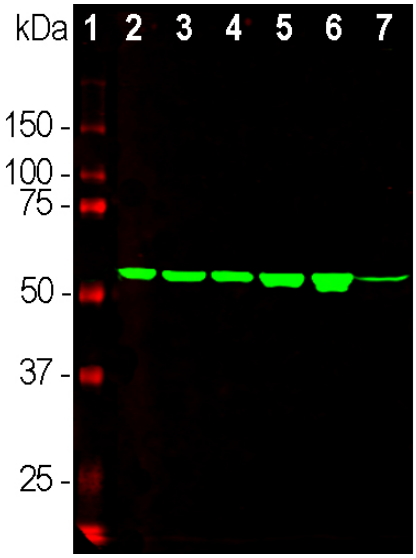
Vimentin
Mouse Monoclonal Antibody

MCA-2A52

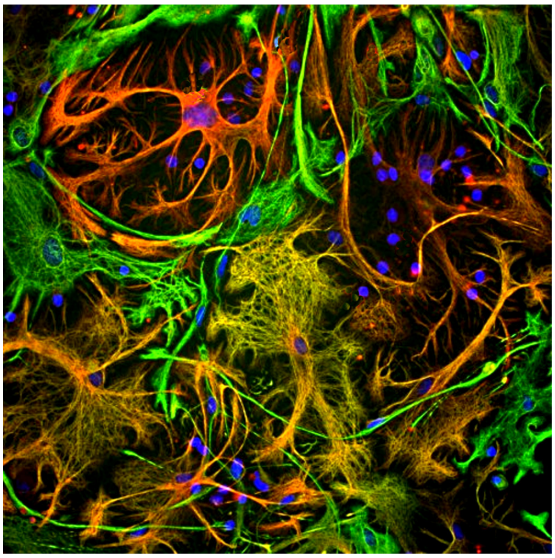
Ordering Information
Web *www.encorbio.com*
Email *admin@encorbio.com*
Phone *352-372-7022*
Fax *352-372-7066*

HGNC Name: *VIM*
UniProt: *P08670*
RRID: *AB_2572396*
Immunogen: *Full length recombinant human vimentin protein , PROT-r-Vim, expressed in and purified from E. coli.*
Format: *Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN_3*
Storage: *Stable at 4°C for one year, for longer term store at -20°C*
Recommended dilutions:
WB: 1:10,000. IF/ICC and IHC: 1:5,000.

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1	50kDa	Hu, Rt, not Ms



Western blot analysis of cell and whole brain tissue lysates using mouse mAb to vimentin, MCA-2A52, dilution 1:5,000 in green: [1] protein standard (red), [2] HEK293, [3] HeLa, [4] SH-SY5Y, [5] COS-1, [6] C6, and [7] rat brain. The band at about 50kDa mark corresponds to vimentin protein. The antibody does not recognize mouse vimentin (not shown).



Immunofluorescent analysis of cortical neuron-glial cell culture from E20 rat stained with mouse mAb to vimentin, MCA-2A52, dilution 1:5,000 in green, and costained with rabbit pAb to glial fibrillary acidic protein (GFAP), RPCA-GFAP, dilution 1:5,000 in red. The blue is DAPI staining of nuclear DNA. Fibroblastic, microglial and developing astrocytic cells contain only vimentin, and so appear green. Maturing astrocytic cells contain variable amounts of GFAP and vimentin, and so may appear red or yellow.

Background:

Vimentin is a protein subunit of the intermediate or 10nm filaments found in the cytoplasm of many cell types (1). Intermediate filaments are relatively stable fibrous components of cells which appear to have primarily a mechanical function. Many cell lines such as HEK293, HeLa, 3T3 and Cos cells contain prominent vimentin networks (1). Vimentin is a major protein of eye lens and cornea, and found generally in mesenchymal tissues in adult mammals. In the CNS it is found in endothelia and developing neurons, developing and some mature astrocytes, microglia, mature Bergmann glia and ependyma (2,3). Mutations in the vimentin gene may cause cataracts (4,5), and elevated levels of vimentin in blood samples are associated with onset of cancer (6,7). Vimentin levels increase in a variety of cell types as they become cancerous, suggesting that increase in expression of this protein is a useful diagnostic marker of the epithelial-mesenchymal transition (8).

The MCA-2A52 was made against full length recombinant human vimentin expressed in and purified from *E. coli*, EnCor product PROT-r-Vim. Antibodies to vimentin are useful in studies of stem cells and generally to reveal the intermediate filament cytoskeleton. The immunogen used to generate this antibody was full length recombinant human vimentin, PROT-r-Vim, expressed in and purified from *E. coli*. The same immunogen was used to produce another monoclonal antibody to vimentin MCA-2D1. We recently found that both monoclonal antibodies bind to a region in the C-terminal "tail" region of vimentin included in the peptide SRISLPLPNFSSLNLRE, which is conserved in rat, cow, pig and most other species. Interestingly mouse has the peptide SRISLPLPTFSSLNLRE, differing by just one amino acid, a threonine substituted for a asparagine. As a result neither MCA-2A52 nor MCA-2D1 bind this peptide. These antibodies can therefore be used to identify human or rat cells in a background of mouse cultures or tissues.hese antibodies can therefore be used to identify human or rat cells in a background of mouse cultures or tissues. We also market a very popular chicken polyclonal antibody to vimentin, CPCA-Vim and also a rabbit polyclonal to vimentin RPCA-VIM. These two antibodies bind vimentin expressed in a wide variety of species including mouse, rat and human.

References:

1. Franke WW, et al. Different intermediate-sized filaments distinguished by immunofluorescence microscopy. PNAS 75:5034–8 (1978).
2. Dahl D, et al. Vimentin, the 57 000 molecular weight protein of fibroblast filaments, is the major cytoskeletal component in immature glia. Eur. J. Cell Biol. 24:191-6 (1981).
3. Shaw, G. et al. An immunofluorescence microscopical study of the neurofilament triplet proteins, vimentin and glial fibrillary acidic protein within the adult rat brain. Eur. J. Cell Biol. 26:68-72 (1981).
4. Muller M, et al. Dominant cataract formation in association with a vimentin assembly disrupting mutation. Hum. Molec. Genet. 18:1052-7 (2009).
5. Zhai Y, et al. Targeted exome sequencing of congenital cataracts related genes: broadening the mutation spectrum and genotype-phenotype correlations in 27 Chinese Han families. Sci. Rep. 7:1219 (2017).
6. Satelli A, Li S. Vimentin in cancer and its potential as a molecular target for cancer therapy. Cell Mol. Life Sci. 68:3033-46 (2011).
7. Wong KF, Luk JM. Discovery of lamin B1 and vimentin as circulating biomarkers for early hepatocellular carcinoma. Meth. Mol. Biol. 2909:295-310 (2012).
8. Jia X, et al. Vimentin-a potential biomarker for therapeutic efficiency of HAART. Acta Biochim. Biophys. Sin. (Shanghai) 6:1001-6 (2014).

This antibody is new but has been utilized in peer reviewed publications. We will add new citations below as we become aware of them.

1. Sandhu MS, et al. Intraspinal transplantation of subventricular zone-derived neural progenitor cells improves phrenic motor output after high cervical spinal cord injury. Exp. Neurol. 287:205-15 (2017).

Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.

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