SYSY Antibodies

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Antibody Sampler Kit for Glia Cells (cat. no. 803-ASK)

GFAP

Cat.No. 173 011; 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_2O 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**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 (see remarks) **IHC-P (FFPE)**: 1 : 500 up to 1 : 4000 **ExM**: external data (see remarks) **Clarity**: external datavideo (see remarks) **ELISA**: yes (see remarks)
Clone	134B1
Subtype	IgG2a (κ light chain)
Immunogen	full-length recombinant human GFAP (UniProt Id: P14136)
Epitop	AA 391 to 405 from human GFAP (UniProt Id: P14136)
Reactivity	Reacts with: human (P14136), rat (P47819), mouse (P03995), cow. No signal: zebrafish. Other species not tested yet.
Specificity	Specific for GFAP isoform 1 (alpha) K.O. validated
Matching control	173-0P
Remarks	**WB**: The monoclonal antibodies are less sensitive compared to the rabbit polyclonal polyclonal (cat. no. 173 002). **IHC**: Antigen retrieval with citrate buffer pH 6 is tolerated. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **Clarity**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **ELISA**: Suitable as capture antibody for sandwich-ELISA. Please refer to the protocol for suitable detector antibodies.

Background

The fibrillary major protein GFAP is a glial-specific member of the intermediate filament protein family. It is found in astrocytes and ependymal cells of the central nervous system and in the cytoplasm of myelin-forming cells. It functions as a monomer or heterodimer when assembled into intermediate filaments, together with other intermediate filament proteins such as vimentin, desmin, synemin and nestin. GFAP is thought to help astrocytes provide structural support to the surrounding neurons and to maintain cell shape. Several isoforms of GFAP have been reported, including GFAP-α, GFAP-β, GFAP-γ, GFAP-δ, GFAP-ε, GFAP-κ and GFAP-ζ. GFAP-α is the predominant isoform found in astrocytes. GFAP-β is found in human astrocytes and in the enteric nervous system. GFAP-γ is found in Müller cells of the retina, in cells of the enteric nervous system and in the hippocampus. GFAP-δ is found in human neural stem cells in the subventricular zone and in the subgranular zone of the dentate gyrus. GFAP-ε is found in human spinal cord, thalamus, and cerebellum. GFAP-κ is found in human astrocytes and in Müller cells of the retina. GFAP-ζ is found in zebrafish radial glia and in neural stem cells of the developing mouse telencephalon. GFAP-α and GFAP-δ are the most abundant isoforms in the human brain. GFAP-α is the only isoform that is commonly used as a marker for astrocytes. GFAP-δ is a marker for neural stem cells in the human brain. GFAP-α and GFAP-δ are both expressed in astrocytes in the human brain, but GFAP-δ is more abundant in the white matter than in the gray matter. GFAP-α and GFAP-δ are both expressed in neural stem cells in the human brain, but GFAP-δ is more abundant in the subventricular zone than in the subgranular zone of the dentate gyrus. GFAP-α and GFAP-δ are both expressed in astrocytes in the human brain, but GFAP-δ is more abundant in the white matter than in the gray matter. GFAP-α and GFAP-δ are both expressed in neural stem cells in the human brain, but GFAP-δ is more abundant in the subventricular zone than in the subgranular zone of the dentate gyrus.

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_2O 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 : 200 up to 1 : 1000 (see remarks) **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: 1 : 500 up to 1 : 2000 **IHC-Fr**: 1 : 500 (see remarks) **IHC-G**: 1 : 500 (see remarks) **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. **ICC**: The following fixatives are possible: 4% formaldehyde/PFA, methanol. **IHC-Fr**: Acetone fixation is recommended. **IHC-G**: The following fixatives are possible: 3% glyoxal, 9% glyoxal. **DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

Background

MAP2 exists as four major isoforms: heavy MAP2A, MAP2B, MAP2C and MAP2D, in the nervous system. The high molecular weight isoforms MAP2A/B (~ 280 kDa) and lower molecular weight isoforms MAP2C/D (~ 70 kDa) all share a conserved C-terminal microtubule binding domain and a projection domain that varies in length and composition. MAP2 is a neuronal cytoskeletal protein that is important for dendritic development and maintenance (1). Microtubule dynamics are central to cell division, migration, and morphology, aberrations in MAP2 and its expression have been implicated in several types of cancer. For an overview image in our SYSY Antibody ATLAS.

Consequently, MAP2 expression has diagnostic and prognostic relevance in neuro-oncology. MAP2 immunoreactivity helps distinguish glial tumors, whose MAP2 expression tends to vary according to tumor grade (3). While classic low-grade gliomas often show robust MAP2 staining, higher-grade tumors may exhibit less-specific and more heterogeneous patterns. Moreover, in melanoma, reduced MAP2 expression correlates with increased tumor aggressiveness, underscoring its potential role as a tumor suppressive marker (4).

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Antibody Sampler Kit for Glia Cells (cat. no. 803-ASK)

IBA1

Cat.No. 234 308; 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_2O 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 (see remarks) **IHC-P (FFPE)**: 1 : 1000
Clone	Gp311H9
Subtype	IgG2 (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of rat IBA1 (UniProt Id: P55009)
Reactivity	Reacts with: mouse (Q9EQW9), rat (P55009), human (P55008), monkey. Other species not tested yet.
Matching control	234-0P
Remarks	This antibody is a chimeric antibody based on the monoclonal mouse antibody clone 311H9. 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. **IHC**: Antigen retrieval with citrate buffer pH 6 is tolerated.

Background

Ionized calcium-**b**inding adaptor **m**olecule **1** (**IBA1**) or **a**llograft **i**nflammatory **f**actor**1** (**AIF-1**) is an EF hand calcium binding protein which is expressed by cells of the monocyte/macrophage lineage and by germ cells in the testis (1). In mice, IBA1/AIF-1 can be regarded a “pan-macrophage marker” because, except for alveolar macrophages, all subpopulations of macrophages express IBA1/AIF-1 (1). In human gliomas IBA1 defines a distinct subset of tumor-associated activated macrophages/microglial cells (2).

Microglia represent the resident macrophages in the nervous system and are the smallest of the glial cells with cell bodies of only 2-5 µm in diameter. In the CNS IBA1 upregulation is associated with neuroinflammatory response (3).

S100B

Cat.No. 287 004; 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. 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 recommended **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: 1 : 200 **IHC-G**: 1 : 500 (see remarks) **Clarity**: external data (see remarks)
Immunogen	Recombinant protein corresponding to AA 1 to 92 from rat S100B (UniProt Id: P04631)
Reactivity	Reacts with: rat (P04631), mouse (P50114), human (P04271). Other species not tested yet.
Specificity	K.D. validated PubMed: 39908332
Remarks	**IHC-G**: The following fixatives are possible: 3% glyoxal, 9% glyoxal. **Clarity**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

Background

The family of S100 proteins comprises more than 20 members. These proteins are EF-hand Ca^{2+}-binding proteins, and are widely distributed in mammalian tissue. Since these proteins are soluble in 100 % saturated ammonium-sulfate solution they have been named S100.
S100B is a frequently used marker protein for mature astrocytes whereas GFAP is also expressed in germinal zone cells that maintained their immature developmental stage.

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SOX2

Cat.No. 347 003; Polyclonal rabbit antibody, 10 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	10 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were 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 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**: not tested yet (AP staining) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 5000 **IHC-P (FFPE)**: 1 : 200
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse SOX2 (UniProt Id: P48432)
Reactivity	Reacts with: rat (D4A543), mouse (P48432), human (P48431). Other species not tested yet.

Background

Sex determining region of Y chromosome (**S**ry)-related high mobility group b**ox1-3** or **SOX 1-3** proteins belong to the earliest transcription factors expressed in the developing CNS
SOX1, SOX2 and SOX3 constitute the B1-subgroup of the Sox gene family 12. They are expressed by most progenitor cells of the developing CNS and are generally downregulated by neural cells when they exit the cell cycle and differentiate.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

CNP1 (CNPase)

Cat.No. 355 002; Polyclonal rabbit antibody, 40 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	40 µl antiserum, lyophilized. For **reconstitution** add 40 µl H_2O, 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) **IP**: yes **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500
Immunogen	Full length mouse recombinant CNP1 (UniProt Id: P16330)
Reactivity	Reacts with: rat (P13233), mouse (P16330). Other species not tested yet.
Specificity	K.O. validated

Background

The 2', 3'-cyclic nucleotide 3'-phosphodiesterase **CNP 1**, also referred to as CNPase and CNP, is one of the most abundant membrane-associated enzymes in the myelin sheath of the vertebrate nervous system.
It is assumed that CNP 1 participates in RNA metabolism of myelinating oligodendrocytes.

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Antibody Sampler Kit for Glia Cells (cat. no. 803-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_2O 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 : 10000 (AP staining) **IP**: yes **ICC**: 1 : 500 (see remarks) **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)
Reactivity	Reacts with: rat (P60711), mouse (P60710), zebrafish, human (P60709), Drosophila melanogaster. 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.