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#74113

Pathological Hallmarks of Alzheimer's Disease Antibody Sampler Kit



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For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
β -Amyloid (D54D2) XP [®] Rabbit mAb	8243	20 μ l	5 kDa	Rabbit IgG
β -Amyloid (1-42 Preferred) (D9A3A) Rabbit mAb	14974	20 μ l	4 kDa	Rabbit IgG
β -Amyloid (1-40 Specific) (D8Q7I) Rabbit mAb	12990	20 μ l	4 kDa	Rabbit IgG
β -Amyloid (1-43 Preferred) (E8C2D) Rabbit mAb	32098	20 μ l	6 kDa	Rabbit IgG
β -Amyloid (pE3 Peptide) (D5N5H) Rabbit mAb	14975	20 μ l	4 kDa	Rabbit IgG
Tau (D1M9X) XP [®] Rabbit mAb	46687	20 μ l	50-80 kDa	Rabbit IgG
Phospho-Tau (Thr205) (E7D3E) Rabbit mAb	49561	20 μ l	50-80 kDa	Rabbit IgG
P-Tau (Ser404) (D2Z4G) (IF preferred) Rabbit mAb	20194	20 μ l	50-80 kDa	Rabbit IgG
Phospho-Tau (Thr181) (D9F4G) Rabbit mAb	12885	20 μ l	50-80 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 μ l		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: The Pathological Hallmarks of Alzheimer's Disease Antibody Sampler Kit provides an economical means of detecting the activation of Tau and APP family members using phospho-specific, and control antibodies for both proteins. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: Tau is a heterogeneous microtubule-associated protein that promotes and stabilizes microtubule assembly, especially in axons. Six isoforms with different amino-terminal inserts and different numbers of tandem repeats near the carboxy terminus have been identified, and tau is hyperphosphorylated at approximately 25 sites by ERK, GSK-3, and CDK5 (1,2). Phosphorylation decreases the ability of tau to bind to microtubules. Neurofibrillary tangles are a major hallmark of Alzheimer's disease; these tangles are bundles of paired helical filaments composed of hyperphosphorylated tau. In particular, phosphorylation at Ser396 by GSK-3 or CDK5 destabilizes microtubules. Furthermore, research studies have shown that inclusions of tau are found in a number of other neurodegenerative diseases, collectively known as tauopathies (1,3). The cerebrospinal fluid concentration of tau phosphorylated at Thr181 has been proposed to be a biomarker for the study of neurodegenerative disorders (4).

Amyloid β ($A\beta$) precursor protein (APP) is a 100-140 kDa transmembrane glycoprotein that exists as several isoforms (4). The amino acid sequence of APP contains the amyloid domain, which can be released by a two-step proteolytic cleavage (4). The extracellular deposition and accumulation of the released $A\beta$ fragments form the main components of amyloid plaques in Alzheimer's disease (4). APP can be phosphorylated at several sites, which may affect the proteolytic processing and secretion

of this protein (5-8). $A\beta$ -43 has been suggested as a biomarker in early onset of Alzheimer's disease, where patients have lower levels of $A\beta$ -43 in cerebrospinal fluid (8-10). Several studies have shown that $A\beta$ toxicity of $A\beta$ -43 is as high as $A\beta$ -42 or $A\beta$ -40 in different models of Alzheimer's disease, including mouse models and human disease (10).

Specificity/Sensitivity: Pathological Hallmarks of Alzheimer's Disease Antibody Sampler Kit includes Tau (D1M9X) XP[®] Rabbit mAb that recognizes total tau, and antibodies that recognize various phosphorylated tau epitopes found in Alzheimer's disease, including Phospho-Tau (Thr205) (E7D3E), Phospho-Tau (Ser404) (D2Z4G) (IF preferred), and Phospho-Tau (Thr181) (D9F4G). Additionally, this kit includes antibodies that detect various β -Amyloid peptides of the APP human protein, including β -Amyloid (D54D2) XP[®] Rabbit mAb, which also detects transgenically expressed human APP in mouse. β -Amyloid (pE3 Peptide) (D5N5H) Rabbit mAb recognizes recombinant pE3 peptides but does not cross-react with the non-E3 peptides. β -Amyloid (1-40 Specific) (D8Q7I) Rabbit mAb does not cross-react with other β -amyloid peptides. β -Amyloid (1-43 Preferred) (E8C2D) Rabbit mAb and β -Amyloid (1-42 preferred) (D9A3A) Rabbit mAb both detect transgenically expressed human APP in mouse models.

Source/Purification: Tau antibodies include peptides corresponding to residues surrounding Asp430, phosphorylated at Thr205, Ser400/Thr403/Ser404, and Thr181 of human tau. Monoclonal antibodies are produced by immunizing rabbits with synthetic $A\beta$ peptides corresponding to residues near the carboxy terminus of human β -amyloid (1-42), (1-40), (1-43), (pE3) peptide, and several peptides of $A\beta$, such as $A\beta$ -37, $A\beta$ -38, $A\beta$ -39, $A\beta$ -40, and $A\beta$ -42.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C . Do not aliquot the antibody.

Please visit www.cellsignal.com for validation data and a complete listing of recommended companion products.

Background References:

- (1) Johnson, G.V. and Stoothoff, W.H. (2004) *J Cell Sci* 117, 5721-9.
- (2) Hanger, D.P. et al. (1998) *J Neurochem* 71, 2465-76.
- (3) Bramblett, G.T. et al. (1993) *Neuron* 10, 1089-99.
- (4) Mitchell, A.J. (2009) *J Neural Neurosurg Psychiatry* 80, 966-75.
- (5) Selkoe, D.J. (1996) *J Biol Chem* 271, 18295-8.
- (6) Caporaso, G.L. et al. (1992) *Proc Natl Acad Sci U S A* 89, 3055-9.
- (7) Hung, A.Y. and Selkoe, D.J. (1994) *EMBO J* 13, 534-42.
- (8) Suzuki, T. et al. (1994) *EMBO J* 13, 1114-22.
- (9) Ando, K. et al. (1999) *J Neurosci* 19, 4421-7.
- (10) Iijima, K. et al. (2000) *J Neurochem* 75, 1085-91.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species enclosed in parentheses are predicted to react based on 100% homology.**