abcam

Product datasheet

Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) ab269557

リコンビナント SimpleStep ELISA

画像数 8

製品の概要

製品名 Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713)

検出方法 Colorimetric

再現性

Intra-Assay（同時再現性）

サンプル	N	平均値	SD	CV%
Serum	8			4.5%

Inter-Assay（日差再現性）

サンプル	N	平均値	SD	CV%
Serum	3			5.3%

サンプルの種類 Cell culture supernatant, Serum, Tissue Extracts, Cell Lysate, Cell culture media, Hep Plasma, EDTA Plasma, Cit plasma

アッセイタイプ Sandwich (quantitative)

検出感度 0.075 ng/ml

検出範囲 0.313 ng/ml - 10 ng/ml

添加回収試験

特定サンプルでの回収試験

サンプルの種類	平均 %	測定範囲
Cell culture supernatant	88	83% - 92%
Serum	105	103% - 109%
Tissue Extracts	92	93% - 97%
Hep Plasma	107	103% - 113%
EDTA Plasma	93	90% - 97%

サンプルの種類	平均 %	測定範囲
Cit plasma	95	91% - 100%

全工程の試験時間

1h 30m

ステップ

One step assay

種交差性

交差種: Mouse, Human

製品の概要

Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) (ab269557) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of Cleaved Tau (Human Asp738/Mouse Asp713) protein in cell culture supernatant, cell lysate, edta plasma, serum, cit plasma, hep plasma, tissue extracts, and cell culture media. It uses our proprietary SimpleStep ELISA® technology. Quantitate Cleaved Tau (Human Asp738/Mouse Asp713) with 0.075 ng/ml sensitivity.

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

- Single-wash protocol reduces assay time to 90 minutes or less
- High sensitivity, specificity and reproducibility from superior antibodies
- Fully validated in biological samples
- 96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate (**ab203359**) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

特記事項

Tau promotes microtubule assembly and stability; it might be involved in the establishment and maintenance of neuronal polarity. The C-terminus of Tau binds axonal microtubules while the N-terminus binds neural plasma membrane components, suggesting that Tau functions as a linker protein between both. Axonal polarity is predetermined by Tau localization (in the neuronal cell) in the domain of the cell body defined by the centrosome. Tau is expressed predominantly in neurons. Human Tau is expressed at least as 9 isoforms. The long PNS-tau isoform is expressed in the peripheral nervous system while the others are expressed in the central nervous system. The short isoforms allow plasticity of the cytoskeleton whereas the longer isoforms may preferentially play a role in its stabilization. Tau is phosphorylated at various serine and threonine residues. Tau phosphorylation impairs the Tau ability to bind microtubules and leads to microtubule depolymerization. Hyperphosphorylated Tau is the major component of paired helical filaments, the building block of neurofibrillary lesions in Alzheimer's disease (AD) brain. Tau truncation can affect Tau pathologic characteristics, including its ability to acquire AD-related conformations and to assemble into filaments. Amyloid-beta protein can trigger caspase activation and cellular apoptosis. Several activated caspases, including caspase-3, caspase-7, and caspase-8, can cleave Tau at a highly conserved sequence present in all isoforms generating Cleaved Tau with …SSTGSIDMVD sequence at the carboxy terminus. This carboxy terminal Asp corresponds to, for example, Asp738 of human canonical PNS isoform, Asp421 of human Tau-F isoform, or Asp713 of mouse canonical PNS isoform. The cleavage of Tau at this site is an important inducer of Tau polymerization in AD. This kit is designed to detect all Tau isoforms only when cleaved at the above described site.

Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.
It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

試験プラットフォーム Pre-coated microplate (12 x 8 well strips)

製品の特性

保存方法 Store at +4°C. Please refer to protocols.

内容	1 x 96 tests
10X Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) Capture Antibody	1 x 600µl
10X Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent CPI - HAMA Blocker (ab193969)	1 x 6ml
Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 50ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

機能 Promotes microtubule assembly and stability, and might be involved in the establishment and maintenance of neuronal polarity. The C-terminus binds axonal microtubules while the N-terminus binds neural plasma membrane components, suggesting that tau functions as a linker protein between both. Axonal polarity is predetermined by tau localization (in the neuronal cell) in the domain of the cell body defined by the centrosome. The short isoforms allow plasticity of the cytoskeleton whereas the longer isoforms may preferentially play a role in its stabilization.

組織特異性 Expressed in neurons. Isoform PNS-tau is expressed in the peripheral nervous system while the others are expressed in the central nervous system.

関連疾患 Note=In Alzheimer disease, the neuronal cytoskeleton in the brain is progressively disrupted and replaced by tangles of paired helical filaments (PHF) and straight filaments, mainly composed of hyperphosphorylated forms of TAU (PHF-TAU or AD P-TAU).
Defects in MAPT are a cause of frontotemporal dementia (FTD) [MIM:600274]; also called frontotemporal dementia (FTD), pallido-ponto-nigral degeneration (PPND) or historically termed Pick complex. This form of frontotemporal dementia is characterized by presenile dementia with

behavioral changes, deterioration of cognitive capacities and loss of memory. In some cases, parkinsonian symptoms are prominent. Neuropathological changes include frontotemporal atrophy often associated with atrophy of the basal ganglia, substantia nigra, amygdala. In most cases, protein tau deposits are found in glial cells and/or neurons.
Defects in MAPT are a cause of Pick disease of the brain (PIDB) [MIM:172700]. It is a rare form of dementia pathologically defined by severe atrophy, neuronal loss and gliosis. It is characterized by the occurrence of tau-positive inclusions, swollen neurons (Pick cells) and argentophilic neuronal inclusions known as Pick bodies that disproportionally affect the frontal and temporal cortical regions. Clinical features include aphasia, apraxia, confusion, anomia, memory loss and personality deterioration.
Note=Defects in MAPT are a cause of corticobasal degeneration (CBD). It is marked by extrapyramidal signs and apraxia and can be associated with memory loss. Neuropathologic features may overlap Alzheimer disease, progressive supranuclear palsy, and Parkinson disease.
Defects in MAPT are a cause of progressive supranuclear palsy type 1 (PSNP1) [MIM:601104, 260540]; also abbreviated as PSP and also known as Steele-Richardson-Olszewski syndrome. PSNP1 is characterized by akinetic-rigid syndrome, supranuclear gaze palsy, pyramidal tract dysfunction, pseudobulbar signs and cognitive capacities deterioration. Neurofibrillary tangles and gliosis but no amyloid plaques are found in diseased brains. Most cases appear to be sporadic, with a significant association with a common haplotype including the MAPT gene and the flanking regions. Familial cases show an autosomal dominant pattern of transmission with incomplete penetrance; genetic analysis of a few cases showed the occurrence of tau mutations, including a deletion of Asn-613.

配列類似性

Contains 4 Tau/MAP repeats.

発生段階

Four-repeat (type II) tau is expressed in an adult-specific manner and is not found in fetal brain, whereas three-repeat (type I) tau is found in both adult and fetal brain.

ドメイン

The tau/MAP repeat binds to tubulin. Type I isoforms contain 3 repeats while type II isoforms contain 4 repeats.

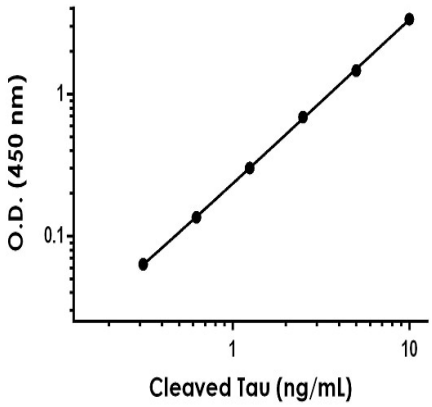
翻訳後修飾

Phosphorylation at serine and threonine residues in S-P or T-P motifs by proline-directed protein kinases (PDPK: CDK1, CDK5, GSK-3, MAPK) (only 2-3 sites per protein in interphase, seven-fold increase in mitosis, and in PHF-tau), and at serine residues in K-X-G-S motifs by MAP/microtubule affinity-regulating kinase (MARK) in Alzheimer diseased brains. Phosphorylation decreases with age. Phosphorylation within tau's repeat domain or in flanking regions seems to reduce tau's interaction with, respectively, microtubules or plasma membrane components. Phosphorylation on Ser-610, Ser-622, Ser-641 and Ser-673 in several isoforms during mitosis.
Polyubiquitinated. Requires functional TRAF6 and may provoke SQSTM1-dependent degradation by the proteasome (By similarity). PHF-tau can be modified by three different forms of polyubiquitination. 'Lys-48'-linked polyubiquitination is the major form, 'Lys-6'-linked and 'Lys-11'-linked polyubiquitination also occur.
Glycation of PHF-tau, but not normal brain tau. Glycation is a non-enzymatic post-translational modification that involves a covalent linkage between a sugar and an amino group of a protein molecule forming ketoamine. Subsequent oxidation, fragmentation and/or cross-linking of ketoamine leads to the production of advanced glycation endproducts (AGES). Glycation may play a role in stabilizing PHF aggregation leading to tangle formation in AD.

細胞内局在

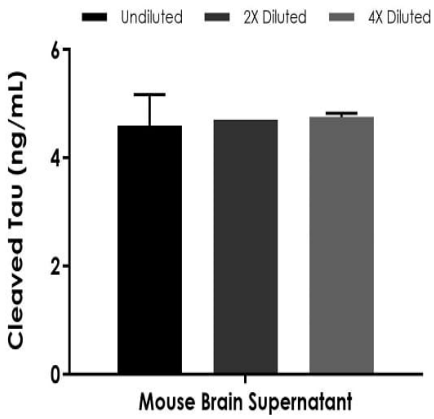
Cytoplasm > cytosol. Cell membrane. Cytoplasm > cytoskeleton. Cell projection > axon. Mostly found in the axons of neurons, in the cytosol and in association with plasma membrane components.

画像



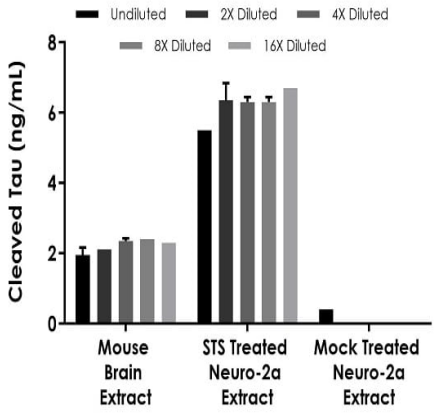
Example of human and mouse Cleaved Tau standard curve in Sample Diluent NS.

The Cleaved Tau standard curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.



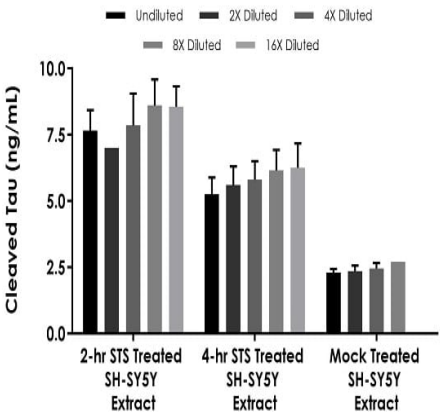
Interpolated concentrations of native Cleaved Tau in mouse brain supernatant sample.

The concentrations of Cleaved Tau were measured in duplicates, interpolated from the Cleaved Tau standard curves and corrected for sample dilution. Undiluted sample is as follows: mouse brain supernatant 25%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cleaved Tau concentration was determined to be 4.68 ng/mL in neat brain supernatant.



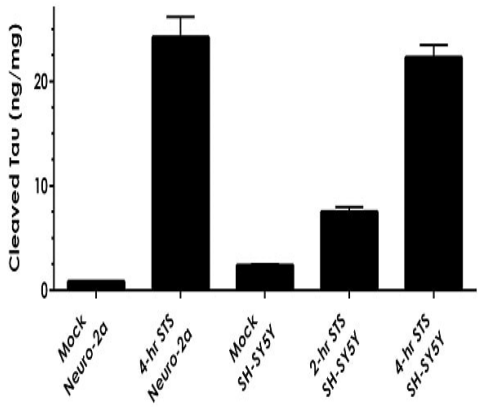
Interpolated concentrations of native Cleaved Tau in mouse brain tissue, 1 µM staurosporine treated and mock treated Neuro-2a cell extracts based on 250 µg/mL, 250 µg/mL and 500 µg/mL extract loads.

The concentrations of Cleaved Tau were measured in duplicate and interpolated from the Cleaved Tau standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cleaved Tau concentration was determined to be 2.19 ng/mL in mouse brain extract, 6.27 ng/mL in staurosporine treated Neuro-2a extract and 0.426 ng/mL in mock treated Neuro-2a extract.



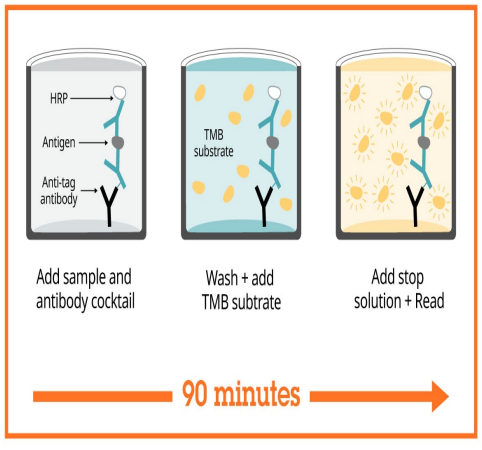
Interpolated concentrations of native Cleaved Tau in 2 and 4 hours 1 µM staurosporine treated SH-SY5Y and mock treated cell extract samples based on 1000 µg/mL, 250 µg/mL and 1000 µg/mL extract loads.

The concentrations of Cleaved Tau were measured in duplicate and interpolated from the Cleaved Tau standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Cleaved Tau concentration was determined to be 7.93 ng/ mL in 2 hours staurosporine treated SH-SY5Y extract, 5.80 in 4 hours staurosporine treated SH-SY5Y extract and 2.42 in mock treated SH-SY5Y extract.



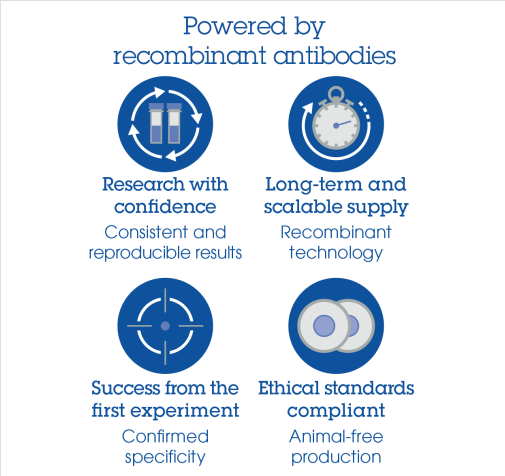
Comparison of staurosporine treated and mock treated Neuro-2a and SH-SY5Y cell extracts.

SH-SY5Y cells were cultured in the presence of 1 µM staurosporine for 2 hours and 4 hours, or in the presence of staurosporine solvent (mock) for 4 hours. Neuro-2a cells were cultured in the presence of 1 µM staurosporine for 4 hours, or in the presence of staurosporine solvent (mock) for 4 hours. The concentrations of Cleaved Tau were measured in three different dilutions of the cell extract samples in duplicates and interpolated from the Cleaved Tau standard curve. The interpolated dilution factor corrected values are plotted in ng of Cleaved Tau per mg of extract (mean +/- SD, n=3). The mean Cleaved Tau concentration was determined to be 0.85 ng/mg in Neuro-2a (mock), 24.6 ng/mg in Neuro-2a (4-hours STS), 2.37 ng/mg in SH-SY5Y (mock), 7.49 ng/mg in SH-SY5Y (2-hours STS), 22.2 ng/mg in SH-SY5Y (4-hours STS) cell extracts.



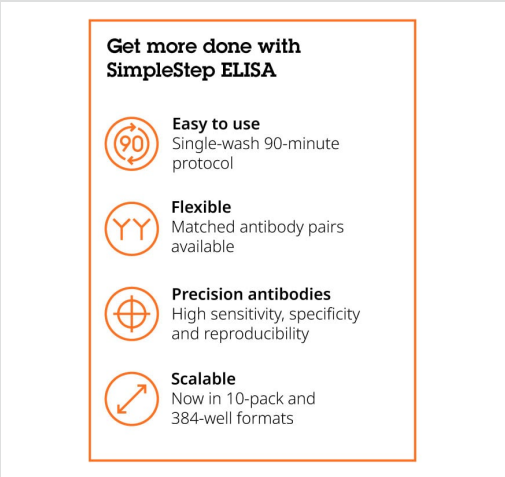
Sandwich ELISA - Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) (ab269557)

SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



Sandwich ELISA - Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) (ab269557)

To learn more about the advantages of recombinant antibodies see **here**.



Sandwich ELISA - Cleaved Tau ELISA Kit (Human Asp738/Mouse Asp713) (ab269557)

To learn more about the advantages of SimpleStep ELISA® kits see **here**.

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