Human Alpha-synuclein ELISA Kit ab210973

**Overview**

**Product name**
Human Alpha-synuclein ELISA Kit

**Detection method**
Colorimetric

**Precision**

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum</td>
<td>5</td>
<td></td>
<td></td>
<td>1.8%</td>
</tr>
</tbody>
</table>

**Sample type**
Cell culture supernatant, Serum, Cell culture extracts, Tissue Extracts, Heparin Plasma, EDTA Plasma, Citrate Plasma, Cerebral Spinal Fluid

**Assay type**
Sandwich (quantitative)

**Sensitivity**
110 pg/ml

**Range**
281 pg/ml - 3200 pg/ml

**Recovery**

<table>
<thead>
<tr>
<th>Sample type</th>
<th>Average %</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell culture supernatant</td>
<td>104</td>
<td>97% - 116%</td>
</tr>
<tr>
<td>Serum</td>
<td>100</td>
<td>94% - 103%</td>
</tr>
<tr>
<td>Cell culture extracts</td>
<td>105</td>
<td>104% - 107%</td>
</tr>
<tr>
<td>Tissue Extracts</td>
<td>107</td>
<td>104% - 112%</td>
</tr>
<tr>
<td>Heparin Plasma</td>
<td>103</td>
<td>93% - 114%</td>
</tr>
</tbody>
</table>
### Sample Types

<table>
<thead>
<tr>
<th>Sample type</th>
<th>Average %</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTA Plasma</td>
<td>95</td>
<td>67% - 115%</td>
</tr>
<tr>
<td>Citrate Plasma</td>
<td>98</td>
<td>94% - 105%</td>
</tr>
<tr>
<td>Cerebral Spinal Fluid</td>
<td>118</td>
<td>107% - 132%</td>
</tr>
</tbody>
</table>

### Assay Time

1h 30m

### Assay Duration

One step assay

### Species Reactivity

Reacts with: Human

### Product Overview

Alpha-synuclein in vitro SimpleStep ELISA® (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Alpha-synuclein protein in human serum, plasmas, cerebrospinal fluid, cell culture supernatants, and cell and tissue extracts. (UniprotID: P37840)

The SimpleStep ELISA® employs an affinity tag labeled capture antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. TMB substrate is added and during incubation is catalyzed by HRP, generating blue coloration. This reaction is then stopped by addition of Stop Solution completing any color change from blue to yellow. Signal is generated proportionally to the amount of bound analyte and the intensity is measured at 450 nm. Optionally, instead of the endpoint reading, development of TMB can be recorded kinetically at 600 nm.

This kit is knockout validated for specifically detecting alpha-synuclein in human HAP1 cells.

### Notes

Alpha-synuclein is a 140 amino acid protein encoded by the SNCA gene, primarily found in neural tissue. It is a member of the synuclein family of proteins including β-Synuclein and γ-Synuclein. Alpha-synuclein has been found concentrated in the presynaptic nerve terminals of neurons, and has been found in the nucleus of neurons. Several physiological roles for Alpha-synuclein have been suggested, and it is a major component of Lewy Bodies. This protein appears to play a role in dopamine metabolism and vesicle trafficking.

### Tested Applications

Suitable for: Sandwich ELISA

### Platform

Pre-coated microplate (12 x 8 well strips)

### Properties

### Storage Instructions

Store at +4°C. Please refer to protocols.

### Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Human Alpha Synuclein Capture Antibody</td>
<td>1 x 600µl</td>
</tr>
<tr>
<td>10X Human Alpha Synuclein Detector Antibody</td>
<td>1 x 600µl</td>
</tr>
</tbody>
</table>
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
dopaminergic neurons.

Applications

Our Abpromise guarantee covers the use of ab210973 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>Sandwich ELISA</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
</tbody>
</table>

Images

ELISA Protocol Summary

Background-subtracted data values (mean +/- SD) are graphed.

Example of human Alpha Synuclein standard curve in Sample Diluent NS.
Example of human Alpha Synuclein standard curve in 1X Extraction Buffer PTR.

Background-subtracted data values (mean +/- SD) are graphed.

The concentrations of Alpha Synuclein were measured in duplicates, interpolated from the Alpha Synuclein standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 67%, plasma (citrate) 30%, plasma (EDTA) 30%, and plasma (heparin) 30%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha Synuclein concentration was determined to be 2.7 ng/mL in serum, 9.0 ng/mL in plasma (citrate), 9.2 ng/mL in plasma (EDTA), and 7.0 ng/mL in plasma (heparin).

Interpolated concentrations of native Alpha Synuclein in human serum and plasma samples.

The concentrations of Alpha Synuclein were measured in duplicates, interpolated from the Alpha Synuclein standard curves and corrected for sample dilution. Undiluted samples are as follows: cerebrospinal fluid 33%, culture media 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

Interpolated concentrations of spiked Alpha Synuclein in human cerebrospinal fluid and cell culture media samples.
The concentrations of Alpha Synuclein were measured in duplicate and interpolated from the Alpha Synuclein standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha Synuclein concentration was determined to be 16 ng/mg in SH-SY5Y cell extract, 83 µg/mg in human brain extract, and 115 µg/mg in human fetal brain extract.

Interpolated concentrations of native Alpha Synuclein in SH-SY5Y cell extract, human brain extract, and human fetal brain extract based on a 1,000 µg/mL extract load.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha Synuclein concentration was determined to be 2.45 ng/mL with a range of 1.32 – 5.53 ng/mL.

Serum from eight individual healthy human male donors was measured in duplicate.
ab210973 specifically detects Alpha Synuclein in human HAP1 cells.

Raw data is plotted for wild-type and alpha synuclein-knockout HAP1 cell extracts tested at 111 μg/mL.

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