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WNK1 Antibody (Internal)
Rabbit Polyclonal Antibody
Catalog # ALS10907

Specification

WNK1 Antibody (Internal) - Product Information

Application	**IHC-P**
Primary Accession	Q9H4A3
Reactivity	**Human, Monkey**
Host	**Rabbit**
Clonality	**Polyclonal**
Calculated MW	**251kDa KDa**
Dilution	**IHC-P~~N/A**

WNK1 Antibody (Internal) - Additional Information

Gene ID 65125

Other Names
Serine/threonine-protein kinase WNK1, 2.7.11.1, Erythrocyte 65 kDa protein, p65, Kinase deficient protein, Protein kinase lysine-deficient 1, Protein kinase with no lysine 1, hWNK1, WNK1, HSN2, KDP, KIAA0344, PRKWNK1

Target/Specificity
Human WNK1. BLAST analysis of the peptide immunogen showed no homology with other human proteins.

Reconstitution & Storage
Long term: -70°C; Short term: +4°C

Precautions
WNK1 Antibody (Internal) is for research use only and not for use in diagnostic or therapeutic procedures.

WNK1 Antibody (Internal) - Protein Information

Name WNK1 {ECO:0000303|PubMed:11571656, ECO:0000312|HGNC:HGNC:14540}

Function
Serine/threonine-protein kinase component of the WNK1- SPAK/OSR1 kinase cascade, which acts as a key regulator of blood pressure and regulatory volume increase by promoting ion influx (PubMed:15883153, PubMed:17190791, PubMed:31656913, PubMed:34289367, PubMed:36318922). WNK1 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 WNK1 with its substrates, OXSR1/OSR1 and STK39/SPAK, promoting WNK1-dependent phosphorylation and activation of downstream kinases OXSR1/OSR1 and STK39/SPAK (PubMed:15883153, PubMed:16263722, PubMed:17190791, PubMed:19739668, PubMed:21321328, PubMed:22989884, PubMed:25477473, PubMed:34289367, PubMed:36318922). Following activation, OXSR1/OSR1 and STK39/SPAK catalyze phosphorylation of ion cotransporters SLC12A1/NKCC2, SLC12A2/NKCC1, SLC12A5/KCC2 and SLC12A6/KCC3, regulating their activity (PubMed:16263722, PubMed:21321328). Phosphorylation of Na-K-Cl cotransporters SLC12A2/NKCC1 and SLC12A2/NKCC1 promote their activation and ion influx; simultaneously, phosphorylation of K-Cl cotransporters SLC12A5/KCC2 and SLC12A6/KCC3 inhibit their activity, blocking ion efflux (PubMed:19665974, PubMed:21321328). Also acts as a regulator of angiogenesis in endothelial cells via activation of OXSR1/OSR1 and STK39/SPAK: activation of OXSR1/OSR1 regulates chemotaxis and invasion, while STK39/SPAK regulates endothelial cell proliferation (PubMed:25362046). Also acts independently of the WNK1- SPAK/OSR1 kinase cascade by catalyzing phosphorylation of other substrates, such as SYT2, PCF11 and NEDD4L (PubMed:29196535). Mediates phosphorylation of SYT2, regulating SYT2 association with phospholipids and membrane-binding (By similarity). Regulates mRNA export in the nucleus by mediating phosphorylation of PCF11, thereby decreasing the association between PCF11 and POLR2A/RNA polymerase II and promoting mRNA export to the cytoplasm (PubMed:29196535). Acts as a negative regulator of autophagy (PubMed:27911840). Required for the abscission step during mitosis, independently of the WNK1-SPAK/OSR1 kinase cascade (PubMed:21220314). May also play a role in actin cytoskeletal reorganization (PubMed:10660600). Also acts as a scaffold protein independently of its protein kinase activity: negatively regulates cell membrane localization of various transporters and channels, such as SLC4A4, SLC26A6, SLC26A9, TRPV4 and CFTR (By similarity). Involved in the regulation of epithelial Na(+) channel (ENaC) by promoting activation of SGK1 in a kinase-independent manner: probably acts as a scaffold protein that promotes the recruitment of SGK1 to the mTORC2 complex in response to chloride, leading to mTORC2-dependent phosphorylation and activation of SGK1 (PubMed:36373794). Acts as an assembly factor for the ER membrane protein complex independently of its protein kinase activity: associates with EMC2 in the cytoplasm via its amphipathic alpha-helix, and prevents EMC2 ubiquitination and subsequent degradation, thereby promoting EMC2 stabilization (PubMed:33964204).

Cellular Location

Cytoplasm. Nucleus. Cytoplasm, cytoskeleton, spindle. Note=Mediates formation and localizes to cytoplasmic membraneless compartment in response to hyperosmotic stress (PubMed:36318922). Also localizes to the nucleus (PubMed:29196535) Localizes to the mitotic spindle during mitosis (PubMed:21220314)

Tissue Location
Widely expressed, with highest levels observed in the testis, heart, kidney and skeletal muscle [Isoform 3]: This isoform is kidney-specific and specifically expressed in the distal convoluted tubule (DCT) and connecting tubule (CNT) of the nephron.

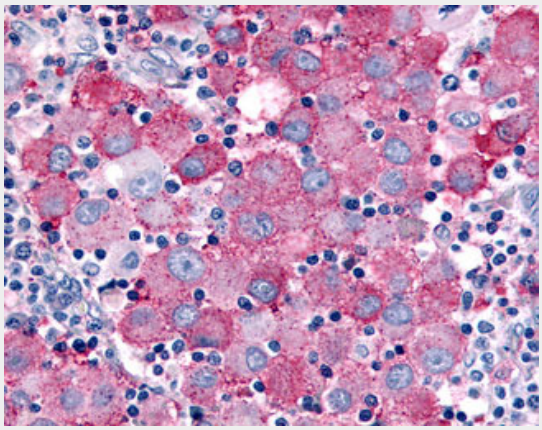
Volume
50 µl

WNK1 Antibody (Internal) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

WNK1 Antibody (Internal) - Images



Anti-WNK1 / p65 antibody IHC of human Skin, Melanoma.

WNK1 Antibody (Internal) - Background

Serine/threonine kinase which plays an important role in the regulation of electrolyte homeostasis, cell signaling, survival, and proliferation. Acts as an activator and inhibitor of sodium-coupled chloride cotransporters and potassium-coupled chloride cotransporters respectively. Activates SCNN1A, SCNN1B, SCNN1D and SGK1. Controls sodium and chloride ion transport by inhibiting the activity of WNK4, by either phosphorylating the kinase or via an interaction between WNK4 and the autoinhibitory domain of WNK1. WNK4 regulates the activity of the thiazide- sensitive Na-Cl cotransporter, SLC12A3, by phosphorylation. WNK1 may also play a role in actin cytoskeletal reorganization. Phosphorylates NEDD4L.

WNK1 Antibody (Internal) - References

Verissimo F.,et al.Oncogene 20:5562-5569(2001).
Vidal-Petiot E.,et al.PLoS ONE 7:E37751-E37751(2012).
Scherer S.E.,et al.Nature 440:346-351(2006).

Moore T.M.,et al.J. Biol. Chem. 275:4311-4322(2000).
Nagase T.,et al.DNA Res. 4:141-150(1997).