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LRP1-mediated Endocytosis and Transmission of Tau Antibody Sampler Kit



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New 03/21

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
LRP1 (E2Q7S) Rabbit mAb	26387	20 µl	85 kDa	Rabbit IgG
ApoE (pan) (D7I9N) Rabbit mAb	13366	20 µl	35 kDa	Rabbit IgG
Tau (D1M9X) XP® Rabbit mAb	46687	20 µl	50-80 kDa	Rabbit IgG
Phospho-Tau (Thr181) (D9F4G) Rabbit mAb	12885	20 µl	50-80 kDa	Rabbit IgG
Phospho-Tau (Ser404) (D2Z4G) Rabbit mAb (IF preferred)	20194	20 µl	50-80 kDa	Rabbit IgG
SORL1 (D8D4G) Rabbit mAb	79322	20 µl	250 kDa	Rabbit IgG
Rab5 (C8B1) Rabbit mAb	3547	20 µl	25 kDa	Rabbit IgG
Rab7 (D95F2) XP® Rabbit mAb	9367	20 µl	23 kDa	Rabbit IgG
Rab11 (D4F5) XP® Rabbit mAb	5589	20 µl	25 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

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

Description: The LRP1-mediated Endocytosis and Transmission of Tau Antibody Sampler Kit provides an economical means of detecting components of the LRP-1 mediated intercellular transmission of human tau using antibodies. 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. In addition to its normal function, intracellular neurofibrillary tangle protein aggregates, composed of hyperphosphorylated helical bundles of tau, are a major hallmark of neurodegenerative diseases like Alzheimer's disease (AD) (1). Moreover, disease progression is also measured by the progressive spread and deposition of the protein aggregates via intercellular transfer of tau (2). Although the intercellular mechanism of protein aggregate transfer is poorly understood, low density lipoprotein receptor related protein 1 (LRP1) was identified as a regulator of tau uptake and spread (3). LRP1 is a type I transmembrane receptor that mediates the endocytosis of various ligands, including apolipoproteins and tau. Interestingly, human apolipoprotein E (ApoE), which also binds to LRP1, is genetically linked to AD (4). LRP1-mediated protein uptake, in addition to tau, may play an important role in AD progression. In addition to LRP1, other low density lipoprotein receptor related proteins, including SORL1, are genetically linked to AD, suggesting a conserved cellular mechanism that converges on this family of proteins that contributes to AD etiology (5). Once tau binds to LRP1, receiving cells are likely to internalize and process tau via the endosomal pathway, completing cell-to-cell transmission. Rab5, Rab7, and Rab11, members of the Ras superfamily of small Rab GTPases, are likely to regulate endosomal processing of tau (6).

Specificity/Sensitivity: Each antibody in the LRP1-mediated Endocytosis and Transmission of Tau Antibody Sampler Kit detects endogenous levels of its target protein. LRP1 (E2Q7S) Rabbit mAb recognizes endogenous levels of total LRP1 β subunit. ApoE (pan) (D7I9N) Rabbit mAb recognizes overexpressed ApoE2, ApoE3, and ApoE4 proteins. Phospho-Tau (Thr181) (D9F4G) Rabbit mAb recognizes endogenous levels of tau protein only when phosphorylated at Thr181. Phospho-Tau (Ser404) (D2Z4G) Rabbit mAb (IF preferred) recognizes endogenous levels of tau protein when phosphorylated at Ser404. This antibody detects single phosphorylation at Ser404, dual phosphorylation at Ser400/Ser404 or Thr403/Ser404, and triple phosphorylation at Ser400/Thr403/Ser404. This antibody does not detect peptides with single phosphorylation at Ser400 or Thr403, and dual phosphorylation at Ser400/Thr403. Rab11 (D4F5) XP® Rabbit mAb detects endogenous levels of Rab11 protein including isoforms Rab11a and Rab11b.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with synthetic peptides corresponding to residues surrounding Leu4488 of human LRP1 protein, Pro285 of human ApoE protein, Asp430 of human tau protein, Glu267 of human SORL1 protein, Gly190 of human Rab5A protein, and Glu188 of human Rab7 protein, respectively. Rab11 (D4F5) XP® Rabbit mAb is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human Rab11 protein. Phospho-Tau (Thr181) (D9F4G) Rabbit mAb and Phospho-Tau (Ser404) (D2Z4G) Rabbit mAb (IF preferred) are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr181 of human Tau protein and Ser400/Thr403/Ser404 of human Tau protein, respectively.

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

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) Braak, H. and Braak, E. (1991) *Acta Neuropathol* 82, 239-59.
- (3) Rauch, J.N. et al. (2020) *Nature* 580, 381-385.
- (4) Corder, E.H. et al. (1993) *Science* 261, 921-3.
- (5) Yin, R.H. et al. (2015) *Mol Neurobiol* 51, 909-18.
- (6) Zhang, X. et al. (2019) *ACS Chem Neurosci* 10, 828-838.

U.S. Patent No. 7,429,487, foreign equivalents, and child patents deriving therefrom.

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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.**