

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

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

Data Sheet

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| 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 : 100 up to 1 : 1000 IHC: 1 : 500 up to 1 : 1000 IHC-P: 1 : 500 up to 1 : 1000 ExM: yes (see remarks) EM: yes ELISA: yes (see remarks) |
| 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: Suitable as capture antibody for sandwich-ELISA with cat. no. 101 002 as detector antibody. The ELISA-protocol for membrane proteins is recommended. |

Background

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

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|----------------------------|---|
| 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: Due to its large size, piccolo requires special gel-electrophoresis and Western blot protocols for visualization by immunoblotting. Excellent results can be obtained with the 4-12% TRIS-glycine gradient gels from anamed or NuPAGE 3-8% TRIS-Acetate gradient gels from invitrogen. 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

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| 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.

Four differentially regulated isoforms of MAP2 have been described so far.

MAP2

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

Data Sheet

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| 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) (see remarks) IP: not tested yet ICC: 1 : 100 up to 1 : 500 IHC: 1 : 100 up to 1 : 200 IHC-P: 1 : 500 DNA-PAINT: yes (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 MAP 2; recognizes all four isoforms. |
| Matching control | 188-0P |
| Remarks | WB: Due to its large size, MAP 2 requires special gel-electrophoresis and Western blot protocols for visualization by immunoblotting. Excellent results can be obtained with the 4-12% TRIS-glycine gradient gels from anamed or NuPAGE 3-8% TRIS-Acetate gradient gels from invitrogen. 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.

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

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| 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: 1 : 500 |
| 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 recently 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

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| 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

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| 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 (see remarks) 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: methanol or PFA fixation |

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.