Revision 1

Store at -20C

#8507

KIF3A (D7G3) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R Mk	Endogenous	80	Rabbit IgG	#Q9Y496	11127

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

KIF3A (D7G3) Rabbit mAb recognizes endogenous levels of total KIF3A protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human KIF3A protein.

Background

Kinesin superfamily proteins (KIFs) are molecular motors that drive directional, microtubule-dependent intracellular transport of membrane-bound organelles and other macromolecules (e.g., proteins, nucleic acids). The intracellular transport functions of KIFs are fundamentally important for a variety of cellular functions, including mitotic and meiotic division, motility/migration, hormone and neurotransmitter release, and differentiation (1-4). Disruptions to KIF-mediated intracellular transport have been linked with a variety of pathologies, ranging from tumorigenesis to defects in higher order brain function such as learning and memory (4-6).

Kinesin superfamily protein 3A (KIF3A) is a central component of the kinesin-2 protein complex (7). KIF3A and its paralog KIF3B bind to form a heterodimeric motor protein with ATP-dependent, plus-end-directed microtubule sliding activity (8). The tail domain of this heterodimer binds to kinesin-associated protein 3 (KAP3), which facilitates binding of the KIF3A/3B motor protein to its cargo (7,8). Recent studies in a variety of model organisms have demonstrated a critical role for kinesin-family proteins, including KIF3A, in the formation and function of cilia (9). Notably, KIF3A was shown to mediate cilia-dependent protein-protein interactions that function to transduce canonical Hedgehog signaling (10).

Background References

1. Hirokawa, N. et al. (2009) *Nat Rev Mol Cell Biol* 10, 682-96.
2. Yu, Y. and Feng, Y.M. (2010) *Cancer* 116, 5150-60.
3. Park, J.J. et al. (2008) *Mol Endocrinol* 22, 989-1005.
4. Hirokawa, N. et al. (2010) *Neuron* 68, 610-38.
5. Yoshimura, Y. et al. (2010) *Mol Cell Biol* 30, 2206-19.
6. Hirokawa, N. and Noda, Y. (2008) *Physiol Rev* 88, 1089-118.
7. Haraguchi, K. et al. (2006) *J Biol Chem* 281, 4094-9.
8. Yamazaki, H. et al. (1995) *J Cell Biol* 130, 1387-99.
9. Zhao, C. et al. (2012) *Proc Natl Acad Sci U S A* 109, 2388-93.
10. Humke, E.W. et al. (2010) *Genes Dev* 24, 670-82.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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