# Visinin-like protein 1 Mouse Monoclonal Antibody

# MCA-3A9


**Ordering Information**
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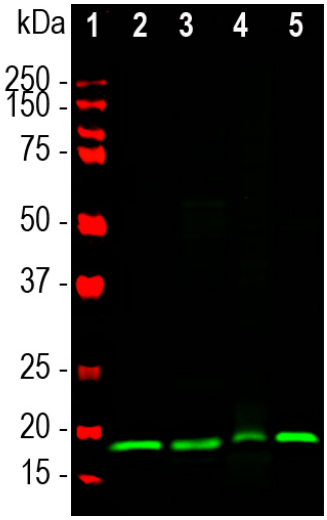
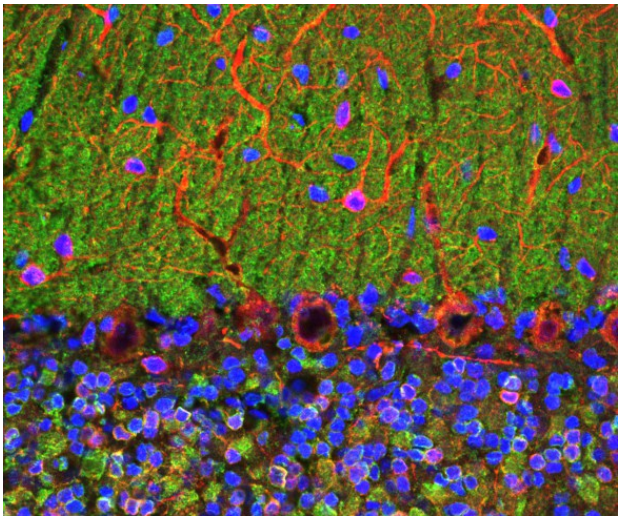
**HGNC Name:** VSNL1
**UniProt:** P62760
**RRID:** AB_2572400
**Immunogen:** Recombinant full length human protein
**Format:** Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM $NaN_3$
**Storage:** Store at 4°C for short term, for longer term at -20°C.
**Recommended dilutions:**
WB: 1,000-2,000. IF/IHC: 1:500-1,000.

| Applications | Host | Isotype | Molecular Wt. | Species Cross-Reactivity |
|---|---|---|---|---|
| WB, IF/ICC, IHC | Mouse | IgG1 | 18kDa | Hu, Rt, Ms, Co, Pi |




Western blot analysis of different tissue lysates using mouse mAb to visinin-like protein 1 (VLP1), MCA-3A9, dilution 1:1,000, in green: [1] protein standard (red), [2] rat brain, [3] mouse brain, [4] pig hippocampus, and [5] cow cerebellum. The band at about 20kDa corresponds to the VLP1 protein.



Confocal image of adult rat cerebellum stained with mouse mAb to vinsin-like protein 1 (VLP1), MCA-3A9, dilution 1:1,000, in green, and costained with chicken pAb to MAP2, CPCA-MAP2, dilution 1:10,000, in red. The blue is DAPI staining of nuclear DNA. The MCA-3A9 antibody reveals perikarya and synaptic regions in the neuron rich granular layer (bottom) and synapse rich molecular layer (top). Note that the large prominent Purkinje neurons at the junction of these two layers do not stain with the MCA-3A9 antibody, in line with the findings of others (4).

## Background:

Visinin was originally isolated biochemically from chicken retina as a major protein of ~24kDa on SDS-PAGE gels (1). Following cloning and sequencing of visinin, several visinin like proteins were discovered by homology screening (2,3). One of these, visinin-like protein 1 (VLP-1) is a low molecular weight protein which is very abundant in the nervous system and is found only in neurons, though different neurons have different levels of expression (4,5). The protein was discovered independently by several groups and is therefore also sometimes known as hippocalcin-like protein 3, HLP3, HPCAL3, HUVISL1, VLP-1, VILIP and VILIP-1. The protein belongs to the large superfamily of calmodulin and paravalbumin type proteins which function by binding Calcium ions. Calcium binding alters the conformation of these proteins and allow them to interact with other binding partners, the properties of which they may alter. Visinin-like protein 1 has four "EF hand" domains, which are negatively charged helix-turn-helix peptides which are responsible for Calcium binding. The protein is 191 amino acids in size and has a molecular weight on SDS-PAGE of 18kDa. The protein has recently been suggested to be a useful blood biomarker of Alzheimer's disease and traumatic brain injury (6-8).

The MCA-3A9 antibody was made against full length recombinant human visinin-like protein 1. It can be used to track this protein by ELISA, on western blots and in cells in culture and sections. VLP-1 is heavily concentrated in cerebellar granule cells and in most other neuronal types. We also manufacture an alternate mouse monoclonal antibody, MCA-2D11, rabbit, and chicken polyclonal antibodies to this protein, RPCA-VLP1 and CPCA-VLP1 respectively.

### References:


1. Hatakenaka S, Kuo CH, Miki N. Analysis of a distinctive protein in chick retina during development. Brain Res. 312:155-63 (1983).
2. Kuno T, et al. cDNA cloning of a neural visinin-like Ca(2+)-binding protein. Biochem. Biophys. Res. Commun. 184:1219-25 (1992).
3. Polymeropoulos MH, Ide S, Soares MB, Lennon GG. Sequence characterization and genetic mapping of the human VSNL1 gene, a homologue of the rat visinin-like peptide RNVP1. Genomics 29:273-5 (1995).
4. Bernstein HG, et al. Regional and cellular distribution of neural visinin-like protein immunoreactivities (VILIP-1 and VILIP-3) in human brain. J. Neurocytol. 28:655-62 (1999).
5. Paterlini M, Revilla V, Grant AL, Wisden W Expression of the neuronal calcium sensor protein family in the rat brain. Neuroscience 99:205-16 (2000).
6. Laterza OF, et al. Identification of novel brain biomarkers. Clin. Chem. 9:1713-21 (2006).
7. Lee JM, et al. The brain injury biomarker VLP-1 is increased in the cerebrospinal fluid of Alzheimer disease patients. Clin. Chem. 10:1617-23 (2008).
8. Tarawneh R, et al. Visinin-like protein-1: diagnostic and prognostic biomarker in Alzheimer disease. Ann Neurol. 70:274-85 (2011).



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### 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.***