



Product Information

Monoclonal Anti- α -Synuclein

Clone Syn211

Purified mouse immunoglobulin

Product Number **S 5566**

Product Description

Monoclonal Anti- α -Synuclein (mouse IgG1 isotype) is derived from the Syn211 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from mice immunized with recombinant human α -synuclein.¹ The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti- α -Synuclein recognizes human and zebra fish, but not mouse or rat α -synuclein.¹ The antibody epitope is localized to amino acids 121-125 of human α -synuclein.¹ The antibody may be used in immunoprecipitation,¹ immunoblotting¹ (approx. 16 to 18 kDa) and immunohistochemistry.¹

Synucleins are a family of small soluble proteins, present only in vertebrates, whose function is not completely elucidated. The family consists of three members: α - β - and γ -synucleins, which are expressed mainly in neural tissues and in some tumors. α and β synucleins are found in brain tissue where they are detected predominantly in presynaptic terminals, while γ -synuclein is expressed in the peripheral nervous system and retina, and also in breast tumors.²

Human α -synuclein (also known as the non-amyloid component of plaques precursor protein or NACP) is a 140-amino acid (19 kDa) polypeptide that is encoded by a gene on chromosome 4.³ It contains in its amino-terminal half six imperfect repeats (KTKEGV) and an acidic carboxy-terminal region. The protein is mainly cytosolic while a fraction of the protein is found also in lipid vesicles.^{4,5} In several neurodegenerative diseases, such as Alzheimer's disease (AD) and Parkinson's disease (PD), α -synuclein accumulates abnormally as Lewy Bodies (LB), which are neuronal filamentous cytoplasmic inclusions.⁶ Mutations in the α -synuclein protein (A30P and A53T) were linked to the early onset of Parkinson's disease in several European families.

Furthermore, *in vitro* assays have shown that full length and truncated forms of α -synuclein can form filaments that resemble those seen in LBs.⁷ However, most neurodegenerative disorders with LBs are associated with abnormal accumulation of wild-type α -synuclein. Monoclonal antibodies specific for α -synuclein are an important tool for elucidating the functions and pathobiology of this protein in neurodegenerative diseases.

Reagent

Monoclonal Anti- α -Synuclein is supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide as a preservative.

Antibody Concentration: Approx. 1 mg/ml.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2 °C to 8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

A working dilution of 0.25 μ g/ml is determined by immunoblotting of recombinant human α -synuclein.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Giasson, B.I., et al., J. Neuro. Res., **59**, 528-533 (2000).
2. Clayton, D.F. and George, J.M., J. Neurosci. Res., **58**, 120-129 (1999).
3. Chen, X., et al., Genomics, **26**, 425-427 (1995).
4. Jakes, R., et al., FEBS Lett., **345**, 27-32 (1994).
5. George, J.M., et al., Neuron, **15**, 361-372 (1995).
6. Takahashi, H., et al., Neuropathol., **21**, 315-322 (2001).
7. Conway, K.A., et al., Nat. Med., **11**, 1318-1320 (1998).

ek/me/lg 1/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.