**Product datasheet**

**Anti-Alpha-synuclein antibody [LB 509] ab27766**

11 Abreviews 31 References 6 Images

**Overview**

**Product name**
Anti-Alpha-synuclein antibody [LB 509]

**Description**
Mouse monoclonal [LB 509] to Alpha-synuclein

**Host species**
Mouse

**Specificity**
This antibody recognizes human alpha-synuclein. Clone LB 509 recognizes amino acids 115-122 of alpha-synuclein and has been reported to be specific to human alpha-synuclein (Jakes et al., Neurosci Lett., 1999). Therefore, we only guarantee this antibody to detect human alpha-synuclein. However, several customer Abreviews have demonstrated positive staining in rodent samples.

**Tested applications**
Suitable for: IHC-FoFr, ELISA, WB, IHC-Fr, IHC-P, Flow Cyt, ICC/IF, ICC

**Species reactivity**
Reacts with: Rat, Human

**Immunogen**
corresponding to Alpha-synuclein.

**Epitope**
ab27766 reacts with an epitope located in the region encoded by amino acids 115-122 of alpha-synuclein.

**Positive control**

**General notes**
This antibody clone is manufactured by Abcam.

Alpha-synuclein is expressed predominantly in the brain, where it is concentrated in presynaptic nerve terminals. The deposition of the abundant presynaptic brain protein alpha-synuclein as fibrillary aggregates in neurons or glial cells is a hallmark lesion in a subset of neurodegenerative disorders. These disorders include Parkinson’s disease (PD), dementia with Lewy bodies (DLB) and multiple system atrophy, collectively referred to as synucleinopathies. Parkinson’s disease (PD) is a common neurodegenerative disorder characterized by the progressive accumulation in selected neurons of protein inclusions containing alpha-synuclein and ubiquitin.

If you require this antibody in a particular buffer formulation or a particular conjugate for your experiments, please contact orders@abcam.com or you can find further information here.

**Properties**

**Form**
Liquid

**Storage instructions**
Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles.

**Storage buffer**
pH: 7.40
Preservative: 0.02% Sodium azide
Constituents: PBS, 6.97% L-Arginine

**Purity**
Immunogen affinity purified

**Clonality**
Monoclonal

**Clone number**
LB 509

**Isotype**
IgG1

**Applications**

Our *Abpromise guarantee* covers the use of **ab27766** in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHC-FoFr</td>
<td>🟢🟢🟢🟢🟢</td>
<td>1/500.</td>
</tr>
<tr>
<td>ELISA</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>WB</td>
<td>🟢🟢🟢🟢🟢</td>
<td>1/100 - 1/1000. Predicted molecular weight: 14 kDa.</td>
</tr>
<tr>
<td>IHC-Fr</td>
<td>🟢🟢🟢🟢🟢</td>
<td>1/100 - 1/1000.</td>
</tr>
<tr>
<td>IHC-P</td>
<td>🟢🟢🟢🟢🟢</td>
<td>1/100 - 1/1000. Do not perform antigen retrieval.</td>
</tr>
</tbody>
</table>
| Flow Cyt    |           | Use 1µg for $10^6$ cells. 
**ab170190** - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody. |
| ICC/IF      | 🟢🟢🟢🟢🟢 | Use at an assay dependent concentration. |
| ICC         | 🟢🟢🟢🟢🟢 | Use at an assay dependent concentration. |

**Target**

**Function**
May be involved in the regulation of dopamine release and transport. Induces fibrillization of microtubule-associated protein tau. Reduces neuronal responsiveness to various apoptotic stimuli, leading to a decreased caspase-3 activation.

**Tissue specificity**
Expressed principally in brain but is also expressed in low concentrations in all tissues examined except in liver. Concentrated in presynaptic nerve terminals.

**Involvement in disease**
Genetic alterations of SNCA resulting in aberrant polymerization into fibrils, are associated with several neurodegenerative diseases (synucleinopathies). SNCA fibrillar aggregates represent the major non A-beta component of Alzheimer disease amyloid plaque, and a major component of Lewy body inclusions. They are also found within Lewy body (LB)-like intraneuronal inclusions, glial inclusions and axonal spheroids in neurodegeneration with brain iron accumulation type 1.
Parkinson disease 1
Parkinson disease 4
Dementia Lewy body

**Sequence similarities**
Belongs to the synuclein family.
**Domain**
The 'non A-beta component of Alzheimer disease amyloid plaque' domain (NAC domain) is involved in fibrils formation. The middle hydrophobic region forms the core of the filaments. The C-terminus may regulate aggregation and determine the diameter of the filaments.

**Post-translational modifications**
Phosphorylated, predominantly on serine residues. Phosphorylation by CK1 appears to occur on residues distinct from the residue phosphorylated by other kinases. Phosphorylation of Ser-129 is selective and extensive in synucleinopathy lesions. In vitro, phosphorylation at Ser-129 promoted insoluble fibril formation. Phosphorylated on Tyr-125 by a PTK2B-dependent pathway upon osmotic stress.

Hallmark lesions of neurodegenerative synucleinopathies contain alpha-synuclein that is modified by nitration of tyrosine residues and possibly by dityrosine cross-linking to generated stable oligomers.

Ubiquitinated. The predominant conjugate is the diubiquitinated form.

Acetylation at Met-1 seems to be important for proper folding and native oligomeric structure.

**Cellular localization**

**Images**

**All lanes**: Anti-Alpha-synuclein antibody [LB 509] (ab27766) at 5 µg/ml

**Lane 1**: Recombinant Human Alpha-synuclein protein (ab51189)

**Lane 2**: Human brain hippocampus tissue lysate - total protein (ab30180)

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes**: Goat polyclonal to Mouse IgG - H&L - Pre-Adsorbed (HRP) at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

**Predicted band size**: 14 kDa

**Observed band size**: 16 kDa

**why is the actual band size different from the predicted?**

**Additional bands at**: 32 kDa (possible dimer)

**Exposure time**: 20 minutes
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Alpha-synuclein antibody [LB 509] (ab27766)
This image was taken from an abreview submitted by an anonymous reviewer.

IHC-P image of Alpha Synuclein (ab27766) staining in human brain samples from patients with Multiple Systems Atrophy (MSA). The sections were subjected to heat-mediated antigen retrieval with citrate buffer. In addition, some slides received a 15 minute pre-treatment with Formic Acid. Sections were incubated in 20% serum for 30 minutes at +18°C to block non-specific protein-protein interactions. The sections were then incubated with ab27766 (1:400) for one hour at +18°C, followed by Biotin conjugated anti-mouse goat secondary antibody (1/200). Formic acid pre-treatment (15min) revealed more inclusions in MSA tissue.

Human neuroblastoma cells stained for alpha-synuclein (green) using ab27766 in immunofluorescence. The neuroblastoma cells were fixed with paraformaldehyde and incubated with ab27766 (used at 5 μg/ml) for 12 hours at 4°C. A FITC conjugated Goat anti-Mouse IgG secondary antibody was then used.

Overlay histogram showing PC12 (NGF differentiated) cells stained with ab27766 (red line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab27766, 1μg/1x10^5) for 30 min at 22°C. The secondary antibody used was Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) preadsorbed (ab150117) at 1/2000 dilution for 30 min at 22°C.

Isotype control antibody (black line) was Mouse IgG1 [15-6E10A7] (ab170190) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50mW Blue laser (488nm) and 530/30 bandpass filter.
SH-SY5Y neuroblastoma cells stained for alpha-synuclein (green) using ab27766 in immunofluorescence. SH-SY5Y cells were fixed with paraformaldehyde, permeabilized with 0.5% Tween-20 and blocked with 10% serum for 1 hour at room temperature. Samples were incubated with ab27766 (diluted at 1/300) for 1 hour. An Alexa Fluor® 488-conjugated Goat anti-mouse IgG polyclonal was used as the secondary antibody (diluted at 1/200).

Anti-Alpha-synuclein antibody [LB 509] (ab27766) at 1/1000 dilution + Recombinant Human Alpha-synuclein protein (ab51189) at 0.1 µg

**Secondary**
Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 5000 µg

Developed using the ECL technique.

Performed under reducing conditions.

**Predicted band size:** 14 kDa

**Exposure time:** 8 minutes

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**Please note:** All products are “FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES”

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