

Na⁺/K⁺-ATPase α 3 (H-4): sc-365744



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

- 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.
- 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 α 3 (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 α 3 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Na⁺/K⁺-ATPase α 3 (H-4) is available conjugated to agarose (sc-365744 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365744 HRP), 200 μ g/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 μ g/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 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

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RESEARCH USE

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

APPLICATIONS

Na⁺/K⁺-ATPase α 3 (H-4) is recommended for detection of Na⁺/K⁺-ATPase α 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

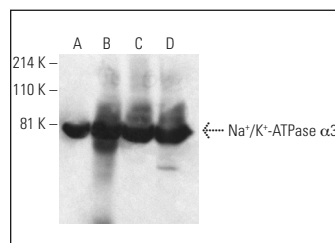
Na⁺/K⁺-ATPase α 3 (H-4) is also recommended for detection of Na⁺/K⁺-ATPase α 3 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for Na⁺/K⁺-ATPase α 3 siRNA (h): sc-36012, Na⁺/K⁺-ATPase α 3 siRNA (m): sc-36013, Na⁺/K⁺-ATPase α 3 shRNA Plasmid (h): sc-36012-SH, Na⁺/K⁺-ATPase α 3 shRNA Plasmid (m): sc-36013-SH, Na⁺/K⁺-ATPase α 3 shRNA (h) Lentiviral Particles: sc-36012-V and Na⁺/K⁺-ATPase α 3 shRNA (m) Lentiviral Particles: sc-36013-V.

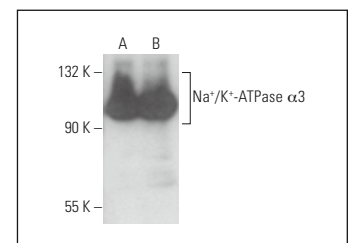
Molecular Weight of Na⁺/K⁺-ATPase α 3: 113 kDa.

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

DATA



Na⁺/K⁺-ATPase α 3 (H-4): sc-365744. Western blot analysis of Na⁺/K⁺-ATPase α 3 expression in human brain (A), mouse brain (B), rat cerebellum (C) and rat brain (D) tissue extracts. Detection reagent used: m-IgG₁ BP-HRP: sc-525408.



Na⁺/K⁺-ATPase α 3 (H-4): sc-365744. Western blot analysis of Na⁺/K⁺-ATPase α 3 expression in rat brain (A) and rat cerebellum (B) tissue extracts.

SELECT PRODUCT CITATIONS

- 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.
- 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.
- Wu, D., et al. 2021. Elevated sodium pump α 3 subunit expression promotes colorectal liver metastasis via the p53-PEN/IGFBP3-Akt-mTOR axis. *Front. Oncol.* 11: 743824.

STORAGE

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