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Rabbit Anti-phospho-Tau (Ser579)/APC Conjugated antibody

SL10108R-APC

Product Name	Anti-phospho-Tau (Ser579)/APC
Chinese Name	APC 标记的磷酸化微管相关蛋白抗体
Alias	Tau(Phospho-Ser579); p-Tau protein (Ser579); MAPT; Microtuble-associted protein Tau; AI413597; AW045860; DDPAC; Disinhibition dementia parkinsonism amyotrophy complex; FLJ31424; FTDP 17; FTDP17; G Protein beta 1 gamma 2 subunit interacting factor 1; G protein beta1/gamma2 subunit interacting factor 1; MAPTL; MGC134287; MGC138549; MGC156663; Microtubule associated protein tau isoform 4; MSTD; Mtapt; MTBT1; MTBT2; Neurofibrillary tangle protein; Paired helical filament tau; PHF tau; PHF-tau; PPND; pTau; RNPTAU; Tauopathy and respiratory failure, included; TAU_HUMAN.
Product Type	Phosphorylated anti
Research Area	Cell biology immunology Neurobiology
Immunogen Species	Rabbit
Clonality	Polyclonal
React Species	Human Mouse Rat(predicted:Dog Cow Horse Rabbit)
Applications	Flow-Cyt=1:50-200 ICC=1:50-200 IF=1:50-200 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Molecular weight	52/79kDa
Form	Lyophilized or Liquid
Concentration	1mg/ml
immunogen	KLH conjugated synthesised phosphopeptide derived from human Tau protein around the phosphorylation site of Ser579
Lsotype	IgG
Purification	affinity purified by Protein A
Storage Buffer	1M TBS(pH7.4) with 1% BSA, 3% Proclin300 and 50% Glycerol.
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and

for greater than a year when kept at -20°C. When reconstituted in sterile pH 7.4 1M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Product Detail

background:
Tau proteins are important 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. Tau proteins subcellular located in the axons of neurons, in the cytoso l and in association with plasma membrane components. It expressed in neurons. PNS-tau is expressed in the peripheral nervous system while the others are expressed in the central nervous system.

Function:
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/MAPT 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.

Subunit:
Interacts with PSMC2 through SQSTM1. Interacts with SQSTM1 when polyubiquitinated. Interacts with FKBP4. Binds to CSNK1D. Interacts with SGK1.

Subcellular Location:
Cytoplasm, cytosol. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Cytoplasm, cytoskeleton. Cell projection, axon. Note=Mostly found in the axons of neurons, in the cytosol and in association with plasma membrane components.

Tissue Specificity:
Expressed in neurons. Isoform PNS-tau is expressed in the peripheral nervous system while the others are expressed in the central nervous system.

Post-translational modifications:
Phosphorylation at serine and threonine residues in S-P or T-P motifs by

proline-directed protein kinases (PDPK1: CDK1, CDK5, GSK3, MAPK) (only 2-3 sites per protein in interphase, seven-fold increase in mitosis, and in the form associated with paired helical filaments (PHF-tau)), and at serine residues in K-X-G-S motifs by MAP/microtubule affinity-regulating kinase (MARK1 or MARK2), causing detachment from microtubules, and their disassembly. Phosphorylation decreases with age. Phosphorylation within tau/MAP's repeat domain or in flanking regions seems to reduce tAU/MAP'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. Phosphorylation at Ser-548 by GSK3B reduces ability to bind and stabilize microtubules. Phosphorylation at Ser-579 by BRSK1 and BRSK2 in neurons affects ability to bind microtubules and plays a role in neuron polarization. Phosphorylated at Ser-554, Ser-579, Ser-602, Ser-606 and Ser-669 by PHK. Phosphorylation at Ser-214 by SGK1 mediates microtubule depolymerization and neurite formation in hippocampal neurons. There is a reciprocal down-regulation of phosphorylation and O-GlcNAcylation. Phosphorylation on Ser-717 completely abolishes the O-GlcNAcylation on this site, while phosphorylation on Ser-713 and Ser-721 reduces glycosylation by a factor of 2 and 4 respectively. Phosphorylation on Ser-721 is reduced by about 41.5% by GlcNAcylation on Ser-717.

DISEASE:
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). O-GlcNAcylation is greatly reduced in Alzheimer disease brain cerebral cortex leading to an increase in TAU/MAPT phosphorylations.

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]; 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.

Defects in MAPT are a cause of Parkinson-dementia syndrome (PARDE) [MIM:260540]. A syndrome characterized by parkinsonism tremor, rigidity, dementia, ophthalmoparesis and pyramidal signs. Neurofibrillary degeneration occurs in the hippocampus, basal ganglia and brainstem nuclei.

Similarity:
Contains 4 Tau/MAP repeats.

Database links:

Entrez Gene: 281296 Cow

Entrez Gene: 4137 Human

Entrez Gene: 17762 Mouse

Entrez Gene: 29477 Rat

Omim: 157140 Human

SwissProt: P29172 Cow

SwissProt: P10636 Human

SwissProt: P10637 Mouse

SwissProt: P19332 Rat

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Unigene: 101174 Human

Unigene: 1287 Mouse

Unigene: 2455 Rat

Important Note:
This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

P-tau 蛋白是脑内神经元细胞支架蛋白之一.其正常功能是促进微管蛋白组成微管,并维持已形成微管的稳定性.参与维持细胞形态、信息传递、细胞分裂等重要生物学过程,是轴突生长发育和神经元极性形成的不可缺少因素. 近年来发现 tau 蛋白与一些中枢神经系统变性疾病密切相关,尤其是神经 Tau 具有启动微管系统的装配以及稳定微管系统的作用，该蛋白的错误折叠与老年性痴呆等神经退行性疾病密切相关.