SANTA CRUZ BIOTECHNOLOGY, INC.

WNK4 (1E6): sc-293369

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The protein kinase superfamily contains over a thousand proteins in 57 subfamilies that all share a catalytic core of 250-300 amino acids organized in 2 domains. WNK, for "with no lysine (K)", kinases are serine-threonine protein kinases that contain a cysteine residue in place of a lysine residue in a family of proteins that traditionally contain a lysine following a short string of hydrophobic residues. WNK kinases contain a lysine upstream of the traditional position, within a glycine string. This lysine functions as an anchor and orients ATP through interactions with the α and β phosphoryl groups. The catalytic domains of WNK2, WNK3 and WNK4 are 95% homologous to WNK1. The human WNK1 gene encodes a 2,382 amino acid protein that is primarily expressed in heart, kidney, muscle and distal nephron. The human WNK3 gene encodes a protein that is primarily expressed in brain; the human WNK4 gene encodes a 1,243 amino acid protein that is expressed in kidney. Aberrant function of WNK kinases and their associated signaling pathways are implicated in hypertension, increased renal salt reabsorption and impaired K^+ and H^+ excretion.

REFERENCES

1. Xu, B., et al. 2000. WNK1, a novel mammalian serine/threonine protein kinase lacking the catalytic lysine in subdomain II. J. Biol. Chem. 275: 16795-16801.
2. Verissimo, F. and Jordan, P. 2001. WNK kinases, a novel protein kinase subfamily in multi-cellular organisms. Oncogene 20: 5562-5569.
3. Wilson, F.H., et al. 2001. Human hypertension caused by mutations in WNK kinases. Science 293: 1107-1112.
4. Xu, B.E., et al. 2002. Regulation of WNK1 by an autoinhibitory domain and autophosphorylation. J. Biol. Chem. 277: 48456-48462.
5. Hollenberg, N.K. 2002. Human hypertension caused by mutations in WNK kinases. Curr. Hypertens. Rep. 4: 267.
6. Nakamichi, N., et al. 2002. Compilation and characterization of a novel WNK family of protein kinases in *Arabiodpsis thaliana* with reference to circadian rhythms. Biosci. Biotechnol. Biochem. 66: 2429-2436.
7. Yang, C.L., et al. 2003. WNK kinases regulate thiazide-sensitive Na-Cl cotransport. J. Clin. Invest. 111: 1039-1045.
8. Tobin, M.D., et al. 2005. Association of WNK1 gene polymorphisms and haplotypes with ambulatory blood pressure in the general population. Circulation 112: 3423-3429.

CHROMOSOMAL LOCATION

Genetic locus: WNK4 (human) mapping to 17q21.31.

SOURCE

WNK4 (1E6) is a mouse monoclonal antibody raised against amino acids 1144-1243 of WNK4 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

WNK4 (1E6) is recommended for detection of WNK4 of 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

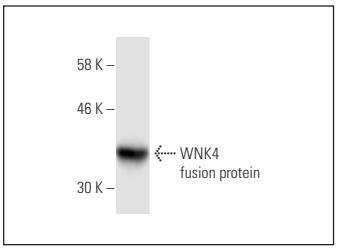
Suitable for use as control antibody for WNK4 siRNA (h): sc-106706, WNK4 shRNA Plasmid (h): sc-106706-SH and WNK4 shRNA (h) Lentiviral Particles: sc-106706-V.

Molecular Weight of WNK4: 135 kDa.

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).

DATA



WNK4 (1E6): sc-293369. Western blot analysis of human recombinant WNK4 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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.