Revision 4

Store at -20C

#95558

RIF1 (D2F2M) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC	H Mk	Endogenous	274	Rabbit IgG	#Q5UIP0	55183

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	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

RIF1 (D2F2M) Rabbit mAb recognizes endogenous levels of total RIF1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala400 of human RIF1 protein.

Background

The Rap1 interacting factor 1 (RIF1) was originally identified as a regulator of telomere homeostasis in yeast and mammalian cells (1). Research studies show that RIF1 regulates the timing of eukaryotic DNA replication origin firing through its effect on chromatin architecture (2-4). Additional studies show that RIF1 is essential for regulating the repair of DNA double-strand breaks (DSBs). RIF1 is recruited to sites of DSBs by 53BP1 in response to DNA damage, and suppresses 5' end resection to favor the non-homologous end joining (NHEJ) pathway over homologous recombination (HR) repair (5-8). Oct-4 and Smad3 modulate RIF1 expression in mouse embryonic stem cells, and RIF1 may regulate embryonic stem cell stability during cell proliferation (9). Inhibition of ATR or CHK1 activity induces CDK1-mediated phosphorylation of RIF1 at serine 2205 (human)/serine 2153 (mouse), leading to firing of dormant origins of DNA replication during S phase (10,11).

Background References

1. Miller, K.M. et al. (2005) *EMBO J* 24, 3128-35.
2. Hayano, M. et al. (2012) *Genes Dev* 26, 137-50.
3. Cornacchia, D. et al. (2012) *EMBO J* 31, 3678-90.
4. Yamazaki, S. et al. (2012) *EMBO J* 31, 3667-77.
5. Zimmermann, M. et al. (2013) *Science* 339, 700-4.
6. Di Virgilio, M. et al. (2013) *Science* 339, 711-5.
7. Chapman, J.R. et al. (2013) *Mol Cell* 49, 858-71.
8. Escribano-Díaz, C. et al. (2013) *Mol Cell* 49, 872-83.
9. Li, P. et al. (2015) *Cell Death Dis* 6, e1588.
10. Moiseeva, T.N. et al. (2019) *Proc Natl Acad Sci U S A* 116, 13374-13383.
11. Sugitani, N. et al. (2022) *Cell Rep* 40, 111371.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: Human **Mk:** Monkey

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