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.


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 fibrilar 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
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/1x10^6) 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

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

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit https://www.abcam.com/abpromise or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors