

# KIF3A (E-5): sc-376680

## BACKGROUND

The kinesins constitute a large family of microtubule-dependent motor proteins which are responsible for the distribution of numerous organelles, vesicles and macromolecular complexes throughout the cell. Individual kinesin members play crucial roles in cell division, intracellular transport and membrane trafficking events including endocytosis and transcytosis. Members of the heterotrimeric kinesin II family of microtubule associated motors generally contain two different motor subunits from the KIF3 family, which includes KIF3A, B and C. KIF3 isoforms mediate anterograde transport of membrane bound organelles in neurons and melanosomes, transport between the endoplasmic reticulum and the Golgi, and transport of protein complexes within cilia and flagella required for their morphogenesis. KIF3A may influence neurogenesis at the level of embryonic cellular events, where the asymmetry of the genetic control circuit controlling left-right (L-R) axis determination is defined. Loss of KIF3A function in mice photoreceptors causes apoptotic cell death, suggesting that kinesin II mediated transport is required for proper cell fate.

## REFERENCES

- Hamm-Alvarez, S.F. 1998. Molecular motors and their role in membrane traffic. *Adv. Drug Deliv. Rev.* 29: 229-242.
- Cole, D.G. 1999. Kinesin-II, the heteromeric kinesin. *Cell. Mol. Life Sci.* 56: 217-226.
- Marszalek, J.R., et al. 1999. Situs inversus and embryonic ciliary morphogenesis defects in mouse mutants lacking the KIF3A subunit of kinesin-II. *Proc. Natl. Acad. Sci. USA* 96: 5043-5048.

## CHROMOSOMAL LOCATION

Genetic locus: KIF3A (human) mapping to 5q31.1; Kif3a (mouse) mapping to 11 B1.3.

## SOURCE

KIF3A (E-5) is a mouse monoclonal antibody raised against amino acids 548-702 mapping at the C-terminus of KIF3A of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KIF3A (E-5) is available conjugated to agarose (sc-376680 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376680 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376680 PE), fluorescein (sc-376680 FITC), Alexa Fluor® 488 (sc-376680 AF488), Alexa Fluor® 546 (sc-376680 AF546), Alexa Fluor® 594 (sc-376680 AF594) or Alexa Fluor® 647 (sc-376680 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376680 AF680) or Alexa Fluor® 790 (sc-376680 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

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

## APPLICATIONS

KIF3A (E-5) is recommended for detection of KIF3A 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

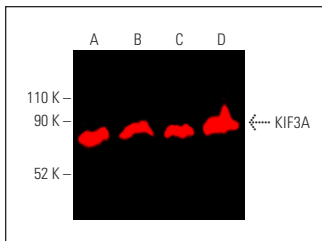
KIF3A (E-5) is also recommended for detection of KIF3A in additional species, including equine and bovine.

Suitable for use as control antibody for KIF3A siRNA (h): sc-43374, KIF3A siRNA (m): sc-43375, KIF3A siRNA (r): sc-270301, KIF3A shRNA Plasmid (h): sc-43374-SH, KIF3A shRNA Plasmid (m): sc-43375-SH, KIF3A shRNA Plasmid (r): sc-270301-SH, KIF3A shRNA (h) Lentiviral Particles: sc-43374-V, KIF3A shRNA (m) Lentiviral Particles: sc-43375-V and KIF3A shRNA (r) Lentiviral Particles: sc-270301-V.

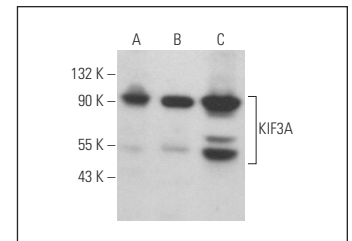
Molecular Weight of KIF3A: 77 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

## DATA



KIF3A (E-5): sc-376680. Near-Infrared western blot analysis of KIF3A expression in SH-SY5Y (A), ZR-75-1 (B), MCF7 (C) and Jurkat (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG<sub>1</sub> BP-CFL 790: sc-533666.



KIF3A (E-5): sc-376680. Western blot analysis of KIF3A expression in HeLa (A), ZR-75-1 (B) and Jurkat (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Zhong, M., et al. 2016. Tumor suppressor folliculin regulates mTORC1 through primary cilia. *J. Biol. Chem.* 291: 11689-11697.
- Liu, P., et al. 2020. Nrf2 negatively regulates primary ciliogenesis and hedgehog signaling. *PLoS Biol.* 18: e3000620.
- Zhang, Y., et al. 2021. Ciliary localization of folliculin mediated via a kinesin-2-binding motif is required for its functions in mTOR regulation and tumor suppression. *FEBS Lett.* 595: 123-132.
- Tang, C., et al. 2022. Hedgehog signaling is controlled by Rac1 activity. *Theranostics* 12: 1303-1320.

## RESEARCH USE

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