Revision 4

#2648 Store at -20C

VCP Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M R Mk	Endogenous	89	Rabbit	#P55072	7415

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

This antibody detects endogenous levels of total VCP protein.

Species predicted to react based on 100% sequence homology:

Xenopus, Zebrafish, Bovine, Pig, S. cerevisiae

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to human VCP protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Valosin-containing protein (VCP) is a highly conserved and abundant 97 kDa protein that belongs to the AAA (ATPase associated with a variety of cellular activities) family of proteins. VCP assembles as a homo-hexamer, forming a ring with a channel at its center (1-3). VCP homo-hexamers associate with a variety of protein cofactors to form many distinct protein complexes, which act as chaperones to unfold proteins and transport them to specific cellular compartments or to the proteosome (4). These protein complexes participate in many cellular functions, including vesicle transport and fusion, fragmentation and reassembly of the golgi stacks during mitosis, nuclear envelope formation and spindle disassembly following mitosis, cell cycle regulation, DNA damage repair, apoptosis, B and T cell activation, NF-κB-mediated transcriptional regulation, endoplasmic reticulum (ER)-associated degradation, and protein degradation (4). VCP appears to localize mainly to the endoplasmic reticulum; however, tyrosine phosphorylation is associated with relocalization to the centrosome during mitosis (5). In addition, following cellular exposure to ionizing radiation, VCP is phosphorylated at Ser784 in an ATM-dependent manner and accumulates in the nucleus at sites of double-stranded DNA breaks (DSBs) (6). Exposure to other types of DNA damaging agents such as UV light, bleomycin, or doxorubicin results in phosphorylation of VCP by ATR and DNA-PK in an ATM-independent manner (6).

Background References

1. DeLaBarre, B. and Brunger, A.T. (2003) *Nat. Struct. Biol.* 10, 856-863.
2. Huyton, T. et al. (2003) *J. Struct. Biol.* 144, 337-348.
3. Dreveny, I. et al. (2004) *EMBO J.* 23, 1030-1039.
4. Wang, Q. et al. (2004) *J. Struct. Biol.* 146, 44-57.
5. Madeo, F. et al. (1998) *Mol. Biol. Cell* 9, 131-141.
6. Livingstone, M. et al. (2005) *Cancer Res.* 65, 7533-7540.

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

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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