

Antibody Sampler Kit for Neuronal Compartments (cat. no. 802-ASK) Synaptophysin1 (p38-1)

Cat.No. 101 011; Monoclonal mouse antibody, 10 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/Storage	10 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 10 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 10000 (AP staining) IP: yes ICC: 1 : 500 up to 1 : 1000 IHC: 1 : 500 up to 1 : 1000 IHC-P: 1 : 500 up to 1 : 1000 ExM: external data (see remarks) EM: external data ELISA: yes
Clone	7.2
Subtype	IgG1 (λ light chain)
Immunogen	Full-length recombinant rat Synaptophysin (UniProt Id: P07825)
Epitop	AA 219 to 307 from rat Synaptophysin1 (UniProt Id: P07825) corresponding to the cytoplasmic tail.
Reactivity	Reacts with: human (P08247), rat (P07825), mouse (Q62277), mammals. Weaker signal: zebrafish, other vertebrates. Other species not tested yet.
Specificity	K.O. validated PubMed: 31940485
Remarks	Widely used as marker for nerve terminals and neuroendocrine tumors. For unknown reason, neuronal synaptophysin is better recognised than neuroendocrine synaptophysin. If this is a problem, the polyclonal rabbit antibody, cat. no. 101 002 or 101 203 are recommended. ExM: This antibody has been successfully used for the epitope-preserving magnified analysis of the proteome (eMAP) expansion microscopy method (Park et al. 2021. PMID: 34767453). Variance from the standard protocol: Expansion solution for imaging: 0.02X PBS ELISA: The ELISA-protocol for membrane proteins is required. Suitable as capture antibody for sandwich-ELISA. Please refer to the protocol for suitable detector antibodies.

Synaptophysin1, also referred to as **p38-1**, is a membrane glycoprotein of synaptic vesicles that is ubiquitously expressed in all neurons and in many endocrine cells. It is currently the most widely used marker for nerve terminals and probably the best marker for the pathologist in differentiating neuroendocrine tumors.

Synaptophysin1 has four transmembrane domains with both N- and C-terminus facing the cytoplasm. It binds to synaptobrevin1 and synaptobrevin2 in detergent extracts but its function has not been elucidated completely. It forms a complex with dynamin at high Ca²⁺ concentration suggesting an involvement in synaptic vesicle endocytosis. As typical for synaptic vesicle proteins, synaptophysin1 represents a small protein family with two additional members, synaptoporin (synaptophysin2) and panthophysin. Like synaptophysin1, synaptoporin is widely expressed in neurons and colocalizes with synaptophysin1 on synaptic vesicles whereas panthophysin is present in all tissues.

Piccolo

Cat.No. 142 104; Polyclonal Guinea pig antibody, 30 µl antiserum (lyophilized)

Data Sheet

Reconstitution/Storage	30 µl antiserum, lyophilized. For reconstitution add 30 µl H ₂ O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) (see remarks) IP: yes ICC: 1 : 500 up to 1 : 1000 IHC: 1 : 200 IHC-P: 1 : 500
Immunogen	Recombinant protein corresponding to a central region of rat piccolo (UniProt Id: Q9JKS6)
Reactivity	Reacts with: rat (Q9JKS6), mouse (Q9QYX7). Other species not tested yet.
Specificity	K.O. validated PubMed: 32122952
Remarks	WB: This antibody detects an additional band of ~65 kDa.

Background

Piccolo, also referred to as **Aczonin**, is a large protein which consists of an N-terminal Zn²⁺ finger, several piccolo-bassoon homology domains (PBH-domains) and C-terminal PDZ and C2 domains. In general it is found together with bassoon, a related huge multi-domain protein of the CAZ (cytoskeletal matrix assembled at active zones). Piccolo is supposed to be a scaffolding protein for proteins involved in endo- and exocytosis of synaptic vesicles. Recently piccolo has been shown to interfere with clathrin mediated endocytosis by binding to the F-actin and dynamin binding protein Abp1.

Antibody Sampler Kit for Neuronal Compartments (cat. no. 802-ASK)

Homer1b/c

Cat.No. 160 018; Recombinant rabbit antibody, 10 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	10 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 10 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP-staining) IP: yes ICC: 1 : 500 IHC: 1 : 500 IHC-P: 1 : 1000
Clone	Rb72G2
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to the C-terminal half of human Homer1b. (UniProt Id: Q86YM7-1)
Reactivity	Reacts with: human (Q86YM7-1), mouse (Q9Z2Y3), rat (Q9Z214). Other species not tested yet.
Specificity	Specific for homer 1b and 1c; no cross-reactivity to homer 1a.
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody SY-72G2. The constant regions of the heavy and light chains have been replaced with rabbit specific sequences. The antibody can therefore be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells.

Background

Homer is a scaffolding protein of the post synaptic density (PSD) and enriched at excitatory synapses. The protein binds metabotropic glutamate receptors, TRPC1, proteins of the Shank family and others. By aggregating these proteins into clusters, homer was suggested to organize distinct signalling domains.

Three isoforms, **Homer1**, 2 and 3 have been described. Each of these isoforms is subject to alternative splicing yielding the splice variants a, b, c, d.

MAP2

Cat.No. 188 011; Monoclonal mouse antibody, 20 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	20 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 20 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) IP: not tested yet ICC: 1 : 200 up to 1 : 1000 IHC: 1 : 200 up to 1 : 500 IHC-P: 1 : 500 up to 1 : 2000 DNA-PAINT: external data (see remarks)
Clone	198A5
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to residues near the amino terminus of human Map2 (UniProt Id: P11137-4)
Epitop	AA 82 to 96 from human MAP2-4 hu (UniProt Id: P11137-4)
Reactivity	Reacts with: human (P11137), rat (P15146), mouse (P20357). No signal: zebrafish. Other species not tested yet.
Specificity	Specific for MAP2; recognizes all four isoforms.
Matching control	188-0P
Remarks	WB: Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. DNA-PAINT: This antibody has been successfully used for DNA-PAINT application (see Unterauer et al., 2024; PMID: 38552614).

Background

There are two major classes of heat stable **microtubule associated proteins** (MAPs): **MAP2**, and tau. Both protein classes are involved in the regulation of microtubule polymerization in cells. Four differentially regulated isoforms of MAP2 have been described so far.

Antibody Sampler Kit for Neuronal Compartments (cat. no. 802-ASK)

NeuN

Cat.No. 266 004; Polyclonal Guinea pig antibody, 30 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	30 µl antiserum, lyophilized. For reconstitution add 30 µl H ₂ O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: not tested yet IP: not tested yet ICC: 1 : 500 IHC: 1 : 100 up to 1 : 500 IHC-P: 1 : 200 IHC-Fr: yes ExM: external data
Immunogen	Recombinant protein corresponding to AA 1 to 97 from mouse NeuN (UniProt Id: Q8BIF2)
Reactivity	Reacts with: rat (D4A2H6), mouse (Q8BIF2), human (A6NFN3). Other species not tested yet.

Background

NeuN (Neuronal Nuclei) is a neuron-specific nuclear protein that has been identified as Fox-3/Rbfox3, a member of the Fox-1 family of transcription factors. NeuN is only expressed in the nuclei of differentiated neurons. In some neurons - Purkinje cells, sympathetic ganglion cells, INL retinal cells, Cajal-Retzius cells, inferior olivary, and dentate nucleus neurons - NeuN is not detectable.

There are two major classes of heat stable microtubule associated proteins (MAPs): MAP 2 (280 kD), and **tau** (55-65 kD). Both protein classes are involved in the regulation of microtubule polymerization in cells. Tau is a neuronal protein that mainly localizes to axons. Hyperphosphorylated tau has been shown to be a major element of paired helical filaments in Alzheimer's disease.

Tau

Cat.No. 314 308; Recombinant Guinea pig antibody, 30 µg recombinant IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	30 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 30 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) IP: not tested yet ICC: 1 : 500 IHC: 1 : 500 IHC-P: 1 : 5000
Clone	Gp248E5
Subtype	IgG2 (κ light chain)
Immunogen	Recombinant protein corresponding to the N-terminal half of mouse Tau-D (UniProt Id: P10637-5)
Reactivity	Reacts with: rat (P19332), mouse (P10637). Weaker signal: human (P10636). No signal: zebrafish. Other species not tested yet.
Specificity	This antibody binds phosphorylated and non-phosphorylated tau proteins. The sequence used for immunization is present in all splice variants except human TauA (UniProt Id: P10636-3)
Matching control	314-0P
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody clone 248E5. The constant regions of the heavy and light chains have been replaced by guinea pig specific sequences. Therefore, the antibody can be used with standard anti-guinea pig secondary reagents. The antibody has been expressed in mammalian cells.

Background

Antibody Sampler Kit for Neuronal Compartments (cat. no. 802-ASK)

β-Actin

Cat.No. 251 011; Monoclonal mouse antibody, 20 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	20 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 20 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 up to 1 : 5000 (AP staining) IP: yes ICC: 1 : 500 IHC: not tested yet IHC-P: not tested yet
Clone	130B4
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 2 to 16 from mouse β-Actin (UniProt Id: P60710)
Reactivity	Reacts with: rat (P60711), mouse (P60710), zebrafish, human (P60709). Other species not tested yet.
Specificity	May cross-react to α- and γ-actin due to sequence homology.
Remarks	ICC: The following fixatives are possible: 4% formaldehyde/PFA, methanol

Background

The two major cytoskeletal proteins involved in cell motility are myosin and **actin**. Monomeric actin is a globular protein that is expressed in all eukaryotic cells. Actin is the major subunit of microfilaments, a major component of the cytoskeleton, and of thin filaments, part of the contractile apparatus in muscle cells.

Actin is involved in many cellular processes including cell motility, maintenance of cell shape, and organelle trafficking.

Three main groups of actin have been identified. α-actins are found in muscle tissues whereas β- and γ-actins co-exist in most cell types as components of the cytoskeleton.