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-20°C

#56511

Tau Mouse Model Neuronal Viability IF Sampler Kit



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

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
Phospho-Tau (Thr205) (E7D3E) Rabbit mAb	49561	20 µl	50-80 kDa	Rabbit IgG
Tau (Tau46) Mouse mAb	4019	20 µl	50-80 kDa	Mouse IgG1
NeuN (D4G40) XP® Rabbit mAb	24307	20 µl	46-55 kDa	Rabbit IgG
Synaptophysin (7H12) Mouse mAb (IF Formulated)	9020	20 µl		Mouse IgG1
PSD95 (D27E11) XP® Rabbit mAb	3450	20 µl	95 kDa	Rabbit IgG
Cleaved Caspase-3 (Asp175) Antibody	9661	20 µl	17, 19 kDa	Rabbit
Cleaved PARP (Asp214) (D6X6X) Rabbit mAb (Rodent Specific)	94885	20 µl	89 kDa	Rabbit IgG
GFAP (E6N9L) Mouse mAb	34001	20 µl	50 kDa	Mouse IgG2a
HS1 (D5A9) XP® Rabbit mAb (Rodent Specific)	3892	20 µl	80 kDa	Rabbit IgG

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

Description: The Tau Mouse Model Neuronal Viability IF Sampler Kit provides an economical means of detecting proteins to confirm neuronal viability and surrounding astrocytes and microglia in mouse models by immunofluorescence.

Background: Tau is a heterogeneous microtubule-associated protein that promotes and stabilizes microtubule assembly, especially in axons. Neurofibrillary tangles are a major pathological hallmark of Alzheimer's disease; these tangles are bundles of paired helical filaments composed of hyperphosphorylated tau, including phosphorylation of tau at Thr205 (1,2). Research studies have shown that inclusions of tau are found in a number of other neurodegenerative diseases, collectively known as tauopathies (1,3). Neuronal nuclei (NeuN, Fox-3, RBFOX3) is a nuclear protein expressed in most post-mitotic neurons of the central and peripheral nervous systems. NeuN is not detected in Purkinje cells, sympathetic ganglion cells, Cajal-Retzius cells, INL retinal cells, inferior olivary, or dentate nucleus neurons (4). Glial fibrillary acidic protein (GFAP) is the main intermediate filament in mature brain astroglial and radial glial cells. GFAP plays an important role in modulating astroglial motility and shape (5). HS1 is a protein kinase substrate that is expressed only in tissues and cells of hematopoietic origin (6). Previous work identifying markers of specific brain cell types using RNA-seq has shown HS1 to be a useful and specific tool to study microglia (7). Synaptophysin (SYP) is a neuronal synaptic vesicle glycoprotein that occurs in presynaptic vesicles of neurons (8). Postsynaptic density protein 95 (PSD95) is a member of the membrane-associated guanylate kinase (MAGUK) family of proteins. PSD95 is a scaffolding protein involved in the assembly and function of the postsynaptic density complex (9,10). Caspase-3 (CPP-32, Aoptain, Yama, SCA-1) is a critical executioner of apoptosis, as it is either partially or totally responsible for the proteolytic cleavage of many key proteins, including nuclear enzyme poly (ADP-ribose) polymerase (PARP) (11). PARP, a 116 kDa nuclear poly (ADP-ribose) polymerase, appears to be involved in DNA repair in response

to environmental stress (12). PARP helps cells to maintain their viability; cleavage of PARP facilitates cellular disassembly and serves as a marker of cells undergoing apoptosis (13).

Specificity/Sensitivity: Each antibody in the Tau Mouse Model Neuronal Viability IF Sampler Kit detects endogenous levels of its target protein. Tau (Tau46) Mouse mAb detects endogenous levels of total tau protein and also cross-reacts with MAP2 at 280 kDa. Tau (Tau46) Mouse mAb is predicted to detect all six isoforms of tau based on the amino acid sequence. Phospho-Tau (Thr205) (E7D3E) Rabbit mAb recognizes endogenous levels of tau protein only when phosphorylated at Thr205. Cleaved PARP (Asp214) (D6X6X) Rabbit mAb (Rodent Specific) recognizes endogenous levels of the large fragment (89 kDa) of rodent PARP protein only when cleaved at Asp214. HS1 (D5A9) XP® Rabbit mAb (Rodent Specific) does not recognize human HS1 protein. HS1 has a calculated size of 54 kDa, but has an apparent molecular weight of 80 kDa on SDS-PAGE gels. Cleaved Caspase-3 (Asp175) Antibody detects endogenous levels of the large fragment (17/19 kDa) of activated caspase-3 resulting from cleavage adjacent to Asp175. This antibody does not recognize full length caspase-3 or other cleaved caspases. This antibody detects non-specific caspase substrates by western blot. Non-specific labeling may be observed by immunofluorescence in specific sub-types of healthy cells in fixed-frozen tissues (e.g. pancreatic alpha-cells). Nuclear background may be observed in rat and monkey samples.

Source/Purification: Monoclonal and polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gln53 of human PSD95, Asp214 of rodent PARP1, Leu310 of mouse HS1, amino-terminal residues adjacent to Asp175 of human caspase-3, a phosphopeptide surrounding Thr205 of human tau, recombinant protein specific to the carboxy terminus of human SYP and the amino terminus of human NeuN, native GFAP purified from pig spinal cord, and native bovine tau and the epitope maps to the carboxy-terminus of the protein.

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 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.
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- (3) Bramblett, G.T. et al. (1993) *Neuron* 10, 1089-99.
- (4) Mullen, R.J. et al. (1992) *Development* 116, 201-11.
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- (6) Kitamura, D. et al. (1995) *Biochem Biophys Res Commun* 208, 1137-46.
- (7) Zhang, Y. et al. (2014) *J Neurosci* 34, 11929-47.
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- (11) Fernandes-Alnemri, T. et al. (1994) *J Biol Chem* 269, 30761-4.
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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.