

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide
Synthetic peptide
Catalog # BP7054a**Specification**

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - Product InformationPrimary Accession [Q9BYP7](#)**WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - Additional Information****Gene ID** 65267**Other Names**

Serine/threonine-protein kinase WNK3, Protein kinase lysine-deficient 3, Protein kinase with no lysine 3, WNK3, KIAA1566, PRKWINK3

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP7054a](/product/products/AP7054a) was selected from the N-term region of human PRKWINK3. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - 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](http://www.uniprot.org/citations/16275911), PubMed: [16275913](http://www.uniprot.org/citations/16275913), PubMed: [16501604](http://www.uniprot.org/citations/16501604), PubMed: [22989884](http://www.uniprot.org/citations/22989884), PubMed: [36318922](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/36318922))

target="_blank">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.

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - Protocols

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

- [Blocking Peptides](#)

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - Images

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - Background

Members of the 'with no lysine' (WNK) kinase family, such as WNK3, are serine-threonine protein kinases that lack the almost invariant catalytic lysine in subdomain II, which is important for binding ATP in the catalytic site. Instead, these kinases have a conserved lysine in subdomain I that is thought to provide this function (Holden et al., 2004 [PubMed 15194194]).[supplied by OMIM]

WNK3 (PRKWINK3) Antibody (N-term) Blocking peptide - References

Verissimo, F., et al., Oncogene 20(39):5562-5569 (2001). Nagase, T., et al., DNA Res. 7(4):273-281

(2000).