Revision 1

Store at -20C

#5527

PIP4K2A (D83C1) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H M R Mk B Pg	Endogenous	50	Rabbit IgG	#P48426	5305

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

PIP4K2A (D83C1) Rabbit mAb recognizes endogenous levels of total PI 5-P 4-kinase type-2 alpha (PIP4K2A) protein. This antibody does not cross-react with PIP4K2B or PIP4K2C and is not predicted to cross-react with type I PIP5Ks or PIKfyve.

Species predicted to react based on 100% sequence homology:

Dog, Horse

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human PIP4K2A protein.

Background

Phosphatidylinositol 5-phosphate 4-kinase type-2 alpha (PtdIns 4-Kinase type II alpha, PIP4K2A), is one of three known members of the type II PIP kinase family, consisting of PIP4K2A, PIP4K2B, and PIP4K2C. Each catalyzes the phosphorylation of phosphatidylinositol 5-monophosphate (PI 5-P) to form phosphatidylinositol 4,5-bisphosphate (PI 4,5-P_2). Originally thought to be a PI 4-P 5-Kinase (1,2), PIP4K2A was subsequently shown to phosphorylate the 4-position of PI 5-P, thus defining a new family of lipid kinases (3). Ubiquitously expressed with highest levels in the brain, mutations in PIP4K2A have been described in patients with Schizophrenia and other neuronal disorders (4-8).

The levels of PI 5-P change significantly in response to physiological and pathological stimuli (5-12), as well as cell transformation with nucleophosmin anaplastic lymphoma tyrosine kinase (13). In contrast, hypoosmotic shock and histamine decrease cellular levels of PI 5-P (14,15). PIP4K2A has been hypothesized to play a role in suppressing mitogen-dependent increases in PI 5-P in response to DNA damage and cellular stress (16-18). PIP4K2A regulates the levels of PI 5-P in the nucleus by converting the PI 5-P to PI 4,5-P_2, thus preventing PI 5-P from interacting with and regulating the ability of ING2 to activate p53 and p53-dependent apoptotic pathways (19). PIP4K2A has been shown to form a heterodimer with PIP4K2B resulting in its recruitment to the nucleus. Interestingly, PIP4K2A is 2000-fold more active than PIP4K2B in this context, suggesting that the two lipid kinases act in tandem, with PIP4K2B acting as the targeting subunit and PIP4K2A the catalytic component (18). PIP4Ks may also play a role in lipid vesicle formation and/or Golgi homeostasis (20).

Background References

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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

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected