Revision 5

Store at +4C

#9856

Vimentin (D21H3) XP® Rabbit mAb (Alexa Fluor® 647 Conjugate)

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
IHC-P, IF-IC, FC-FP	H M R Hm Mk	Endogenous	Rabbit IgG	#P08670	7431

Product Usage Information

Application	Dilution
Immunohistochemistry (Paraffin)	1:100 - 1:400
Immunofluorescence (Immunocytochemistry)	1:400
Flow Cytometry (Fixed/Permeabilized)	1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

Vimentin (D21H3) XP® Rabbit mAb (Alexa Fluor® 647 Conjugate) detects endogenous levels of total vimentin protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Arg45 of human vimentin protein. This antibody was conjugated to Alexa Fluor® 647 under optimal conditions with an F/P ratio of 2-6. The Alexa Fluor® 647 dye is maximally excited by red light (e.g. 633 nm He-Ne laser). Antibody conjugates of the Alexa Fluor® 647 dye produce bright far-red-fluorescence emission, with a peak at 665 nm.

Description

This Cell Signaling Technology antibody is conjugated to Alexa Fluor® 647 fluorescent dye. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated Vimentin (D21H3) XP® Rabbit mAb #5741.

Background

The cytoskeleton consists of three types of cytosolic fibers: microfilaments (actin filaments), intermediate filaments, and microtubules. Major types of intermediate filaments are distinguished by their cell-specific expression: cytokeratins (epithelial cells), glial fibrillary acidic protein (GFAP) (glial cells), desmin (skeletal, visceral, and certain vascular smooth muscle cells), vimentin (mesenchyme origin), and neurofilaments (neurons). GFAP and vimentin form intermediate filaments in astroglial cells and modulate their motility and shape (1). In particular, vimentin filaments are present at early developmental stages, while GFAP filaments are characteristic of differentiated and mature brain astrocytes. Thus, GFAP is commonly used as a marker for intracranial and intraspinal tumors arising from astrocytes (2). Research studies have shown that vimentin is present in sarcomas, but not carcinomas, and its expression is examined in conjunction with that of other markers to distinguish between the two (3). Vimentin's dynamic structural changes and spatial re-organization in response to extracellular stimuli help to coordinate various signaling pathways (4). Phosphorylation of vimentin at Ser56 in smooth muscle cells regulates the structural arrangement of vimentin filaments in response to serotonin (5,6). Remodeling of vimentin and other intermediate filaments is important during lymphocyte adhesion and migration through the endothelium (7).

During mitosis, CDK1 phosphorylates vimentin at Ser56. This phosphorylation provides a PLK binding site for vimentin-PLK interaction. PLK further phosphorylates vimentin at Ser83, which might serve as a memory phosphorylation site and play a regulatory role in vimentin filament disassembly (8,9). Additionally, studies using various soft-tissue sarcoma cells have shown that phosphorylation of vimentin at Ser39 by Akt1 enhances cell migration and survival, suggesting that vimentin could be a potential target for soft-tissue sarcoma targeted therapy (10,11).

Background References

1. Eng, L.F. et al. (2000) *Neurochem Res* 25, 1439-51.
2. Goebel, H.H. et al. (1987) *Acta Histochem Suppl* 34, 81-93.
3. Leader, M. et al. (1987) *Histopathology* 11, 63-72.
4. Helfand, B.T. et al. (2004) *J Cell Sci* 117, 133-41.
5. Tang, D.D. et al. (2005) *Biochem J* 388, 773-83.
6. Fomina, I.G. et al. (1990) *Klin Med (Mosk)* 68, 125-7.
7. Nieminen, M. et al. (2006) *Nat Cell Biol* 8, 156-62.
8. Yamaguchi, T. et al. (2005) *J Cell Biol* 171, 431-6.
9. Oguri, T. et al. (2006) *Genes Cells* 11, 531-40.
10. Zhu, Q.S. et al. (2011) *Oncogene* 30, 457-70.
11. Xue, G. and Hemmings, B.A. (2013) *J Natl Cancer Inst* 105, 393-404.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Applications Key

IHC-P: Immunohistochemistry (Paraffin) **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Hm:** Hamster **Mk:** Monkey

Trademarks and Patents

Limited Uses