Revision 1

#3386 Store at -20C

CDT1 Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H	Endogenous	65	Rabbit	#Q9H211	81620

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 and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

CDT1 Antibody detects endogenous levels of total CDT1 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the amino terminal sequence of human CDT1.

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 prereplication and replication factors. The origin recognition complex (ORC) is thought to be bound to chromatin throughout the cell cycle (1,2). The prereplication 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).
Binding of CDT1 to geminin prevents pre-RC formation, and expression and degradation of geminin serve to regulate CDT1 activity (reviewed in 5). The interaction of CDT1 with MCM proteins is important in pre-RC formation and licensing (6,7). Both cdc6 and CDT1 are degraded by the ubiquitin proteasome pathway in response to DNA damage associated with rereplication (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. Tada, S. (2007) *Front Biosci* 12, 1629-41.
6. You, Z. and Masai, H. (2008) *J Biol Chem* 283, 24469-77.
7. Teer, J.K. and Dutta, A. (2008) *J Biol Chem* 283, 6817-25.
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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