SANTA CRUZ BIOTECHNOLOGY, INC.

Nek5 (G-12): sc-515457

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Nek5 (NimA-related protein kinase 5) is a 708 amino acid protein that is related to NIMA, a protein that was originally discovered in *Aspergillus nidulans* and is necessary for entry into mitosis. One of several members of the Ser/Thr protein kinase super family, Nek5 contains one protein kinase domain through which it catalyzes the ATP-dependent phosphorylation of target proteins. Like NIMA, Nek5 may be involved in mitotic regulation and cell cycle control.

REFERENCES

1. Hanks, S.K., Quinn, A.M. and Hunter, T. 1988. The protein kinase family: conserved features and deduced phylogeny of the catalytic domains. Science 241: 42-52.
2. Lu, K.P. and Hunter, T. 1995. Evidence for a NIMA-like mitotic pathway in vertebrate cells. Cell 81: 413-424.
3. Pu, R.T. and Osmani, S.A. 1995. Mitotic destruction of the cell cycle regulated NIMA protein kinase of *Aspergillus nidulans* is required for mitotic exit. EMBO J. 14: 995-1003.
4. Lu, K.P. and Hunter, T. 1995. The NIMA kinase: a mitotic regulator in *Aspergillus nidulans* and vertebrate cells. Prog. Cell Cycle Res. 1: 187-205.
5. Li, J.J. and Li, S.A. 2006. Mitotic kinases: the key to duplication, segregation, and cytokinesis errors, chromosomal instability, and oncogenesis. Pharmacol. Ther. 111: 974-984.

CHROMOSOMAL LOCATION

Genetic locus: NEK5 (human) mapping to 13q14.3.

SOURCE

Nek5 (G-12) is a mouse monoclonal antibody raised against amino acids 413-491 mapping within an internal region of Nek5 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Nek5 (G-12) is available conjugated to agarose (sc-515457 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515457 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515457 PE), fluorescein (sc-515457 FITC), Alexa Fluor® 488 (sc-515457 AF488), Alexa Fluor® 546 (sc-515457 AF546), Alexa Fluor® 594 (sc-515457 AF594) or Alexa Fluor® 647 (sc-515457 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515457 AF680) or Alexa Fluor® 790 (sc-515457 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

Nek5 (G-12) is recommended for detection of Nek5 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 Nek5 siRNA (h): sc-75895, Nek5 shRNA Plasmid (h): sc-75895-SH and Nek5 shRNA (h) Lentiviral Particles: sc-75895-V.

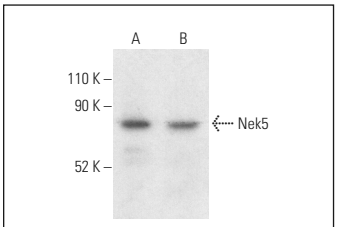
Molecular Weight of Nek5: 81 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

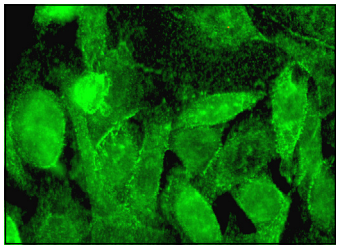
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Nek5 (G-12): sc-515457. Western blot analysis of Nek5 expression in K-562 (**A**) and Hep G2 (**B**) whole cell lysates. Detection reagent used: m-IgG_{2a} BP-HRP: sc-542731.



Nek5 (G-12): sc-515457. Immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. de Castro Ferezin, C., Basei, F.L., Melo-Hanchuk, T.D., de Oliveira, A.L., de Oliveira, A.P., Mori, M.P., de Souza-Pinto, N.C. and Kobarg, J. 2021. NEK5 interacts with LonP1 and its kinase activity is essential for the regulation of mitochondrial functions and mtDNA maintenance. FEBS Open Bio 11: 546-563.

STORAGE

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