Revision 4

Store at -20C

#4650

Vinculin Antibody

Cell Signaling TECHNOLOGY®

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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:
W, W-S	H M R Mk Dg	Endogenous	124	Rabbit	#P18206-2	7414

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50

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

Vinculin Antibody detects endogenous levels of total vinculin protein. This antibody also reacts with metavinculin, a 145 kDa splice variant of vinculin.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human vinculin protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Vinculin is a cytoskeletal protein that plays an important role in the regulation of focal adhesions and embryonic development (1-4). Three structural vinculin domains include an amino-terminal head, a short, flexible proline-rich region, and a carboxy-terminal tail (1). In the inactive state, the head and tail domains of vinculin interact to form a closed conformation. The open and active form of vinculin translocates to focal adhesions, where it is thought to be involved in anchoring F-actin to the membrane and regulation of cell migration (2). Phospholipid binding to the tail domain and subsequent phosphorylation of vinculin at Ser1033 and Ser1045 by PKC-α and Tyr100 and Tyr1065 by Src kinases weakens the head-tail interaction (5,6). This change in vinculin allows the binding of a number of other proteins, including talin, α-actinin, and paxillin, which disrupts the head-tail interaction and initiates the conformational change from the inactive to active state (2,4). Vinculin deficiencies are associated with a decrease in cell adhesion and an increase in cell motility, suggesting a possible role in metastatic growth (7,8). This is supported by a demonstrated relationship between decreased vinculin expression and increased carcinogenesis and metastasis in colorectal carcinoma (9).

Background References

1. Izard, T. et al. (2004) *Nature* 427, 171-5.
2. Humphries, J.D. et al. (2007) *J Cell Biol* 179, 1043-57.
3. Witt, S. et al. (2004) *J Biol Chem* 279, 31533-43.
4. Xu, W. et al. (1998) *Development* 125, 327-37.
5. Ziegler, W.H. et al. (2002) *J Biol Chem* 277, 7396-404.
6. Zhang, Z. et al. (2004) *Mol Biol Cell* 15, 4234-47.
7. Rodríguez Fernández, J.L. et al. (1993) *J Cell Biol* 122, 1285-94.
8. Samuels, M. et al. (1993) *J Cell Biol* 121, 909-21.
9. Yang, H.J. et al. (2010) *Cancer Invest* 28, 127-34.

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

W: Western Blotting **W-S:** Simple Western™

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey **Dg:** Dog

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