Revision 1

#4896 Store at -20C

PLK3 (D14F12) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H M	Endogenous	80	Rabbit IgG	#Q9H4B4	1263

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

PLK3 (D14F12) Rabbit mAb detects endogenous levels of total PLK3 protein.

Species predicted to react based on 100% sequence homology:

Rat, Monkey

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Cys625 of human PLK3 protein.

Background

At least 4 distinct polo-like kinases exist in mammalian cells: PLK1, PLK2, PLK3 and PLK4/SAK (1). Like the other PLK family members, PLK3 contains an amino-terminal catalytic domain and a conserved carboxy-terminal domain termed the Polo box (2). PLK3, also called proliferation-related kinase (Prk) (3), was originally described as a fibroblast growth factor (FGF)-inducible kinase (Fnk) and identified as an immediate-early response gene responsive to FGF-1 and other mitogens (4). PLK3 is a cytokine-inducible serine/threonine kinase whose protein expression is cell cycle regulated. Though its expression is found primarily in G1 phase of the cell cycle, PLK3 is detected in G0 and in late telophase prior to cytokinesis (5). Like the other PLK family members, PLK3 functions mainly as a regulator of the cell cycle. Specifically, PLK3 is required for entry into S phase and is a critical regulator of G1 events, as indicated by RNAi-induced PLK3-depleted cells (2). PLK3 is also involved in the regulation of DNA damage response via phosphorylation of p53 on Ser20 (6). PLK3 may act as a tumor suppressor as Plk3-deficient mice develop spontaneous tumors in various organs (7). Unlike PLK1, PLK3 expression is down regulated in cancers including lung (3), head and neck (8), and colon (9).

Background References

1. Nigg, E.A. (1998) <cite>Curr Opin Cell Biol</cite> 10, 776-83.
2. Zimmerman, W.C. and Erikson, R.L. (2007) <cite>Proc Natl Acad Sci USA</cite> 104, 1847-52.
3. Li, B. et al. (1996) <cite>J Biol Chem</cite> 271, 19402-8.
4. Donohue, P.J. et al. (1995) <cite>J Biol Chem</cite> 270, 10351-7.
5. Zimmerman, W.C. and Erikson, R.L. (2007) <cite>Cell Cycle</cite> 6, 1314-8.
6. Xie, S. et al. (2001) <cite>J Biol Chem</cite> 276, 43305-12.
7. Yang, Y. et al. (2008) <cite>Cancer Res</cite> 68, 4077-85.
8. Dai, W. et al. (2000) <cite>Genes Chromosomes Cancer</cite> 27, 332-6.
9. Dai, W. et al. (2002) <cite>Int J Oncol</cite> 20, 121-6.

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

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