

## Background

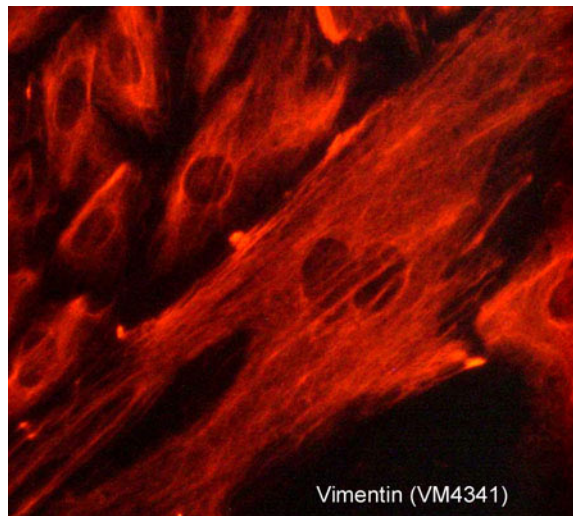
Intermediate filaments (IF) are important components of the cytoskeleton and nuclear envelope. IF protein family members are encoded by 70 genes that have diverse expression patterns during development and tissue-specific functions. For example, the keratins form IFs in epithelial cells, while vimentin forms filaments in mesenchymal, endothelial, and hematopoietic cells. Neurofilament triplet proteins and internexins form IFs in neurons, while desmin, synemin and syncoilin form the extra-sarcomeric cytoskeleton of myoblasts. The nuclear IF system consists of lamin family proteins organized in a meshwork-like lamina around the nucleus. Vimentin is a 58 kDa IF protein that forms 10 nm filaments that are important for mechanical stability, motility, and adhesion in various cell types. Vimentin activity is regulated by proteolysis and phosphorylation. Rho-kinases can phosphorylate vimentin leading to destabilization of intermediate filaments, while Akt phosphorylation of Ser-39 in vimentin reduces proteolysis of vimentin and promotes cancer cell motility and invasion.

## Background References

Goto, H. et al. (1998) J Biol Chem. 273(19):11728.  
Sin, W.C. et al (1998) Mol Cell Biol. 18(11):6325.  
Hermann, H. et al. (2009) J Clin. Invest. 119(7):1772.

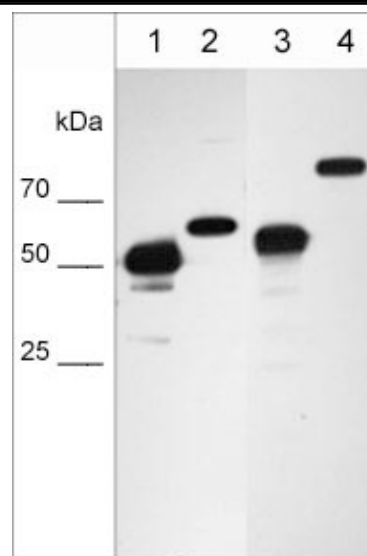
## Product Citations

Paakkola, T. et al. (2018) Hum Mol Genet. 27(24):4288.  
*WB/ICC/EM: human skin fibroblasts*



Vimentin (VM4341)

Immunocytochemical labeling of Vimentin in paraformaldehyde fixed and NP-40 permeabilized A7r5 cells. The cells were labeled with a mouse monoclonal antibody to Vimentin (VM4341), then the antibody was detected using Goat anti-Mouse secondary antibody conjugated to DyLight® 594.



Western blot image of cell structure markers in NCI-H1915 lung carcinoma cells. The blot was probed with anti-Vimentin intermediate filament protein VM4341 (lane 1), anti-Nucleoporin p62 NM4361 (lane 2), anti-Hsp60 mitochondrial protein HM4381 (lane 3), and anti-Calnexin endoplasmic reticulum protein CM4371 (lane 4).

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.

**Immunogen**                      **Uniprot ID: P08670**

Clone (V9) was generated from full length vimentin purified from porcine eye lens. The antibody reacts with human, pig, chicken, rat, and mouse vimentins.

**Buffer and Storage**

Mouse monoclonal antibody purified with protein A chromatography is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

**Applications**

WB	1:200
ICC	1:100
ELISA	1:1000

**Species Reactivity**

Hu, Rt, Ms, Ck

**Isotype:** IgG1

End user should determine optimal dilution for their particular applications and experiments.

Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.

Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot  
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

**Specificity**

The antibody detects a 58 kDa\* protein corresponding to the molecular mass of vimentin on SDS-PAGE immunoblots of human fibroblasts (HS-68). In immunocytochemistry, the antibody detects intermediate filaments in rat smooth muscle cells (A7r5).

\*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.

"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

**Related Products**

AK6060 Actin & Tubulin Antibody Sampler Kit

AM2021 Actin (C-terminal region) Mouse Monoclonal

TM4111 α-Tubulin (C-terminus) Mouse Monoclonal

TM1541 β-Tubulin Mouse Monoclonal

TP1691 βIII-Tubulin (C-terminus) Rabbit Polyclonal

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.