

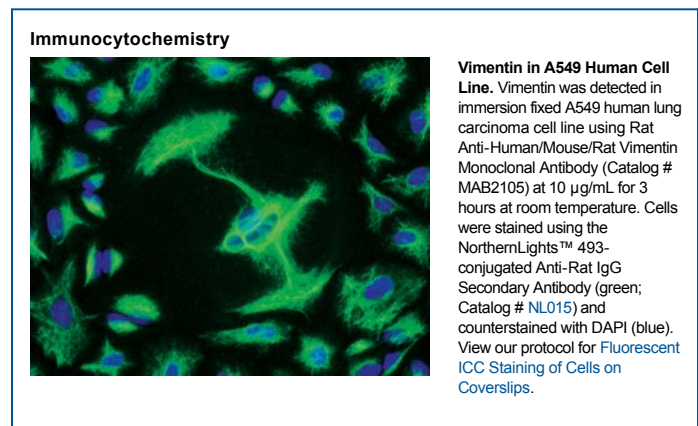
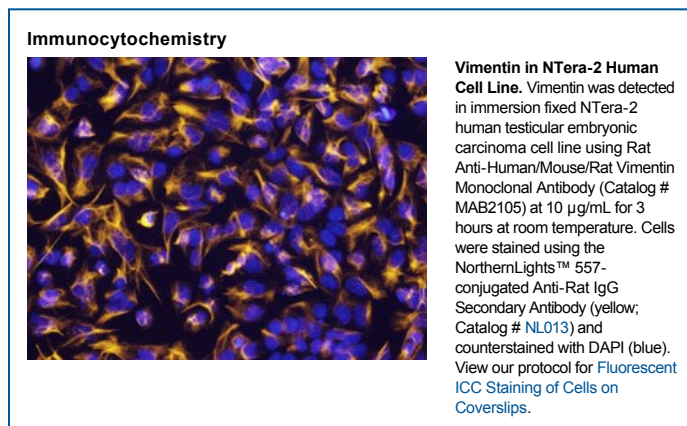
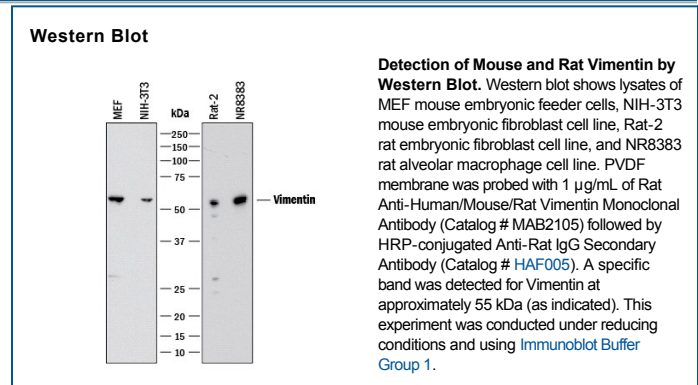
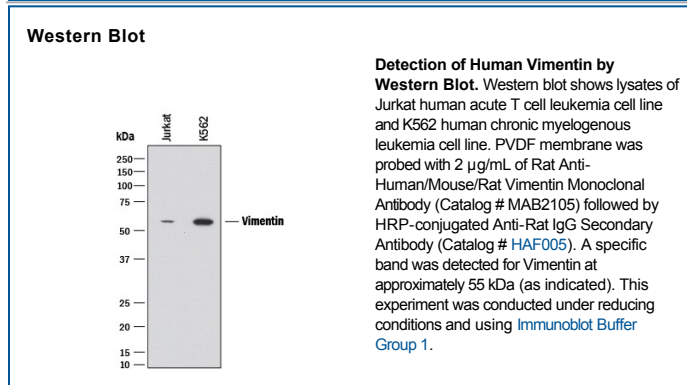
DESCRIPTION	
<b>Species Reactivity</b>	Human/Mouse/Rat
<b>Specificity</b>	Vimentin antibodies are ideal for immunocytochemistry colocalization studies in intermediate filaments. Detects human, mouse and rat Vimentin in Western blots.
<b>Source</b>	Monoclonal Rat IgG <sub>2A</sub> Clone # 280618
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Vimentin Ser2-Glu466 Accession # P08670
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

## APPLICATIONS

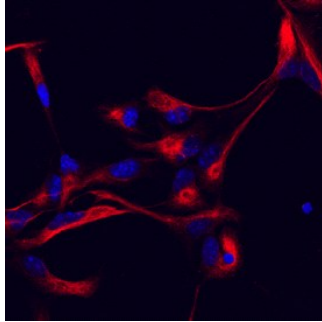
**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	1-2 µg/mL	See Below
<b>Immunocytochemistry</b>	8-25 µg/mL	See Below
<b>Simple Western</b>	10 µg/mL	See Below

## DATA

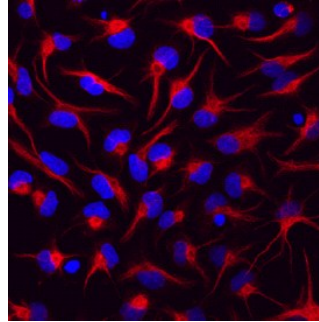


## Immunocytochemistry



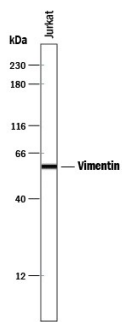
**Vimentin in Mouse Cortical Stem Cells.** Vimentin was detected in immersion fixed mouse cortical stem cells using Rat Anti-Human/Mouse/Rat Vimentin Monoclonal Antibody (Catalog # MAB2105) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (red; Catalog # NL013) and counterstained with DAPI (blue). Specific staining was localized to cytoskeleton. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

## Immunocytochemistry



**Vimentin in Rat Cortical Stem Cells.** Vimentin was detected in immersion fixed rat cortical stem cells using Rat Anti-Human/Mouse/Rat Vimentin Monoclonal Antibody (Catalog # MAB2105) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rat IgG Secondary Antibody (red; Catalog # NL013) and counterstained with DAPI (blue). Specific staining was localized to cytoskeleton. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

## Simple Western



**Detection of Human Vimentin by Simple Western™.** Simple Western lane view shows lysates of Jurkat human acute T cell leukemia cell line, loaded at 0.2 mg/mL. A specific band was detected for Vimentin at approximately 58 kDa (as indicated) using 10 µg/mL of Rat Anti-Human/Mouse/Rat Vimentin Monoclonal Antibody (Catalog # MAB2105) followed by 1:50 dilution of HRP-conjugated Anti-Rat IgG Secondary Antibody (Catalog # HAF005). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Vimentin is a 57 kDa class III intermediate filament (IF) protein that belongs to the intermediate filament family. It is the predominant IF in cells of mesenchymal origin such as vascular endothelium and blood cells (1-3). The human Vimentin cDNA encodes a 466 amino acid (aa) protein that contains head and tail regions with multiple regulatory Ser/Thr phosphorylation sites, and a central rod domain with three coiled-coil regions separated by linkers (1, 2). Human Vimentin shares 97-98% aa identity with mouse, rat, ovine, bovine, and canine Vimentin. Sixteen Vimentin coiled-coil dimers self-assemble to form intermediate (10-12 nm wide) filaments (4). These filaments then anneal longitudinally to form non-polarized fibers that support cell structure and withstand stress (4). IF fibers are highly dynamic, and half-life depends on the balance between kinase and phosphatase activity. For example, phosphorylation followed by dephosphorylation drives IF disintegration, followed by reorganization during mitosis (1, 5, 6). Interactions of head and tail domains link IFs with other structures such as actin and microtubule cytoskeletons (7). Vimentin is involved in positioning autophagosomes, lysosomes and the Golgi complex within the cell (8). It facilitates cell migration and motility by recycling internalized trailing edge integrins back to the cell surface at the leading edge (9-11). Vimentin helps maintain the lipid composition of cellular membranes, and caspase cleavage of Vimentin is a key event in apoptosis (8, 12). Phosphorylation promotes secretion of Vimentin by TNF- $\alpha$ -stimulated macrophages (13). Extracellular Vimentin has been shown to associate with several microbes, and appears to promote an antimicrobial oxidative burst (13, 14). Cell-associated Vimentin can also interact with NKp46 to recruit NK cells to tuberculosis-infected monocytes (15).

**References:**

1. Omary, M.B. *et al.* (2006) Trends Biochem. Sci. **31**:383.
2. Ivaska, J. *et al.* (2007) Exp. Cell Res. **313**:2050.
3. Ferrari, S. *et al.* (1986) Mol. Cell. Biol. **6**:3614.
4. Sokolova, A.V. *et al.* (2006) Proc. Natl. Acad. Sci. USA **103**:16206.
5. Eriksson, J.E. *et al.* (2004) J. Cell Sci. **117**:919.
6. Li, Q-F. *et al.* (2006) J. Biol. Chem. **281**:34716.
7. Esue, O. *et al.* (2006) J. Biol. Chem. **281**:30393.
8. Styers, M.L. *et al.* (2005) Traffic **6**:359.
9. McInroy, L. and A. Maata (2007) Biochem. Biophys. Res. Commun. **360**:109.
10. Nieminen, M. *et al.* (2006) Nat. Cell Biol. **8**:156.
11. Ivaska, J. *et al.* (2005) EMBO J. **24**:3834.
12. Byun, Y. *et al.* (2001) Cell Death Differ. **8**:443.
13. Mor-Vaknin, N. *et al.* (2003) Nat. Cell Biol. **5**:59.
14. Zou, Y. *et al.* (2006) Biochem. Biophys. Res. Commun. **351**:625.
15. Garg, A. *et al.* (2006) J. Immunol. **177**:6192.