10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

WNK3 Rabbit pAb

Catalog # AP99002

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	Q9BYP7
Other Accession	Q9BYP7
Reactivity	Rat
Predicted	Human, Mouse, Rabbit
Host	Rabbit
Clonality	Polyclonal
Calculated MW	198416
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human WNK3
Epitope Specificity	451-550/1800
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	BBelongs to the protein kinase superfamily. Ser/Thr protein kinase family. WNK subfamily.Contains 1 protein kinase domain.
SUBUNIT	Interacts with WNK1 and WNK4.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	WNK3 (WNK lysine deficient protein kinase 3) belongs to the serine/threonine protein kinase family. It lacks the almost invariant catalytic lysine in subdomain II, which is important for binding ATP in the catalytic site. A conserved lysine in subdomain I is thought to provide this function. WNK3 activates Na-(K)-Cl cotransporters by increasing their phosphorylation and appears to be a crucial component of the kinase/phosphatase signaling pathway that coordinately regulates the Cl– influx and efflux branches of the SLC12A cotransporter family.

Additional Information

Gene ID	65267
Other Names	MRXS2; PRKWNK3; PRS; WNK3_HUMAN; WNK3; Protein kinase lysine-deficient 3; Protein kinase with no lysine 3; 2.7.11.1; KIAA1566; WNK lysine deficient protein kinase 3; protein kinase, lysine deficient 3
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	WNK3 {ECO:0000303|PubMed:11571656, ECO:0000312|HGNC:HGNC:14543}
Function	Serine/threonine-protein kinase component of the WNK3- SPAK/OSR1 kinase cascade, which plays an important role in the regulation of electrolyte homeostasis and regulatory volume increase in response to hyperosmotic stress (PubMed:16275911, PubMed:16275913, PubMed:16501604, PubMed:22989884, PubMed:36318922). WNK3 mediates regulatory volume increase in response to hyperosmotic stress by acting as a molecular crowding sensor, which senses cell shrinkage and mediates formation of a membraneless compartment by undergoing liquid- liquid phase separation (PubMed:36318922). The membraneless compartment concentrates WNK3 with its substrates, OXSR1/OSR1 and STK39/SPAK, promoting WNK3-dependent phosphorylation and activation of downstream kinases OXSR1/OSR1 and STK39/SPAK (PubMed:22989884). Following activation, OXSR1/OSR1 and STK39/SPAK catalyze phosphorylation of ion cotransporters SLC12A1/NKCC2, SLC12A2/NKCC1, SLC12A3/NCC, SLC12A4/KCC1, SLC12A5/KCC2 or SLC12A6/KCC3, regulating their activity (PubMed:16275911, PubMed:16275913). Phosphorylation of Na-K-Cl cotransporters SLC12A2/NKCC1 and SLC12A2/NKCC1 promote their activation and ion influx; simultaneously, phosphorylation of K-Cl cotransporters SLC12A4/KCC1, SLC12A5/KCC2 and SLC12A6/KCC3 inhibits its activity, blocking ion efflux (PubMed:16275911, PubMed:16275913, PubMed:16357011, PubMed:19470686, PubMed:21613606). Phosphorylates WNK4, possibly regulating the activity of SLC12A3/NCC (PubMed:17975670). May also phosphorylate NEDD4L (PubMed:20525693). Also acts as a scaffold protein independently of its protein kinase activity: negatively regulates cell membrane localization of various transporters and channels, such as KCNJ1 and SLC26A9 (PubMed:16357011, PubMed:17673510). Increases Ca(2+) influx mediated by TRPV5 and TRPV6 by enhancing their membrane expression level via a kinase-dependent pathway (PubMed:18768590).
Cellular Location	Cytoplasm. Note=Mediates formation and localizes to cytoplasmic membraneless compartment in response to hyperosmotic stress {ECO:0000250|UniProtKB:Q9H4A3}
Tissue Location	Expressed in brain, lung, kidney, liver and pancreas, and in fetal tissues including placenta, fetal brain, lung and kidney. Very low levels of expression were also detected in fetal heart, thymus, liver and spleen. Isoform 1 is brain-specific. Isoform 3 is kidney-specific.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.