

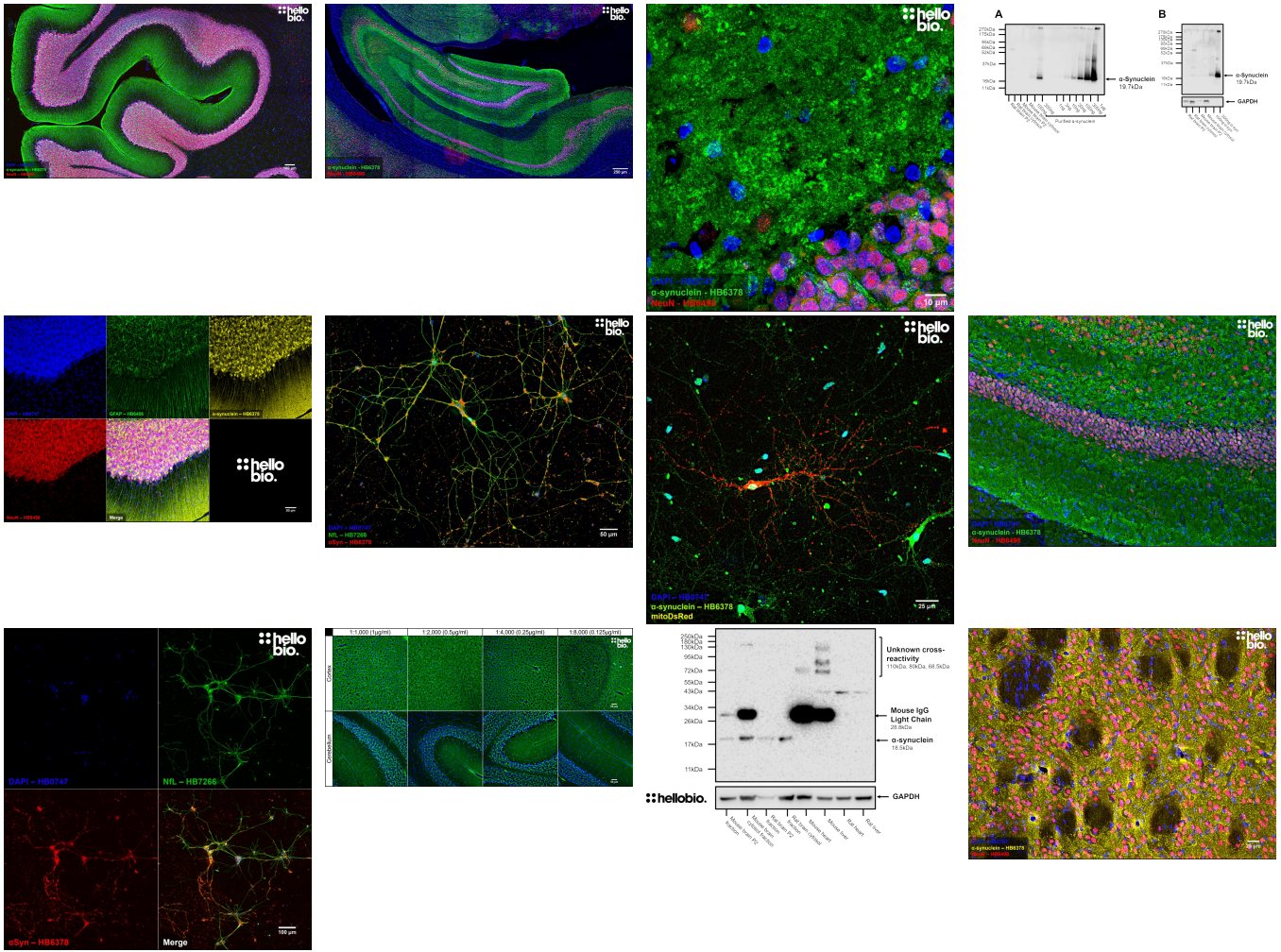
# DATASHEET

Anti- $\alpha$ -Synuclein antibody ValidAb™

## Product overview

Name	Anti- $\alpha$ -Synuclein antibody ValidAb™
Cat No	HB6378
Host	Mouse
Clonality	Monoclonal
Target	$\alpha$ -Synuclein
Description	Antibody to Alpha-Synuclein - synaptic protein involved in neurodegeneration. Part of the ValidAb™ range of highly validated, data-rich antibodies.

## Validation data



## Product information

<b>Immunogen</b>	Human recombinant alpha-synuclein expressed in and purified from <i>E. coli</i>
<b>Epitope</b>	Localized to within residues 61 to 95 of human alpha-synuclein
<b>Clone number</b>	2A7
<b>Isotype</b>	IgG1
<b>Purification</b>	Protein A affinity chromatography
<b>Concentration</b>	1mg/ml
<b>Formulation</b>	50% PBS, 50% glycerol + 5mM sodium azide
<b>Predicted species reactivity</b>	Mouse, Rat, Human, Pig, Cow
<b>Tested species reactivity</b>	Mouse, Rat

## Tested applications

<b>Applications</b>	ICC, IHC(IF)
<b>IHC(IF) optimal concentration</b>	1µg/ml (1:1,000) as tested in 4% PFA fixed rat brain slices
<b>ICC optimal concentration</b>	1µg/ml (1:1,000) as tested in cultured rat hippocampal neurons
<b>Positive control</b>	Any neural tissue will express α-Synuclein in the presynaptic terminals of neurons
<b>Negative control</b>	Any non-neural tissue (e.g. liver) or standard cell lines such as HEK293T or HeLa
<b>Open data link</b>	Please follow <a href="#">this link to OSF</a>

## Target information

<b>Other names</b>	aSyn, Non-A beta component of AD amyloid, Non-A4 component of amyloid precursor (NACP)
<b>UniProt ID</b>	P37840
<b>Gene name</b>	SNCA
<b>NCBI full gene name</b>	synuclein alpha
<b>Entrez gene ID</b>	<a href="#">6622</a>
<b>Amino acids</b>	140 (14.5kDa)
<b>Isoforms</b>	α-Synuclein has three known isoforms: <ul style="list-style-type: none"> <li>• Isoform 1 (NACP140), canonical sequence, 140aa, 14.5kDa</li> <li>• Isoform 2 (NACP112), missing aa 103-130, 11.3kDa</li> <li>• Isoform 3, missing aa 41-54, 13.1kDa</li> </ul>
<b>Expression</b>	α-Synuclein is highly expressed in the nervous system and is believed to consist of up to 1% of total cytosolic protein in the brain. α-Synuclein is expressed within neurons where it localises to pre-synaptic terminals with much lower levels of cell body expression. Outside of the nervous system, α-Synuclein is also expressed at significant levels in erythrocytes and platelets.
<b>Subcellular expression</b>	α-Synuclein is a soluble cytosolic protein that predominantly localises to pre-synaptic terminals. Additionally, more recent evidence has suggested that α-Synuclein also localises to mitochondrial membranes.
<b>Target function</b>	α-Synuclein has important roles in normal physiology where it is involved in the regulation of synaptic vesicles. As part of this it has been suggested that α-Synuclein regulates vesicle recycling alongside regulating dopamine release. Additionally α-Synuclein is been implicated in modulation of DNA repair, especially double strand breaks.

<b>Other names</b>	<p>aSyn, Non-A beta component of AD amyloid, Non-A4 component of amyloid precursor (NACP)</p> <p><math>\alpha</math>-Synuclein is however more well known for its contribution to neurodegenerative diseases through its ability to misfold and then aggregate to cause insoluble plaques.</p>
<b>Processing</b>	$\alpha$ -Synuclein is not subject to processing before reaching an active conformation
<b>Post translational modifications</b>	$\alpha$ -Synuclein is subject to phosphorylation upon multiple residues including on tyrosines 39 and 125 alongside serines 42, 87 and 129.
<b>Homology (compared to human)</b>	In a BLAST search using the full protein sequence the following homologues were identified in the following species:
<b>Similar proteins</b>	<ul style="list-style-type: none"> <li>• Rat - 95.0% homology</li> <li>• Mouse - 95.0% homology</li> <li>• Macaque - 98.6% homology</li> </ul> <p>In a BLAST search using the full protein sequence the only proteins with significant homology to <math>\alpha</math>-Synuclein were:</p>
<b>Epitope homology (between species)</b>	<ul style="list-style-type: none"> <li>• <math>\beta</math>-synuclein - 58.0% homology</li> <li>• <math>\gamma</math>-synuclein - 62.7% homology</li> </ul> <p>In a BLAST search using the epitope sequence the <math>\alpha</math>-Synuclein homologues from the following species showed the following homologies:</p>
<b>Epitope homology (other proteins)</b>	<ul style="list-style-type: none"> <li>• Orangutan, Patas monkey: 100%</li> <li>• Macaque, Tamarin, Rat, Mouse: 97.14%</li> <li>• Cow / Pig: 97.06%</li> <li>• Spider Monkey: 94.3%</li> <li>• Canary: 91.4%</li> </ul> <p>In a BLAST search using the epitope sequence only <math>\alpha</math>-Synuclein was identified as having significant homology.</p>

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## Storage & Handling

<b>Storage instructions</b>	-20 °C
<b>Shipping Conditions Important</b>	<p>On ice</p> <p>This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use</p>

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## References

### **$\alpha$ -Synuclein in Parkinson's disease.**

Stefanis L (2012) Cold Spring Harbor perspectives in medicine 2  
**PubMedID** [22355802](#)

### **Novel subcellular localization for $\alpha$ -synuclein: possible functional consequences.**

Guardia-Laguarta C et al (2015) Frontiers in neuroanatomy 9  
**PubMedID** [25755636](#)

### **Modeling Parkinson's Disease With the Alpha-Synuclein Protein.**

Gómez-Benito M et al (2020) Frontiers in pharmacology 11  
**PubMedID** [32390826](#)

**Alpha-synuclein in Parkinson's disease and other synucleinopathies: from overt neurodegeneration back to early synaptic dysfunction.**

Calabresi P et al (2023) Cell death & disease 14

**PubMedID** [36859484](#)

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