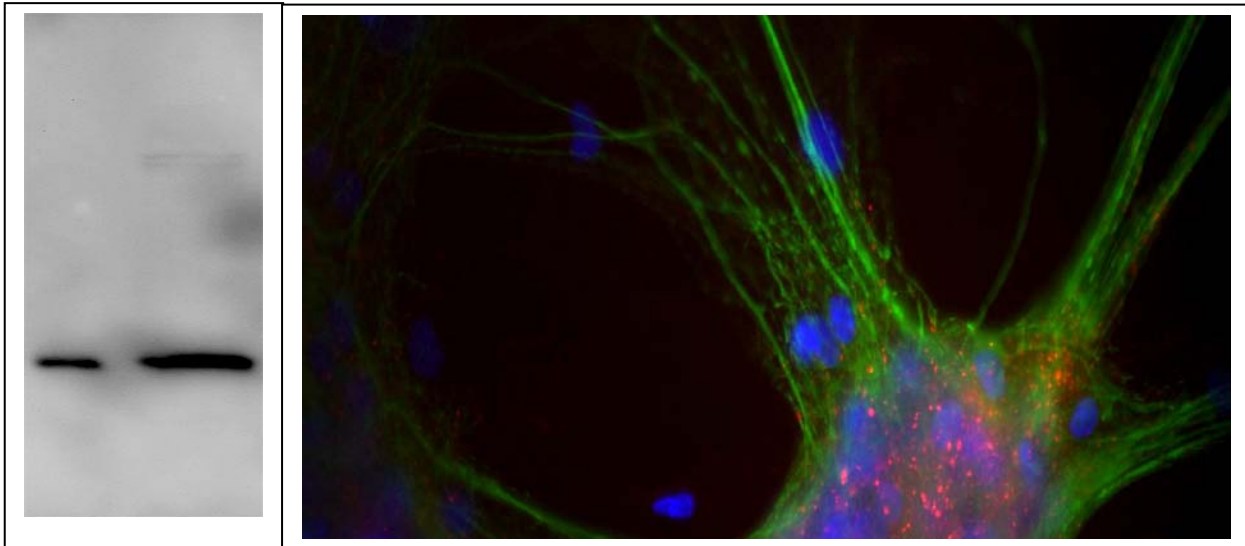


**Catalogue# MCA-3H9: Mouse Monoclonal Antibody to  $\alpha$ -Synuclein**

**The Immunogen:**  [\$\alpha\$ -synuclein](#) is a member of the synuclein family, the other two proteins being  $\beta$  and  $\gamma$  synuclein.  $\alpha$ -synuclein was originally isolated as a major synaptic vesicle associated protein from the electric organ of the fish *Torpedo* (1). Direct homologues of  $\alpha$ -synuclein are found in all vertebrates. Later work connected  $\alpha$ -synuclein with human brain pathology, when a protein originally identified as a component of NAC, the "Non-Amyloid  $\beta$  Component of Alzheimer's disease amyloid" proved to be a peptide derived from  $\alpha$ -synuclein (2). The  $\alpha$ -synuclein protein is therefore sometimes known as NAC precursor or NACP. Further work showed that  $\alpha$ -synuclein is a major component of the Lewy bodies of Parkinson's disease and point mutations of  $\alpha$ -synuclein proved to be causative of some forms of familial Parkinson's disease (3, 4, 5). Early onset Parkinson's disease may be caused by a duplication or triplication of one of the  $\alpha$ -synuclein genes (6, 7). However, despite being discovered as a component of amyloid preparations,  $\alpha$ -synuclein is apparently not a major component of the senile plaques of Alzheimer's disease (6). Early onset Parkinson's disease may be caused by a duplication or triplication of one of the  $\alpha$ -synuclein genes (7, 8).  $\alpha$ -synuclein is also found in the Lewy bodies of patients with diffuse Lewy body disease and inclusions in glial cells in the brains of patients with multiple system atrophy (MSA) and amyotrophic lateral sclerosis (ALS).  $\alpha$ -synuclein is heavily expressed in brain and appears to be localized primarily to presynaptic regions, though not with a typical synaptic vesicle distribution pattern. The synuclein proteins appear to have little 3D structure in solution, and probably belong to the family of "intrinsically unstructured proteins" which only adopt a well-defined conformation when bound to other proteins or membrane lipids (9). An excellent recent review of the role of  $\alpha$ -synuclein in health and disease was recently published by Mark Cookson (10). The [HGNC](#) name for this protein is [SNCA](#).



**Figures (previous page):** **Left:** Blots of MCA-3H9 on recombinant  $\alpha$ -synuclein (left lane) and crude extract of mouse brain (right lane, courtesy Rogan Tinsley, Howard Florey Institute, University of Melbourne). **Right:** Mixed neuron-glia cultures stained with MCA-3H9, our monoclonal antibody to  $\alpha$ -synuclein (red) and chicken polyclonal antibody to MAP2 [CPCA-MAP2](#) (green). The  $\alpha$ -synuclein antibody stains vesicular structures the perikarya and processes of the neurons in this image.

**Antibody characteristics:** Antibody was raised in mouse against recombinant full length  $\alpha$ -synuclein purified from *E. coli*. This antibody is supplied as an aliquot of affinity purified preparation at 1 mg/mL in PBS with 5 mM sodium azide as a preservative (Link to <http://www.encorbio.com/MSDS/MCA-azide.pdf> for Material Safety Data Sheet). MCA-3H9 is a mouse IgG1 class antibody. MCA-3H9 recognizes full length human and rodent alpha-synuclein specifically both in western blots and in immunocytochemical experiments. The epitope for MCA-3H9 is in the region 61-95 which correspond to the "Non-Amyloid beta Component of Alzheimer's disease amyloid" (NAC, see above also see [here](#)). MCA-3H9 will also bind human alpha-synuclein containing the A30P and A53T mutations.

**Suggestions for use:** Try at dilutions of 1:1,000 and higher for immunofluorescence and Western blots.

**Omim link:** <http://www.omim.org/entry/163890>

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

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