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Anti-WNK1 Picoband Antibody

Catalog # ABO12649

Product Information

Application	WB, IHC-P
Primary Accession	Q9H4A3
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Serine/threonine-protein kinase WNK1(WNK1) detection. Tested with WB, IHC-P in Human;Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

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
Calculated MW	250794
Application Details	Immunohistochemistry(Paraffin-embedded Section), 0.5-1 □g/ml, Human, Mouse, Rat, By Heat Western blot, 0.1-0.5 □g/ml, Rat, Human
Subcellular Localization	Cytoplasm .
Tissue Specificity	Widely expressed, with highest levels observed in the testis, heart, kidney and skeletal muscle. Isoform 3 is kidney-specific and specifically expressed in the distal convoluted tubule (DCT) and connecting tubule (CNT) of the nephron. .
Source	Eukaryota
Protein Name	Serine/threonine-protein kinase WNK1
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence in the middle region of human WNK1 (1154-1195aa DNPEEIATIMVNNDFILAIERESFVDQVREIIEKADEMLSED), different from the related mouse and rat sequences by one amino acid.

Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.

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.

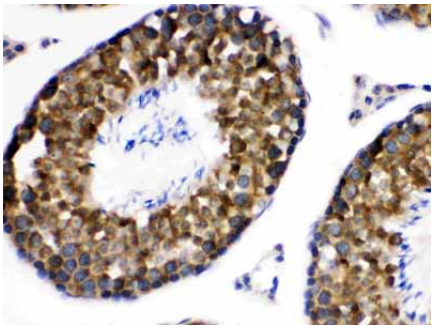
Background

WNK lysine deficient protein kinase 1, also known as WNK1, is an enzyme that in humans is encoded by the WNK1 gene. The human gene is located on short arm of chromosome 12 (12p13.3). This gene encodes a member of the WNK subfamily of serine/threonine protein kinases. The encoded protein may be a key regulator of blood pressure by controlling the transport of sodium and chloride ions. Mutations in this gene have been associated with pseudohypoaldosteronism type II and hereditary sensory neuropathy type II. Alternatively spliced transcript variants encoding different isoforms have been described but the full-length nature of all of them has yet to be determined.

Images

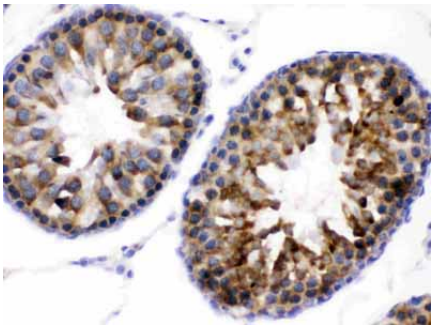


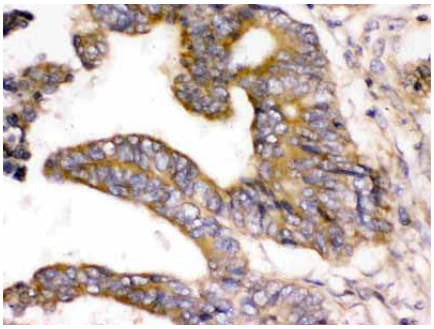
Western blot analysis of WNK1 expression in rat testis extract (lane 1). WNK1 at 250KD was detected using rabbit anti- WNK1 Antigen Affinity purified polyclonal antibody (Catalog # ABO12649) at 0.5 □¼g/mL. The blot was developed using chemiluminescence (ECL) method .



WNK1 was detected in paraffin-embedded sections of mouse testis tissues using rabbit anti-WNK1 Antigen Affinity purified polyclonal antibody (Catalog # ABO12649) at 1 □¼g/mL. The immunohistochemical section was developed using SABC method .

WNK1 was detected in paraffin-embedded sections of rat testis tissues using rabbit anti-WNK1 Antigen Affinity purified polyclonal antibody (Catalog # ABO12649) at 1 ??g/mL. The immunohistochemical section was developed using SABC method .





WNK1 was detected in paraffin-embedded sections of human intestinal cancer tissues using rabbit anti-WNK1 Antigen Affinity purified polyclonal antibody (Catalog # ABO12649) at 1 □¼g/mL. The immunohistochemical section was developed using SABC method .

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