase α3 in additional species, including equine, canine and porcine.

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

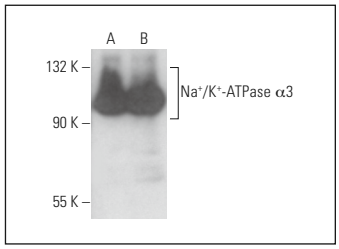
Molecular Weight of Na^+/K^+-ATPase α3: 113 kDa.

Positive Controls: human brain extract: sc-364375, rat brain extract: sc-2392 or rat cerebellum extract: sc-2398.

DATA



Na^+/K^+-ATPase α3 (H-4): sc-365744. Western blot analysis of Na^+/K^+-ATPase α3 expression in human brain (**A**), mouse brain (**B**), rat cerebellum (**C**) and rat brain (**D**) tissue extracts. Detection reagent used: m-IgG_1 BP-HRP: sc-525408.



Na^+/K^+-ATPase α3 (H-4): sc-365744. Western blot analysis of Na^+/K^+-ATPase α3 expression in rat brain (**A**) and rat cerebellum (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Lang, C., et al. 2019. Single-cell sequencing of iPSC-dopamine neurons reconstructs disease progression and identifies HDAC4 as a regulator of Parkinson cell phenotypes. Cell Stem Cell 24: 93-106.e6.
2. Arystarkhova, E., et al. 2021. Misfolding, altered membrane distributions, and the unfolded protein response contribute to pathogenicity differences in Na,K-ATPase ATP1A3 mutations. J. Biol. Chem. 296: 100019.
3. Fukuda, R., et al. 2025. Perturbation of EPHA2 and EFNA1 trans binding amplifies inflammatory response in airway epithelial cells. iScience 28: 111872.

STORAGE

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