

PRODUCT INFORMATION



WNK4 (mouse, recombinant)

Item No. 43754

Overview and Properties

Synonyms: Protein Kinase Lysine-deficient 4, Protein Kinase With No Lysine 4, Serine/threonine Protein Kinase WNK4, With No Lysine Kinase 4, WNK Lysine Deficient Protein Kinase 4

Source: Active recombinant mouse N-terminal GST-tagged WNK4 expressed in insect cell

Amino Acids: 1-441

Uniprot No.: Q80UE6

Molecular Weight: 86 kDa

Storage: -80°C (as supplied)

Stability: ≥1 year

Purity: ≥85% estimated by SDS-PAGE

Supplied in: Sterile 50 mM Tris-HCl, pH 7.5, 50-300 mM sodium chloride, 10 mM glutathione, 0.1 mM EDTA, 0.25-1 mM DTT, 0-0.1 mM PMSF, and 10-25% glycerol

Protein

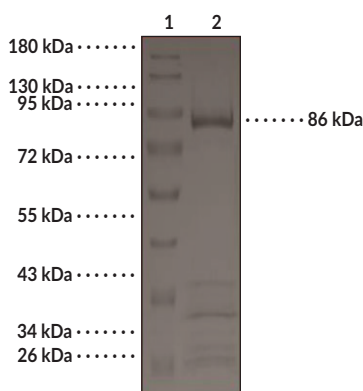
Concentration: *batch specific* mg/ml

Activity: *batch specific* U/ml

Specific Activity: *batch specific* U/mg

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

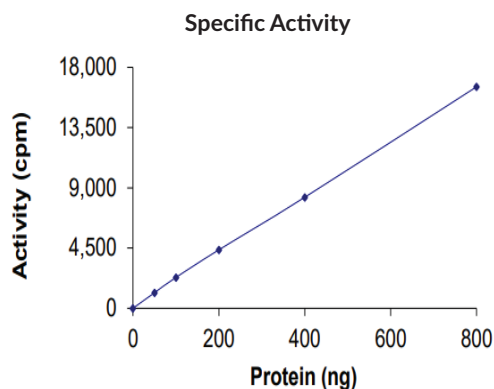
Images



Lane 1: MW Markers
Lane 2: WNK4

SDS-PAGE Analysis of WNK4.

Representative gel image shown; actual purity may vary between each batch.



The specific activity of WNK4 was determined to be 1.5 nmol/min/mg as per the radiometric activity assay protocol.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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Description

WNK lysine deficient protein kinase 4 (WNK4) is a kinase member of the serine/threonine protein kinase family.^{1,2} It is composed of an N-terminal kinase domain, a PF2-like autoinhibitory domain, a coiled-coiled domain, an acidic motif, an RFQV sequence, a second coil-coiled domain, and a C-terminal calmodulin-binding domain.^{1,3} WNK4 localizes to cell tight junctions and is primarily expressed in distal nephron epithelial cells.¹ It regulates renal ion exchange by positively regulating kidney-specific Na-K-Cl cotransporter (NKCC2), Na-Cl symporter (NCC), and pendrin and negatively regulating epithelial sodium channel (ENaC) and inward-rectifier potassium channel 1.1 (K_{ir}1.1).^{1,3,4} Missense mutations in WNK4 lead to the development of familial hyperkalemic hypertension (FHHT), a syndrome characterized by hypertension and increased blood levels of potassium and chloride caused by disrupted kidney ion exchange.⁵ Cayman's WNK4 protein can be used for enzyme activity and Western blot (WB) applications. This protein consists of 441 amino acids and has a calculated molecular weight of 86 kDa.

References

1. Murillo-de-Ozores, A.R., Rodríguez-Gama, A., Carbajal-Contreras, H., *et al.* WNK4 kinase: From structure to physiology. *Am. J. Physiol. Renal Physiol.* **320**(3), F378-F403 (2021).
2. Peng, J.-B. and Warnock, D.G. WNK4-mediated regulation of renal ion transport proteins. *Am. J. Physiol. Renal Physiol.* **293**(4), F961-F973 (2007).
3. Ring, A.M., Leng, Q., Rinehart, J., *et al.* An SGK1 site in WNK4 regulates Na⁺ channel and K⁺ channel activity and has implications for aldosterone signaling and K⁺ homeostasis. *Proc. Natl. Acad. Sci. USA* **104**(10), 4025-4029 (2007).
4. Terker, A.S., Castañeda-Bueno, M., Ferdaus, M.Z., *et al.* With no lysine kinase 4 modulates sodium potassium 2 chloride cotransporter activity in vivo. *Am. J. Physiol. Renal Physiol.* **315**(4), F781-F790 (2018).
5. Wilson, F.H., Disse-Nicodème, S., Choate, K.A., *et al.* Human hypertension caused by mutations in WNK kinases. *Science* **293**(5532), 1107-1112 (2001).