

Nek9 (39-7): sc-100401

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. Nek9 [NIMA (never in mitosis gene a)-related kinase 9], also known as serine/threonine-protein kinase Nek9, NERCC, NERCC1, MGC16714, MGC138306 or DKFZp434D0935, is a 979 amino acid protein that localizes to cytoplasm and nucleus. Highly expressed in liver, heart, kidney and testis, Nek9 is also expressed at lower levels in fibroblasts and smooth muscle cells. Nek9 regulates G₁/S transition and S phase progression by influencing spindle dynamics and chromosome separation. Nek9 phosphorylates different histones (Histone H3 on serine and threonine), myelin basic protein, β -casein (serine) and BICD2. Nek9 interacts with Ran GTPase, Nek6, Nek7, BICD2, SSRP1 and SUPT16H/FACT complex.

REFERENCES

1. Roig, J., et al. 2002. Nercc1, a mammalian NIMA-family kinase, binds the Ran GTPase and regulates mitotic progression. *Genes Dev.* 16: 1640-1658.
2. Belham, C., et al. 2003. A mitotic cascade of NIMA family kinases. Nercc1/Nek9 activates the Nek6 and Nek7 kinases. *J. Biol. Chem.* 278: 34897-34909.

CHROMOSOMAL LOCATION

Genetic locus: NEK9 (human) mapping to 14q24.3; Nek9 (mouse) mapping to 12 D2.

SOURCE

Nek9 (39-7) is a mouse monoclonal antibody raised against recombinant Nek9 of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Nek9 (39-7) is recommended for detection of Nek9 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Nek9 siRNA (h): sc-61178, Nek9 siRNA (m): sc-61179, Nek9 shRNA Plasmid (h): sc-61178-SH, Nek9 shRNA Plasmid (m): sc-61179-SH, Nek9 shRNA (h) Lentiviral Particles: sc-61178-V and Nek9 shRNA (m) Lentiviral Particles: sc-61179-V.

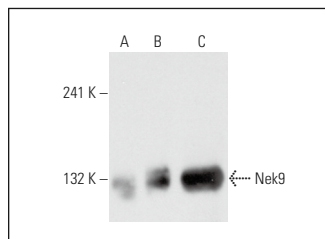
Molecular Weight of Nek9: 120 kDa.

Positive Controls: Nek9 (m): 293T Lysate: sc-122002, SK-N-MC cell lysate: sc-2237 or HeLa whole cell lysate: sc-2200.

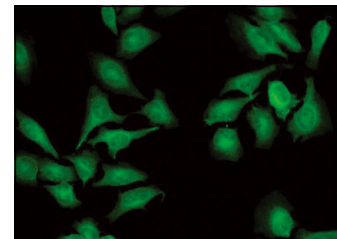
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Nek9 (39-7): sc-100401. Western blot analysis of Nek9 expression in non-transfected 293T: sc-117752 (A), mouse Nek9 transfected 293T: sc-122002 (B) and SK-N-MC (C) whole cell lysates.



Nek9 (39-7): sc-100401. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Dai, D.P., et al. 2013. In vitro functional characterization of 37 CYP2C9 allelic isoforms found in Chinese Han population. *Acta Pharmacol. Sin.* 34: 1449-1456.
2. Smith, S.C., et al. 2014. A gemcitabine sensitivity screen identifies a role for Nek9 in the replication stress response. *Nucleic Acids Res.* 42: 11517-11527.
3. van Ree, J.H., et al. 2016. Pten regulates spindle pole movement through Dlg1-mediated recruitment of Eg5 to centrosomes. *Nat. Cell Biol.* 18: 814-821.
4. Zhou, X.Y., et al. 2019. Enzymatic activities of CYP3A4 allelic variants on quinine 3-hydroxylation *in vitro*. *Front. Pharmacol.* 10: 591.
5. Donovan, K.A., et al. 2020. Mapping the degradable kinome provides a resource for expedited degrader development. *Cell* 183: 1714-1731.e10.
6. Lu, G., et al. 2021. Nek9, a novel effector of IL-6/STAT3, regulates metastasis of gastric cancer by targeting ARHGEF2 phosphorylation. *Theranostics* 11: 2460-2474.
7. Yamamoto, Y., et al. 2021. Nek9 regulates primary cilia formation by acting as a selective autophagy adaptor for MYH9/myosin IIA. *Nat. Commun.* 12: 3292.
8. Lu, G., et al. 2023. Cancer associated fibroblast derived SLIT2 drives gastric cancer cell metastasis by activating Nek9. *Cell Death Dis.* 14: 421.
9. Barabutis, N. and Akhter, M.S. 2024. Involvement of Nek2 and Nek9 in LPS-induced endothelial barrier dysfunction. *Microvasc. Res.* 152: 104651.

RESEARCH USE

For research use only, not for use in diagnostic procedures.