SANTA CRUZ BIOTECHNOLOGY, INC.

Nek2 (D-8): sc-55601

BACKGROUND

NIMA was originally shown in *Aspergillus nidulans* to be necessary for entry into mitosis. NIMA-related mammalian proteins have since been identified as Nek1, Nek2, Nek3 and Nek4 (also designated STK2 or NRK2). High expression of Nek1 is seen in male and female germ cell lines of mouse. Nek2 is the closest known mammalian relative to NIMA. Like NIMA, Nek2 expression peaks at the G_2 to M phase transition. Nek3 is a predominantly cytoplasmic enzyme that was detectable in all organs studied. Levels of Nek3 seem to remain unchanged throughout the cell cycle, but appear to be elevated in G_0-arrested, quiescent fibroblasts. In developing testicular germ cells, differential patterns of expression were seen for Nek1, Nek2 and Nek4, indicating possible overlapping, but non-identical functions.

CHROMOSOMAL LOCATION

Genetic locus: NEK2 (human) mapping to 1q32.3; Nek2 (mouse) mapping to 1 H6.

SOURCE

Nek2 (D-8) is a mouse monoclonal antibody raised against amino acids 211-445 mapping at the C-terminus of Nek2 of human origin.

PRODUCT

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

Nek2 (D-8) is available conjugated to agarose (sc-55601 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55601 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55601 PE), fluorescein (sc-55601 FITC), Alexa Fluor® 488 (sc-55601 AF488), Alexa Fluor® 546 (sc-55601 AF546), Alexa Fluor® 594 (sc-55601 AF594) or Alexa Fluor® 647 (sc-55601 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55601 AF680) or Alexa Fluor® 790 (sc-55601 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Nek2 (D-8) is recommended for detection of Nek2 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (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 Nek2 siRNA (h): sc-43960, Nek2 siRNA (m): sc-44876, Nek2 shRNA Plasmid (h): sc-43960-SH, Nek2 shRNA Plasmid (m): sc-44876-SH, Nek2 shRNA (h) Lentiviral Particles: sc-43960-V and Nek2 shRNA (m) Lentiviral Particles: sc-44876-V.

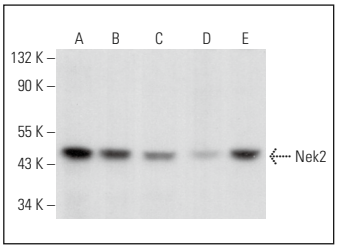
Molecular Weight of Nek2: 47 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, K-562 whole cell lysate: sc-2203 or KNRK whole cell lysate: sc-2214.

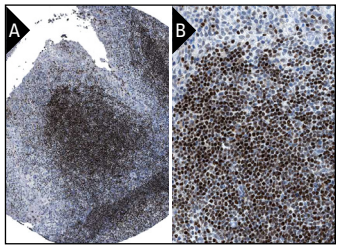
STORAGE

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

DATA



Nek2 (D-8): sc-55601. Western blot analysis of Nek2 expression in K-562 (**A**), A-431 (**B**), A549 (**C**), KNRK (**D**) and NIH/3T3 (**E**) whole cell lysates.



Nek2 (D-8): sc-55601. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing nuclear staining of lymphoid cells at low (**A**) and high (**B**) magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Andrews, P.S., et al. 2010. Identification of substrates of SMURF1 ubiquitin ligase activity utilizing protein microarrays. Assay Drug Dev. Technol. 8: 471-487.
2. Nabilsi, N.H., et al. 2013. Local depletion of DNA methylation identifies a repressive p53 regulatory region in the Nek2 promoter. J. Biol. Chem. 288: 35940-35951.
3. Yang, Y., et al. 2014. Nek2 mediates ALDH1A1-dependent drug resistance in multiple myeloma. Oncotarget 5: 11986-11997.
4. Endicott, S.J., et al. 2015. The NIMA-like kinase Nek2 is a key switch balancing cilia biogenesis and resorption in the development of left-right asymmetry. Development 142: 4068-4079.
5. Wu, S.M., et al. 2016. Hepatoma cell functions modulated by Nek2 are associated with liver cancer progression. Int. J. Cancer 140: 1581-1596.
6. Lai, X.B., et al. 2017. NIMA-related kinase 2 regulates hepatocellular carcinoma cell growth and proliferation. Oncol. Lett. 13: 1587-1594.
7. Franqui-Machin, R., et al. 2018. Destabilizing Nek2 overcomes resistance to proteasome inhibition in multiple myeloma. J. Clin. Invest. 128: 2877-2893.
8. Uxa, S., et al. 2019. DREAM and RB cooperate to induce gene repression and cell-cycle arrest in response to p53 activation. Nucleic Acids Res. 47: 9087-9103.
9. Kim, H.J., et al. 2020. Crosstalk between HSPA5 arginylation and sequential ubiquitination leads to Akt degradation through autophagy flux. Autophagy 17: 961-979.
10. Jian, F., et al. 2021. Nek2 regulates cellular proliferation and cabergoline sensitivity in pituitary adenomas. J. Cancer 12: 2083-2091.

RESEARCH USE

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