Synaptic Systems

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

Synaptophysin 1

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

Data Sheet

Reconstitution/ Storage	10 µg purified IgG, lyophilized. For reconstitution add 10 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 10000 (AP staining) **IP**: yes **ICC**: 1 : 100 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P/FFPE**: 1 : 500 up to 1 : 1000 **EM**: yes **ELISA**: yes (see remarks)
Clone	7.2
Subtype	IgG1 (λ 1 light chain)
Immunogen	Recombinant protein corresponding to AA 1 to 307 from rat Synaptophysin1 (UniProt Id: P07825)
Epitop	Epitop: AA 219 to 307 from rat Synaptophysin1 (UniProt Id: P07825)
Reactivity	Reacts with: human (P08247), rat (P07825), mouse (Q62277), mammals. Weaker signal: zebrafish, other vertebrates. Other species not tested yet.
Specificity	Specific for synaptophysin 1, no cross-reactivity to other synaptophysins. (K.O. verified)
Remarks	Widely used as marker for nerve terminals and neuroendocrine tumors.For still unknown reason, neuronal synaptophysin is better recognised than neuroendocrine synaptophysin. If this is a problem, the polyclonal rabbit antibody, cat. no. 101 002, is recommended. **ELISA**: Suitable as capture antibody for sandwich-ELISA with cat. no. 101 002 as detector antibody (protocol for sandwich-ELISA).

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Synaptophysin 1, 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.
Synaptophysin 1 has four transmembrane domains with both N- and C-terminus facing the cytoplasm. It binds to synaptobrevin 1 and synaptobrevin 2 in detergent extracts but its function has not been elucidated completely. It forms a complex with dynamin at high Ca^{2+} concentration suggesting an involvement in synaptic vesicle endocytosis. As typical for synaptic vesicle proteins, synaptophysin 1 represents a small protein family with two additonal members, synaptoporin (synaptophysin 2) and panthophysin. Like synaptophysin 1, synaptoporin is widely expressed in neurons and colocalizes with synaptophysin 1 on synaptic vesicles whereas panthophysin is expressed 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_2O, then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) (see remarks) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 200 **IHC-P/FFPE**: 1 : 500
Immunogen	Recombinant protein corresponding to AA 2012 to 2351 from rat Piccolo (UniProt Id: Q9JKS6)
Reactivity	Reacts with: rat (Q9JKS6), mouse (Q9QYX7). Other species not tested yet.
Specificity	Specific for piccolo. (K.D. verified)
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 of anamed. This antibody detects an additional band of ~65 kDa.

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Piccolo, also referred to as **Aczonin**, is a large protein which constists of an N-terminal Zn^{2+} 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 matric 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.

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Homer 1

Cat.No. 160 003; Polyclonal rabbit antibody, 10 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	10 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 10 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 (see remarks) **IHC**: 1 : 200 **IHC-P/FFPE**: 1 : 500 **ELISA**: yes (see remarks)
Immunogen	Recombinant protein corresponding to AA 1 to 196 from human Homer1 (UniProt Id: Q86YM7)
Reactivity	Reacts with: human (Q86YM7), rat (Q9Z214), mouse (Q9Z2Y3). Other species not tested yet.
Specificity	Specific for Homer 1. Cross-reactivity of the serum to Homer 2 and 3 was removed by pre-adsorption with Homer 2 (aa 1 - 176) and Homer 3 (aa 1 - 177). The Homer 1-sp
matching control	160-0P
Remarks	**ICC**: PFA fixation recommended. **Methanol fixation leads to a complete loss of the signal.** **ELISA**: Suitable as detector antibody for sandwich-ELISA with cat. no. 160 011 as capture antibody (protocol for sandwich-ELISA).

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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, **Homer 1**, 2 and 3 have been described. Each of these isoforms is subject to alternative splicing yielding the splice variants a, b, c, d.

MAP 2

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

Data Sheet

Reconstitution/ Storage	20 µg purified IgG, lyophilized. Azide was added before lyophilization. For reconstitution add 20 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: 1 : 100 up to 1 : 500 **IHC**: 1 : 100 up to 1 : 200 **IHC-P/FFPE**: 1 : 500
Clone	198A5
Subtype	IgG1 (κ light chain)
Immunogen	Recombinant protein corresponding to AA 2 to 314 from human MAP2-4 hu (UniProt Id: P11137-4)
Epitop	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

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There are two major classes of heat stable **m**icrotubule **a**ssociated **p**roteins (MAPs): **MAP 2**, and tau. Both protein classes are involved in the regulation of microtubule polymerization in cells.
Four differentially regulated isoforms of MAP 2 have been described so far.

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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_2O, then aliquot and store at -20°C until use.
Applications	**WB**: not tested yet **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 100 up to 1 : 500 **IHC-P/FFPE**: 1 : 200
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.
Specificity	Specific for NeuN.

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NeuN (**Neu**ronal **N**uclei) 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.

Tau

Cat.No. 314 004; Polyclonal Guinea pig antibody, 30 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	30 µl antiserum, lyophilized. For reconstitution add 30 µl H_2O, then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 1000 **IHC**: 1 : 200 **IHC-P/FFPE**: 1 : 500
Immunogen	Recombinant protein corresponding to AA 3 to 214 from mouse Tau (UniProt Id: P10637)
Reactivity	Reacts with: rat (P19332), mouse (P10637). Weaker signal: human (P10636). No signal: chicken. Other species not tested yet.
Specificity	Specific for tau.
matching control	314-0P
Remarks	The antibody binds phosphorylated and non-phosphorylated tau proteins.

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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.

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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. Azide was added before lyophilization. For reconstitution add 20 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 up to 1 : 5000 (AP staining) **IP**: yes **ICC**: 1 : 500 **IHC**: not tested yet **IHC-P/FFPE**: 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)
Epitop	Epitop: AA 2 to 14 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.

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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.