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Cdc6 (C42F7) Rabbit mAb**Cell Signaling**
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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H M R Hm Mk	Endogenous	62	Rabbit IgG	#Q99741	990

Product Usage Information**Application**

Western Blotting

Dilution

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

Cdc6 (C42F7) Rabbit mAb detects endogenous levels of total cdc6 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human cdc6.

Background

The initiation of DNA replication in mammalian cells is a highly coordinated process that ensures duplication of the genome only once per cell division cycle. Origins of replication are dispersed throughout the genome, and their activities are regulated via the sequential binding of pre-replication and replication factors. The origin recognition complex (ORC) is thought to be bound to chromatin throughout the cell cycle (1,2). The pre-replication complex (Pre-RC) forms in late mitosis/early G1 phase beginning with the binding of CDT1 and cdc6 to the origin, which allows binding of the heterohexameric MCM2-7 complex. The MCM complex is thought to be the replicative helicase, and formation of the pre-RC is referred to as chromatin licensing. Subsequent initiation of DNA replication requires the activation of the S-phase promoting kinases cdk2 and cdc7. Cdc7, which is active only in complex with its regulatory subunit dbf4, phosphorylates MCM proteins bound to chromatin and allows binding of the replication factor cdc45 and DNA polymerase (3,4).

Replication licensing is controlled in part by the degradation of cdc6 in quiescent cells. Phosphorylation of cdc6 by cdk2 prevents its degradation, allowing pre-replication complexes to form (5). Cdc6 has recently been shown to play an important role in the intra-S-phase p21 Waf1/Cip1-dependent DNA damage response (6,7). Both cdc6 and CDT1 are degraded by the ubiquitin proteasome pathway in response to DNA damage associated with re-replication (8).

Background References

1. Okuno, Y. et al. (2001) *EMBO J* 20, 4263-77.
2. McNairn, A.J. et al. (2005) *Exp Cell Res* 308, 345-56.
3. Bell, S.P. and Dutta, A. (2002) *Annu Rev Biochem* 71, 333-74.
4. Tsuji, T. et al. (2006) *Mol Biol Cell* 17, 4459-72.
5. Mailand, N. and Diffley, J.F. (2005) *Cell* 122, 915-26.
6. Kan, Q. et al. (2008) *J Biol Chem* 283, 17864-72.
7. Kan, Q. et al. (2008) *Proc Natl Acad Sci USA* 105, 4757-62.
8. Hall, J.R. et al. (2008) *J Biol Chem* 283, 25356-63.

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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