## Catalogue# MCA-AB9: Mouse Monoclonal Antibody to Amyloid Beta, Aβ

The Immunogen: Alzheimer's disease (AD) is a serious and common age related dementia which is characterized by the formation of senile plaques and neurofibrillary tangles. Senile plaques are extracellular accumulations of insoluble proteins found in cortical regions. A major component of senile plaques is β-amyloid, a.k.a. Aβ, a peptide predominantly of 42 or 40 amino acids. The Aβ peptide is derived from a section of the membrane spanning domain and the immediate extracellular region of a much larger protein called the amyloid precursor protein (APP). This is an abundant protein of poorly understood function. The Aβ peptides are generated by the activity of proteases called secretases, specifically the β and γ secretases. Certain mutations in the APP gene are associated with familial forms of AD, as are mutations in the genes encoding proteins forming the secretase enzymes, in line with the hypothesis that Aβ accumulation is central to the AD disease process.

Our antibody recognizes amino acids 1-16 of the Aβ peptide and works well on western blots, on formalin fixed sections and as a capture reagent in ELISA. It was originally developed in the Mayo Clinic in Jacksonville in the laboratory of Dr. Todd Golde.
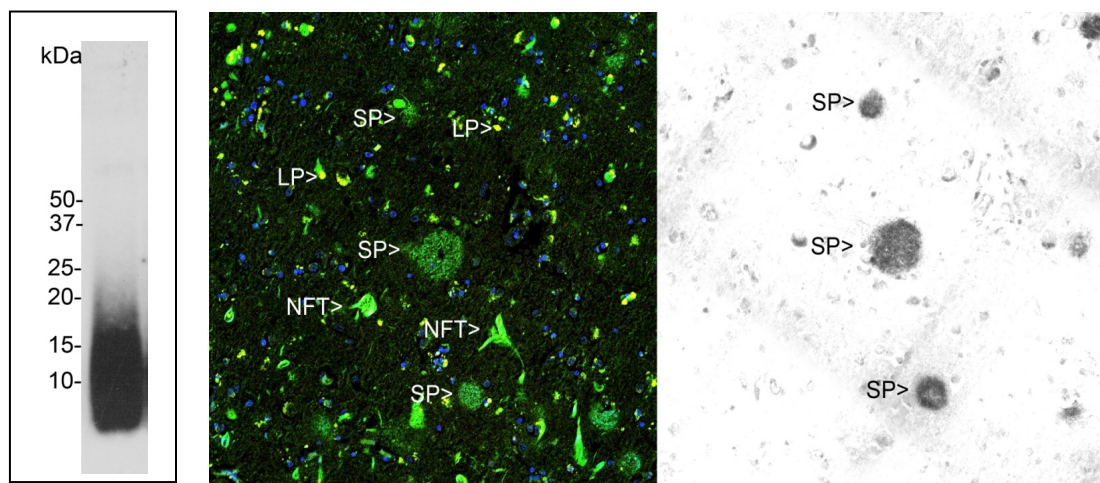
Left: Blot of amyloid beta peptide blotted with MCA-AB9. MCA-AB9 recognizes amyloid β peptide running at 5 kDa and amyloid beta aggregates. **Middle and Right:** Immunohistochemical analysis of paraffin-embedded Alzheimer's patient brain section across hippocampus using Thioflavin S (left panel) and MCA-AB9 using the HRP-DAB staining technique. Left image shows a section stained with Thioflavin S, a fluorescent reagent which binds to both senile plaques (SP) and neurofibrillary tangles (NFT), the two hallmark lesions of Alzheimer's disease. Lipofuscin granules (LP) are seen in normal aging brain, but are autofluorescent and so can also be seen in this image. MCA-AB9 shows strong staining only of the senile plaques. The right image show MCA-AB9 staining of an adjacent section, showing strong staining of the senile plaques, with more minor stainings of neurofibrillary tangle and blood vessel.

Antibody characteristics: MCA-AB9 is a mouse monoclonal antibody raised against human protein sequence 1-42, with a known epitope (amino acids 1-16). MCA-AB9 is an IgG2a class antibody. It is affinity purified on Protein G column and supplied at a concentration of 1 mg/mL. Antibody preparation contains 10mM sodium azide preservative (Link to http://www.encorbio.com/MSDS/azide.htm for Material Safety Data Sheet).

Suggestions for use: For western blots, suggest using MCA-AB9 at 1: 1,000-1: 2,000 followed by chemiluminescent detection (ECL). For immunofluorescence, using MCA-AB9 at 1: 1,000.

Storage Instructions: Shipped on ice. Please store at 4°C for regular uses. For long term storage, please leave frozen at -20°C and avoid freeze/thaw cycles.

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

References:

1. Levites, Y., Das, P., Price, R. W., Rochette, M. J., Kostura, L. A., McGowan, E. M., Murphy, M. P., and Golde, T. E. (2006) Anti-Abeta42- and anti-Abeta40-specific mAbs attenuate amyloid deposition in an Alzheimer disease mouse model, *The Journal of clinical investigation 116*, 193-201.