

Anti-WNK1 Rabbit Monoclonal Antibody

Catalog # ABO15360

Product Information

Application	WB, IHC
Primary Accession	Q9H4A3
Host	Rabbit
Isotype	IgG
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Format	Liquid
Description	Anti-WNK1 Rabbit Monoclonal Antibody . Tested in WB, IHC applications. This antibody reacts with Human, Mouse, Rat.

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 {ECO:0000312 HGNC:HGNC:14540}, Protein kinase with no lysine 1, hWNK1, WNK1 {ECO:0000303 PubMed:11571656, ECO:0000312 HGNC:HGNC:14540}
Calculated MW	250794
Application Details	WB 1:500-1:2000 IHC 1:50-1:200
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: 19W36
Immunogen	A synthesized peptide derived from human WNK1
Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

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](#)).

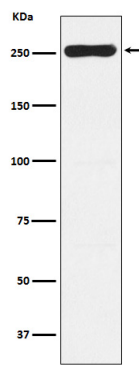
Cellular Location

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.

Images



Western blot analysis of WNK1 expression in Saos-2 cell lysate.

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