

## Purified anti- $\alpha$ -Synuclein Phospho (Ser129) Antibody (Previously Covance catalog# MMS-5091)

<b>Catalog# / Size</b>	825702 / 25 $\mu$ L 825701 / 100 $\mu$ L
<b>Clone</b>	P-syn/81A
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Synuclein alpha-140, non-A4 component of amyloid, alpha-synuclein, isoform NACP140, non-A beta component of AD amyloid Parkinson disease (autosomal dominant, Lewy body) 4
<b>Previously</b>	Covance Catalog# MMS-5091
<b>Isotype</b>	Mouse IgG2a, $\kappa$
<b>Description</b>	$\alpha$ -synuclein is expressed principally in the nervous system, but it is also produced in other tissues, including the skin. In the brain, the protein is primarily neuronal, but it is also present in glia. Neuronal $\alpha$ -synuclein is concentrated in presynaptic nerve terminals, interacts with plasma membrane phospholipids, and is also present in nuclei and mitochondria. At least three isoforms of $\alpha$ -synuclein are produced through alternative splicing. The most common isoform is a 140 amino acid-long transcript. Other isoforms include, $\alpha$ -synuclein-126, lacking residues 41-54; and $\alpha$ -synuclein-112, which lacks residues 103-130. $\alpha$ -synuclein's physiological role is poorly understood, but the protein has been implicated in regulating dopamine release and transport, synaptic vesicle clustering, and functioning as a SNARE-complex chaperone. $\alpha$ -synuclein fibrils are a major component of the intracellular Lewy bodies that are associated with Parkinson's disease, Lewy body dementia, and multiple system atrophy. $\alpha$ -synuclein is phosphorylated at low levels under normal physiological conditions whereas the majority of the protein is phosphorylated in Lewy bodies at S129.

### Product Details

---

<b>Verified Reactivity</b>	Human
<b>Antibody Type</b>	Monoclonal
<b>Host Species</b>	Mouse
<b>Immunogen</b>	This monoclonal antibody was raised against a synthetic peptide corresponding to amino acids 124 - 134 of $\alpha$ -synuclein, phosphorylated at Serine 129, and conjugated to KLH via a C-terminal Cysteine.
<b>Formulation</b>	Phosphate-buffered solution with 0.1% azide.
<b>Preparation</b>	The antibody was purified by affinity chromatography.
<b>Concentration</b>	1.0 mg/ml
<b>Storage &amp; Handling</b>	The antibody solution should be stored undiluted between 2°C and 8°C. <b>Do not freeze.</b>
<b>Application</b>	<a href="#">IHC-P - Quality tested</a> <a href="#">ICC, IHC-F, WB - Reported in the literature, not verified in house</a>
<b>Recommended Usage</b>	Each lot of this antibody is quality control tested by formalin-fixed paraffin-embedded immunohistochemical staining. For immunohistochemistry, a concentration range of 1 - 2 $\mu$ g/ml is suggested. It is recommended that the reagent be titrated for optimal performance for each application.
<b>Application Notes</b>	This antibody is effective in immunohistochemistry (IHC-P). Additional reported applications (for the relevant formats) include: Western blotting, immunohistochemistry on frozen tissue sections (IHC-F), and immunocytochemistry.  P-syn/81A is a mAb that is specific to alpha synuclein that has been phosphorylated on serine 129.
<b>Application References</b>	1. Waxman EA, Giasson BI. 2008. <i>J. Neuropathol. Exp. Neurol.</i> 67(5):402-16. <b>(IHC-P, WB)</b> 2. Lim Y, et al. 2011. <i>J. Neurosci.</i> 31:10076. <b>(IHC-P)</b>

(PubMed link indicates BioLegend citation)

3. Volpicelli-Daley LA, *et al.* 2014. *Mol. Biol. Cell.* 25:4010. (ICC) [PubMed](#)
4. Adamowicz DH, *et al.* 2017. *J. Neurosci.* 37(7):1675-1684. (IHC-P, IHC-F) [PubMed](#)

#### Product Citations

1. Schaser AJ, *et al.* 2019. *Sci Rep.* 9:10919. [PubMed](#)
2. Dastidar SG, *et al.* 2020. *J Neurosci.* 40:8734. [PubMed](#)
3. Yan M, *et al.* 2022. *NPJ Parkinsons Dis.* 8:1. [PubMed](#)
4. Creed RB, *et al.* 2020. *Neuroscience.* 437:64. [PubMed](#)
5. Doppler K, *et al.* 2016. *Brain.* 139: e5. [PubMed](#)
6. Volpicelli-Daley L, *et al.* 2014. *Nat Protoc.* 9:2135-2146. [PubMed](#)
7. Adamowicz DH *et al.* 2017. *The Journal of Neuroscience.* 37(7):1675-1684 . [PubMed](#)
8. Kim S, *et al.* 2019. *Neuron.* 103(4):627-641.e7. [PubMed](#)
9. Kim H, *et al.* 2022. *Int J Mol Sci.* 23: . [PubMed](#)
10. Bottani E, *et al.* 2017. *Mol Cell.* 67:96. [PubMed](#)
11. Zhang C, *et al.* 2021. *Redox Biol.* 47:102134. [PubMed](#)
12. Lee J, *et al.* 2017. *J Neuropathol Exp Neurol.* 10.1093/jnen/nlw103. [PubMed](#)
13. Chung CC, *et al.* 2021. *Biomolecules.* 11: . [PubMed](#)
14. Giannoccaro MP, *et al.* 2021. *J Parkinsons Dis.* 12:585. [PubMed](#)
15. Park HE, *et al.* 2019. *Adv Sci (Weinh).* 6:1901673. [PubMed](#)
16. Bieri G, *et al.* 2019. *Acta Neuropathol.* 137:961. [PubMed](#)
17. Creed RB, *et al.* 2022. *Acta Neuropathol Commun.* 10:78. [PubMed](#)
18. Yoon YS, *et al.* 2022. *Exp Mol Med.* 54:115. [PubMed](#)
19. Ham S, *et al.* 2019. *Int J Mol Sci.* 4.639583333. [PubMed](#)
20. Magalhães P, *et al.* 2022. *NPJ Parkinsons Dis.* 8:93. [PubMed](#)
21. Breid S, *et al.* 2016. *J Virol.* 90: 9182 - 9193. [PubMed](#)
22. Cai W *et al.* 2018. *EBioMedicine.* 29:13-22 . [PubMed](#)
23. Covell DJ, *et al.* 2017. *Neuropathol Appl Neurobiol.* 43:604. [PubMed](#)
24. Zhu G, *et al.* 2020. *Cell Rep.* 108418:33. [PubMed](#)
25. Kim H, *et al.* 2020. *Int J Mol Sci.* 21:00. [PubMed](#)
26. Ryan T, *et al.* 2018. *Nat Commun.* 9:817. [PubMed](#)
27. Yuan X, *et al.* 2022. *Front Neurosci.* 15:807988. [PubMed](#)
28. Groveman BR *et al.* 2018. *Acta neuropathologica communications.* 6(1):7 . [PubMed](#)
29. Sampson TR *et al.* 2016. *Cell.* 167(6):1469-1480 . [PubMed](#)
30. Stoyka LE, *et al.* 2020. *Neurobiol Dis.* 134:104708. [PubMed](#)
31. Stykel MG, *et al.* 2021. *Cell Reports.* 35(6):109099. [PubMed](#)
32. Hu D, *et al.* 2019. *Acta Neuropathol.* 137:939. [PubMed](#)

#### RRID

AB\_2734593 (BioLegend Cat. No. 825702)  
AB\_2564891 (BioLegend Cat. No. 825701)

## Antigen Details

---

<b>Structure</b>	$\alpha$ -synuclein's canonical isoform consists of 140 amino acids, which consist of four 11-residue repeats containing the consensus sequence KTKEGV. $\alpha$ -synuclein has an apparent molecular mass of 14 kD.
<b>Distribution</b>	Tissue distribution: primarily nervous system, but lower expression in other tissues such as skin. Cellular distribution: cytoskeleton, cytosol, lysosome, mitochondria, nucleus, plasma membrane, and extracellular.
<b>Function</b>	The function of $\alpha$ -synuclein in the healthy brain is currently unknown.
<b>Biology Area</b>	Cell Biology, Neurodegeneration, Neuroscience, Protein Misfolding and Aggregation
<b>Molecular Family</b>	$\alpha$ -Synuclein, Phospho-Proteins
<b>Antigen References</b>	<ol style="list-style-type: none"><li>1. Mor DE, <i>et al.</i> 2016. <i>Neurobiol. Dis.</i> 88:66. <a href="#">PubMed</a></li><li>2. Jucker M &amp; Walker LC. 2013. <i>Nature.</i> 501(7465):45. <a href="#">PubMed</a></li><li>3. Bartels T, <i>et al.</i> 2011. <i>Nature.</i> 477(7362):107. <a href="#">PubMed</a></li><li>4. Devine MJ, <i>et al.</i> 2011. <i>Mov. Discord.</i> 26:2160. <a href="#">PubMed</a></li></ol>
<b>Gene ID</b>	<a href="#">6622</a>

## Related Protocols

---

[Immunohistochemistry Protocol for Paraffin-Embedded Sections](#)

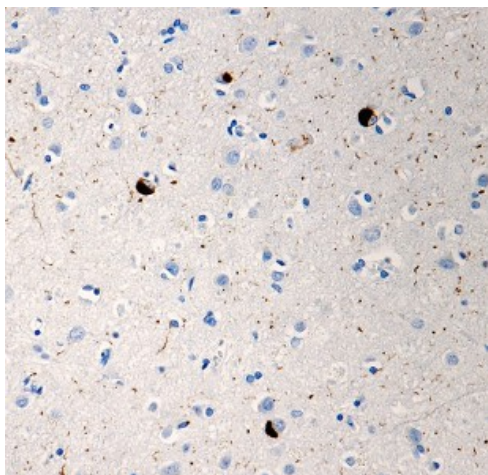
## Other Formats

---

Purified anti- $\alpha$ -Synuclein Phospho (Ser129), Biotin anti- $\alpha$ -Synuclein Phospho (Ser129), Alexa Fluor® 594 anti- $\alpha$ -Synuclein Phospho (Ser129)

## Product Data

---



IHC staining of purified anti- $\alpha$ -Synuclein Phospho (Ser129) antibody (clone P-syn/81A) on formalin-fixed paraffin-embedded diseased human brain tissue. Following antigen retrieval using 70% formic acid for 20 minutes at room temperature, the tissue was incubated with 1  $\mu$ g/ml of the primary antibody overnight at 4°C. BioLegend's Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective.

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

\*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, [www.biolegend.com/ordering#license](http://www.biolegend.com/ordering#license)). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 [www.biolegend.com](http://www.biolegend.com)  
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587