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ProductInformation

Anti-Synphilin-1
produced in rabbit, affinity isolated antibody

Catalog Number **S5946**

Product Description

Anti-Synphilin-1 is developed in rabbit using a synthetic peptide corresponding to amino acids 829-847 of human synphilin-1, conjugated to KLH, as immunogen. This sequence is identical in dog synphilin-1 and highly conserved (84% identity) in mouse, rat and bovine synphilin-1. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Synphilin-1 recognizes synphilin-1, 130 kDa by immunoblotting. Additional bands at 100, 70 and 50 kDa may be observed representing alternatively spliced variants of synphilin-1. Staining of the synphilin-1 band is specifically inhibited by the immunizing peptide.

Parkinson's disease (PD) is a neurodegenerative disorder characterized by loss of dopaminergic neurons in the substantia nigra and by cytoplasmic inclusions known as Lewy bodies (LBs). Synphilin-1 (synuclein α-interacting protein 1, SNCAIP), is a cytoplasmic protein that interacts with α-synuclein in neurons, and plays an important role in synaptic function and protein degradation and in the pathogenesis of PD.[1,2] Synphilin-1 contains several protein-protein interaction domains, including six ankyrin-like repeats, coiled-coiled domain, and an ATP/GTP binding domain. The central domain of synphilin-1 has been suggested to be required for the formation of aggregates and cytotoxicity. The synphilin gene produces at least 9 transcript variants encoding 7 distinct proteins. Synphilin transcripts are widely expressed in many tissues with highest levels found in the brain, heart and placenta. Synphilin-1 is highly enriched in presynaptic nerve terminals and its association with synaptic vesicles is modulated by α-synuclein.[3,4] Synphilin-1 associates with and is ubiquitinated by several proteins, including α-synuclein, parkin, dorfin and SIAH1, and is a major component of Lewy bodies in PD.[5-8] Synphilin-1 association with α-synuclein promotes the formation of cytosolic inclusions.[1,7,9,10] Co-expression of synphilin-1 with α-synuclein and parkin results in the formation of Lewy body-like, ubiquitin-positive cytosolic inclusions.[10]

In human postmortem brain tissue, synphilin-1, like α-synuclein is present in neuropil.[11] Mutation of synphilin-1 in PD patients at amino acid R621C, has been suggested to prevent its sequestration into intra-cytoplasmic aggregations, resulting in an increased accumulation of toxic intermediates by defective ubiquitination and/or proteasomal inhibition.[12] Cells expressing R621C synphilin-1 show a significantly reduced number of inclusions, and were more susceptible to staurosporine-induced cell death, compared to cells expressing wild-type (wt) synphilin-1, suggesting that intracellular inclusions may be cytoprotective to cells.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~2 mg/ml

Precautions and Disclaimer

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

Storage/Stability

For continuous use, store at 2-8°C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing, or 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

Immunoblotting: a working concentration of 0.25-0.5 µg/ml is determined using HEK-293 cells expressing human synphilin-1.

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

References

1. Engelender, S., et al., *Nat. Genet*., **22**, 110-114 (1999).
2. Kruger, R., *Cell Tissue Res*., **318**, 195-199 (2004).
3. Ribeiro, C.S., et al., *J. Biol. Chem*., **277**, 23927-23933 (2002).
4. Kawamata, H., et al., *J. Neurochem*., **77**, 929-934 (2001).
5. Lee, G., et al., *J. Neurochem.*, **83**, 346-352 (2002).
6. Nagano, Y., et al., *J. Biol. Chem*., **278**, 51504-51514 (2003).
7. Liani, E., *Proc. Natl. Acad. Sci. USA.*, **101**, 5500-5505 (2004).
8. Ito, T., et al., *J. Biol. Chem*., **278**, 29106-29114 (2003).
9. Lee, G., et al., *J. Biol. Chem.*, **279**, 6834-6839 (2004).
10. Chung, K.K.., et al., *Nat. Med*., **7**, 1144-1150 (2001).
11. Engelender, S., et al., *Mamm. Genome*., **11**, 763-766 (2000).
12. Marx, F.P., *Human Mol. Genetics*, **12**, 1223-1231 (2003).

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