

#15145 Store at -20°C

## $\alpha$ -Actinin 4 (D7U5A) Rabbit mAb



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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IHC-P	H M R	Endogenous	100	Rabbit IgG	#O43707	81

### Product Usage Information

#### Application

Western Blotting  
Immunohistochemistry (Paraffin)

#### Dilution

1:1000  
1:200

### Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the antibody.

### Specificity / Sensitivity

$\alpha$ -Actinin 4 (D7U5A) Rabbit mAb recognizes endogenous levels of total  $\alpha$ -actinin 4 protein. This antibody does not cross-react with other  $\alpha$ -actinin proteins.

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala6 of human  $\alpha$ -actinin 4 protein.

### Background

$\alpha$ -Actinin belongs to the spectrin family of cytoskeletal proteins. It was first recognized as an actin cross-linking protein, forming an antiparallel homodimer with an actin binding head at the amino terminus of each monomer. The  $\alpha$ -actinin protein interacts with a large number of proteins involved in signaling to the cytoskeleton, including those involved in cellular adhesion, migration, and immune cell targeting (1). The interaction of  $\alpha$ -actinin with intercellular adhesion molecule-5 (ICAM-5) helps to promote neurite outgrowth (2). In osteoblasts, interaction of  $\alpha$ -actinin with integrins stabilizes focal adhesions and may protect cells from apoptosis (3). The cytoskeletal  $\alpha$ -actinin isoforms 1 and 4 (ACTN1, ACTN4) are non-muscle proteins that are present in stress fibers, sites of adhesion and intercellular contacts, filopodia, and lamellipodia. The muscle isoforms 2 and 3 (ACTN2, ACTN3) localize to the Z-discs of striated muscle and to dense bodies and plaques in smooth muscle (1). The ubiquitously expressed  $\alpha$ -actinin 4 (ACTN4) protein typically localizes to the cytoskeleton but extracellular stimuli will prompt nuclear translocation in some cells (4). Research studies suggest that ACTN4 can mediate cell signaling and regulate gene expression as a transcriptional coactivator (5,6). Increased expression of ACTN4 protein and amplification of the *ACTN4* gene are seen in many cancers and correlates with poor prognosis and metastasis (7). Mutations in the corresponding *ACTN4* gene are responsible for focal segmental glomerulosclerosis (FSGS1), a severe renal disorder characterized by reduced kidney function, proteinuria, and progressive kidney failure (8).

### Background References

1. Otey, C.A. and Carpen, O. (2004) *Cell Motil Cytoskeleton* 58, 104-11.
2. Nyman-Huttunen, H. et al. (2006) *J Cell Sci* 119, 3057-66.
3. Triplett, J.W. and Pavalko, F.M. (2006) *Am J Physiol Cell Physiol* 291, C909-21.
4. Honda, K. et al. (1998) *J Cell Biol* 140, 1383-93.
5. Aksenova, V. et al. (2013) *Oncotarget* 4, 362-72.
6. Khurana, S. et al. (2011) *J Biol Chem* 286, 1850-9.
7. Watabe, Y. et al. (2014) *Cancer Med* 3, 613-22.
8. Kaplan, J.M. et al. (2000) *Nat Genet* 24, 251-6.

### 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  $4^{\circ}\text{C}$  with gentle shaking, overnight.

### Applications Key

**WB:** Western Blotting **IHC-P:** Immunohistochemistry (Paraffin)

**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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