

### Ordering Information

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### HGNC Name: SNCA

UniProt: P37840

RRID: AB\_2572385

**Immunogen:** Full length recombinant human protein expressed in and purified from *E. coli*

**Format:** Affinity purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN<sub>3</sub>

**Storage:** Stable at 4°C for one year, for longer term store at -20°C

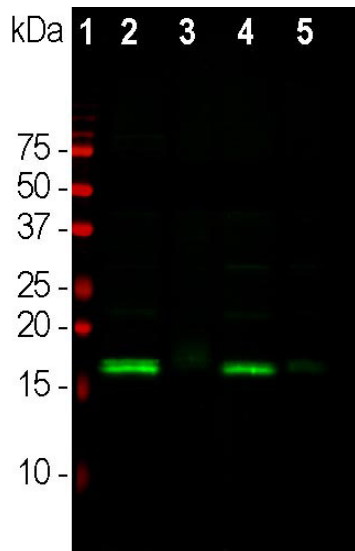
### Recommended dilutions:

WB: 1:2,000 IF/ICC and IHC: 1:1,000

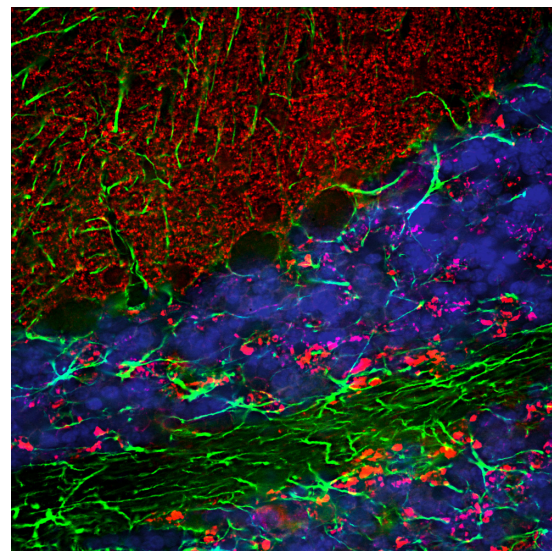
### References:

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2. Lavedan C. The Synuclein Family. *Genome Research* 8:871-80 (1998).
3. Polymeropoulos, MH et al. Mutation in the alpha-synuclein gene identified in families with Parkinson's disease. *Science* 276:2045-7 (1997).
4. Kruger, R et al. Ala30-to-Pro mutation in the gene encoding alpha-synuclein in Parkinson's disease. *Nature Genet.* 18:106-8 (1998).
5. Chartier-Harlin, M-C. et al. Alpha-synuclein locus duplication as a cause of familial Parkinson's disease. *Lancet* 364:1167-9 (2004).
6. Singleton, AB et al. Alpha-synuclein locus triplication causes Parkinson's disease. *Science* 302:841 (2003).
7. Ibanez, P. et al. Causal relation between alpha-synuclein gene duplication and familial Parkinson's disease. *Lancet* 364:1169-71 (2004).
8. Tinsley RD, et al. Sensitive and specific detection of  $\alpha$ -synuclein in human plasma. *J. Neurosci. Res.* 88:2693-700 (2010).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Chicken	IgY	15kDa by SDS-PAGE	Hu, Rt, Ms, Bo, Po, Ho



Western blot analysis of different tissue lysates using chicken pAb to  $\alpha$ -synuclein, CPCA-SNCA, dilution 1:2,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord. The strong band at about 15kDa corresponds to the  $\alpha$ -synuclein protein in brain extracts, which are rich in synapses, while a weaker band is seen in spinal cord extracts where synapses are a more minor component.



Immunofluorescent analysis of a section of rat cerebellum stained with chicken pAb to  $\alpha$ -synuclein, CPCA-SNCA, dilution 1:3,000 in red, and costained with rabbit pAb to GFAP, RPCA-GFAP, dilution 1:5,000 in green. The blue is DAPI staining of nuclear DNA. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45 $\mu$ m, and free-floating sections were stained with above antibodies. The  $\alpha$ -synuclein protein is concentrated in presynaptic regions in the granular and molecular layers, while GFAP antibody stains the network of Bergmann and astroglial cells.

### Background:

$\alpha$ -synuclein is a member of the synuclein protein family, the other two members being  $\beta$  and  $\gamma$  synuclein, each protein being coded for by a distinct but related gene.  $\alpha$ -synuclein was originally isolated as a major synaptic vesicle associated protein from the electric organ of the fish *Torpedo* (1), and direct homologues of  $\alpha$ -synuclein are found in all vertebrates. Later work connected  $\alpha$ -synuclein expression with several human brain pathologies, so that it is a major component of the Lewy bodies of Parkinson's disease (2). Point mutations of  $\alpha$ -synuclein proved to be causative of some forms of familial Parkinson's disease (3-5). One genetic cause of early onset Parkinson's disease is duplication or triplication of one of the  $\alpha$ -synuclein genes leading to excess production of the protein (6,7).  $\alpha$ -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 and amyotrophic lateral sclerosis.  $\alpha$ -synuclein is normally heavily expressed in brain and appears to be localized primarily to presynaptic regions, though not with a typical synaptic vesicle distribution pattern.

The CPCA-SNCA antibody recognizes full length human and rodent  $\alpha$ -synuclein specifically both in western blots and in immunocytochemical experiments and is a good marker of synapses on transgenic mice. We also market a mouse monoclonal to  $\alpha$ -synuclein MCA-2A7. The MCA-2A7 epitope is in the region 61-95 which corresponding to the central "non-amyloid beta component of Alzheimer's disease amyloid", a proteolytic fragment of  $\alpha$ -synuclein which co-purified with Alzheimer's amyloid. This monoclonal antibody has been used as an ELISA capture reagent capable of detecting  $\alpha$ -synuclein in human plasma in combination with a polyclonal antibody such as CPCA-SNCA (8).

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### Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry  
IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken  
Dr—*D. rerio* Dm—*D. melanogaster* Sm—*S. mutans* Ce—*C. elegans* Sc—*S. cerevisiae* Sa—*S. aureus* Ec—*E. coli*.