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#41608

β-Amyloid Mouse Model Neuronal Viability IF Sampler Kit

Cell Signaling TECHNOLOGY®

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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 µl	5 kDa	Rabbit IgG
β-Amyloid (D3D2N) Mouse mAb	15126	20 µl	5 kDa	Mouse IgG1
NeuN (D4G4O) 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 β-Amyloid 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: Amyloid β (Aβ) precursor protein (APP) is a 100-140 kDa transmembrane glycoprotein that exists as several isoforms. The amino acid sequence of APP contains the amyloid domain, which can be released by a two-step proteolytic cleavage. The extracellular deposition and accumulation of the released Aβ fragments form the main components of amyloid plaques, a major pathological hallmark of Alzheimer's disease (1). 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 (2). Glial fibrillary acidic protein (GFAP) is the main intermediate filament in mature brain astroglial and radial glial cells and GFAP also plays an important role in modulating astroglial motility and shape (3). HS1 is a protein kinase substrate that is expressed only in tissues and cells of hematopoietic origin (4). 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 (5). Synaptophysin (SYP) is a neuronal synaptic vesicle glycoprotein that occurs in presynaptic vesicles of neurons (6). 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 (7,8). Caspase-3 (CPP-32, Apoptain, 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) (9). PARP, a 116 kDa nuclear poly (ADP-ribose) polymerase, appears to be involved in DNA repair in response to environmental stress (10). PARP helps cells to maintain their viability; cleavage of PARP facilitates cellular disassembly and serves as a marker of cells undergoing apoptosis (11).

Specificity/Sensitivity: Each antibody in the β-Amyloid Mouse Model Neuronal Viability IF Sampler Kit detects endogenous levels of its target protein. β-Amyloid (D54D2) XP® Rabbit mAb and β-Amyloid (D3D2N) Mouse mAb detect several isoforms of Aβ, such as Aβ-37, Aβ-38, Aβ-39, Aβ-40, and Aβ-42, and they also detect transgenically expressed human APP in mouse models. 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 the amino terminus of human β-amyloid peptide (Aβ), residues surrounding Gln53 of human PSD95, Asp214 of rodent PARP1, Leu310 of mouse HS1, amino-terminal residues adjacent to Asp175 of human caspase-3, recombinant protein specific to the carboxy terminus of human SYP protein and the amino terminus of human NeuN, and native GFAP purified from pig spinal cord.

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:

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(4) Kitamura, D. et al. (1995) *Biochem Biophys Res Commun* 208, 1137-46.

(5) Zhang, Y. et al. (2014) *J Neurosci* 34, 11929-47.

(6) Wiedenmann, B. et al. (1986) *Proc Natl Acad Sci U S A* 83, 3500-4.

(7) Cao, J. et al. (2005) *J Cell Biol* 168, 117-26.

(8) Chetkovich, D.M. et al. (2002) *J Neurosci* 22, 6415-25.

(9) Fernandes-Alnemri, T. et al. (1994) *J Biol Chem* 269, 30761-4.

(10) Satoh, M.S. and Lindahl, T. (1992) *Nature* 356, 356-8.

(11) Oliver, F.J. et al. (1998) *J Biol Chem* 273, 33533-9.

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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.