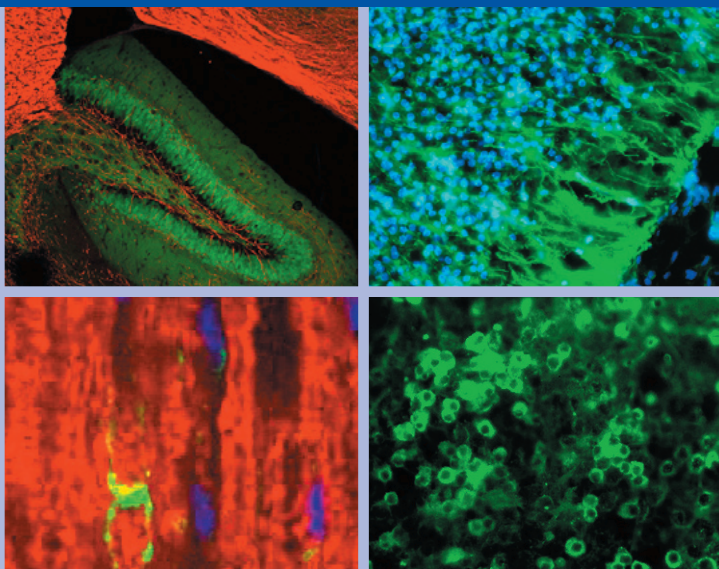


**aves**  
LABS, INC. 

# Neural Marker Antibodies

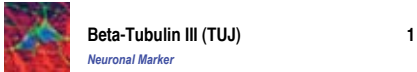
...chicken antibodies against mouse and human proteins

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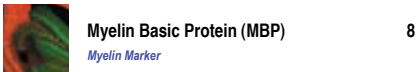
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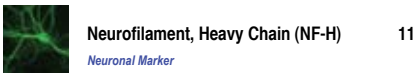
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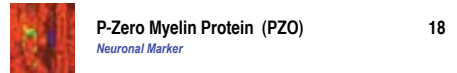
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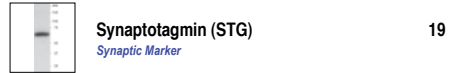
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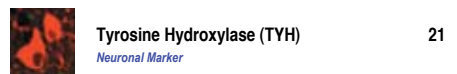
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### Photo Acknowledgements:

CAT, GAD, MBP, TYH - Photo courtesy of Dr. Felix Eckenstein, University of Vermont.

COR, MAP, NFH, NFL, NFM, PER, PZO, TUJ - Photo courtesy of Dr. Gerry Shaw, University of Florida.

PAP - Photo courtesy of Dr. Mark Zylka, University of North Carolina.

TAU - Photo courtesy of Dr. Randy Woltjer, Oregon Health & Sciences University.

Catalog design and layout by Kim Valetski, Down2Details Design Studio  
www.down2details@comcast.net

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## *β-Tubulin 3 ("TuJ1 Antigen")*

### CAT.# TUJ

#### About β-Tubulin 3:

Human β-Tubulin 3 is a 50,432 dalton structural protein (450 amino acid) expressed in neurons of the PNS and CNS. It contributes to microtubule stability in neuronal cell bodies and axons, and plays a role in axonal transport.

#### Anti β-Tubulin 3 Antibodies:

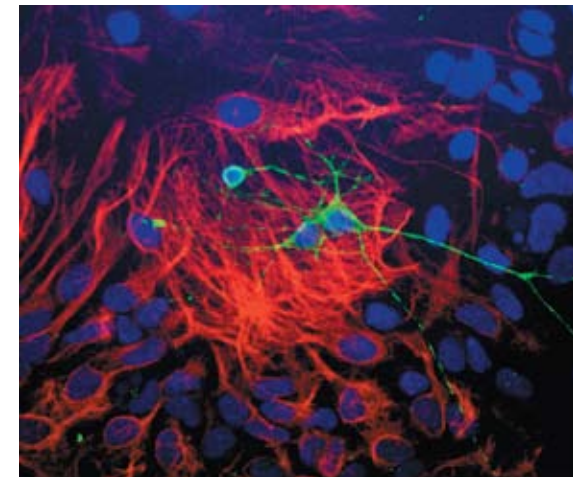
Three different antipeptide antibodies were generated in chickens against sequences shared between the rat (AAM28438) and human (AAL28094) gene products. Antibodies were affinity-purified and the concentrations adjusted to 100 µg/ml.

#### IgY Concentrations:

300 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Each of the three antipeptide antibodies constitutes 100 µg/ml.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



Dissociated cell culture of a neonatal mouse brain showing β-Tubulin 3 (green staining) of neurons. These cultures were counter-stained with a rabbit anti-GFAP antibody (red staining) to identify astrocytes, and with DAPI (blue staining) to localize nuclei.

#### Prices:

\$320 – Individual Vial - (1000 µl, 300 µg/ml) (Cat.# TUJ)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Choline Acetyltransferase (ChAT)

### CAT.# ChAT

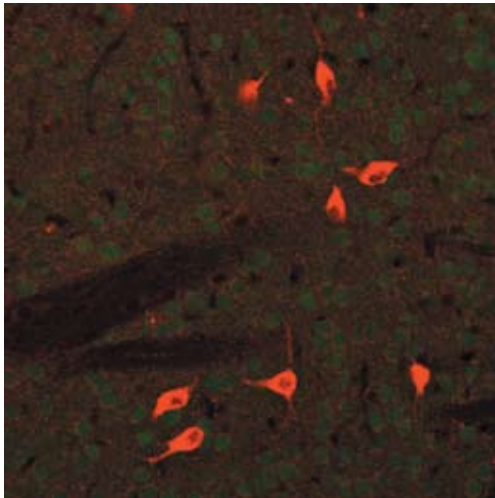
#### About ChAT:

Murine choline-O-acetyltransferase (EC 2.3.1.6) is a 71,721 dalton protein (640 amino acids) expressed in cholinergic neurons of both the PNS and CNS. In the CNS, ChAT is expressed in motor neurons and pre-ganglionic autonomic neurons of the spinal cord, a subset of neurons in the neostriatum, and in the basal forebrain. In the PNS, ChAT is expressed in a small subpopulation of sympathetic neurons and in all parasympathetic neurons. ChAT is the enzyme responsible for synthesis of acetylcholine from acetyl-coenzyme A and choline.

**Anti-ChAT Antibodies:** An antipeptide antibody was generated in chickens against a sequence shared between the mouse (Q03059) and human (P28329) gene products. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

**IgY Concentrations:** 100 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



A tissue section through an adult mouse brain showing ChAT (red staining) in cholinergic neurons of the caudate-putamen nucleus. The pale green staining is autofluorescence of green fluorescent protein (GFP) in this transgenic animal.

**Prices:** \$320 – Individual Vial - (1000 µl, 100 µg/ml) (Cat.# ChAT)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## 2',3'-Cyclic Nucleotide 3'-Phosphodiesterase (CNPase)

### CAT.# CNP

#### About CNPase:

Murine CNPase (EC 3.1.4.37) is a 47,122 dalton protein (420 amino acids) found in myelin. This protein is expressed by oligodendrocytes of the CNS and by Schwann cells of the PNS.

#### Anti-CNPase Antibodies:

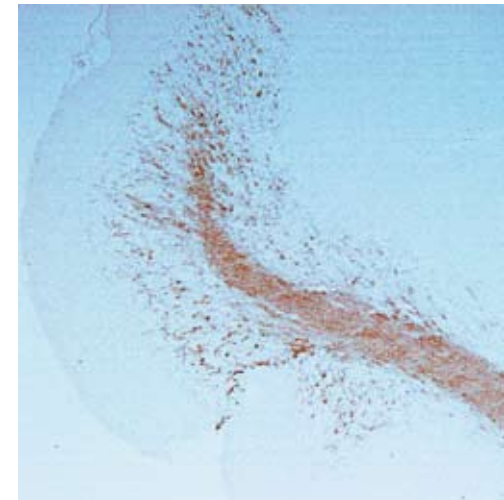
An antipeptide antibody was generated in chickens against a sequence shared between the mouse (P16330) and human (NP\_149124) gene products. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

#### IgY Concentrations:

100 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



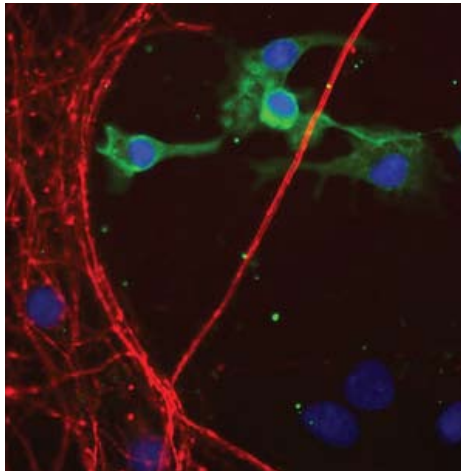
A tissue section through an adult mouse brain showing CNPase (brown staining) in white matter tracts and the granule cell layer of the cerebellum.

**Prices:** \$320 – Individual Vial - (1000 µl, 100 µg/ml) (Cat.# CNP)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Coronin 1a

### CAT.# COR

- About Coronin 1a:** Human Coronin 1a is a 51,026 dalton protein (461 amino acids) selectively expressed in cells involved in immune surveillance throughout the body, including activated microglial cells of the CNS. It is a member of the WD40 (tryptophan-aspartate) gene family, which includes the  $\beta$  subunit of the trimeric G proteins as the prototype. Its function is presumably in membrane structural reorganization accompanying antigen-presentation.
- Anti-Coronin 1a Antibodies:** An affinity-purified antipeptide antibody was generated in chickens against a sequence shared between the mouse (NP\_034028) and human (NP\_009005) gene products.
- IgY Concentrations:** 100  $\mu$ g/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.
- Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



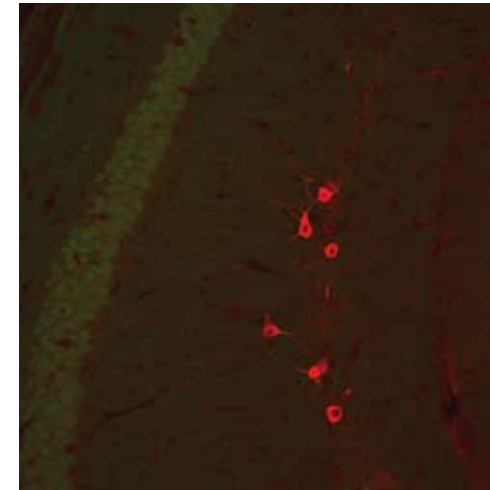
Dissociated cell culture from a neonatal mouse brain showing Coronin 1a (green staining) of microglial cells. These cultures were counter-stained with rabbit antibodies against NFM (neurofilament, red staining), a neuronal marker, as well as DAPI (blue staining), a marker of nuclei. Picture courtesy of Dr. Gerry Shaw, University of Florida.

- Prices:** \$320 – Individual Vial - (1000  $\mu$ l, 100  $\mu$ g/ml) (Cat.# COR)  
\$165 – 1 - NeuroSampler<sup>®</sup> kit (200  $\mu$ l)  
\$320 – As part of a 3 - NeuroSampler<sup>®</sup> kit (200  $\mu$ l of 3)

## Glutamic Acid Decarboxylase (GAD-67)

### CAT.# GAD-67

- About GAD-67:** Human Glutamic Acid Decarboxylase (GAD-67), [EC 4.1.1.15] is a 66,987 dalton protein (594 amino acids) selectively expressed in gabanergic neurons of the CNS. It catalyzes the decarboxylation of glutamic acid, forming the inhibitory neurotransmitter  $\beta$ -amino butyric acid (GABA).
- Anti-GAD-67 Antibodies:** An affinity-purified antipeptide antibody was generated in chickens against a sequence shared between the mouse (CAA01912) and human (NP\_000808) gene products.
- IgY Concentrations:** 100  $\mu$ g/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.
- Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



A tissue section through an adult mouse brain showing GAD-1 (red staining) in basket cells of the hippocampal formation. Green staining is autofluorescence from green fluorescent protein (GFP) expressed in this transgenic mouse. Picture courtesy of Dr. Felix Eckenstein, University of Vermont.

- Prices:** \$320 – Individual Vial - (1000  $\mu$ l, 100  $\mu$ g/ml) (Cat.# GAD-67)  
\$165 – 1 - NeuroSampler<sup>®</sup> kit (200  $\mu$ l)  
\$320 – As part of a 3 - NeuroSampler<sup>®</sup> kit (200  $\mu$ l of 3)

## Glial Fibrillary Acidic Protein (GFAP)

### CAT.# GFAP

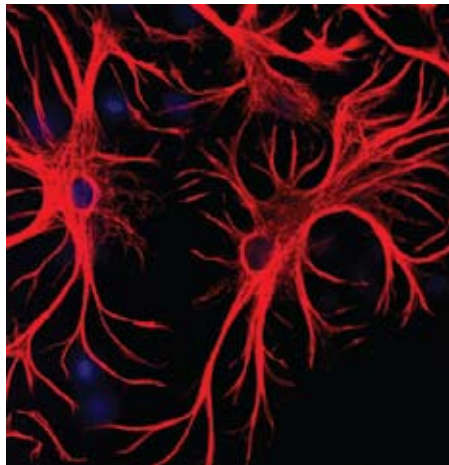
#### About GFAP:

Human GFAP is a 49,749 dalton protein (432 amino acids) expressed by astrocytes of the central nervous system. GFAP is an intermediate filament protein and acts as an intra-cellular structural component of the astrocytic cytoskeleton. During embryonic and fetal life, GFAP is also expressed by radial glial cells of the CNS. Rare mutations of the GFAP gene in humans result in Alexander's disease, one of the leukodystrophies.

**Anti-GFAP Antibodies:** Antibodies were prepared by injecting laying hens first with highly purified recombinant human GFAP (produced in bacteria), followed by boosts of native GFAP protein purified from bovine spinal cords. After a series of boosts, eggs were collected from hyperimmunized animals and the IgY fraction prepared.

**IgY Concentrations:** 2.0 mg IgY/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

**Applications:** Immunohistochemistry (1:2000 - 1:5000 recommended dilution)  
Immunocytochemistry (1:2000 - 1:5000 recommended dilution)



Dissociated culture of rat cerebral cortical neurons and astrocytes (red staining). The nuclei of some neuronal cells (blue staining) are visible. Picture courtesy of Dr. Gerry Shaw, University of Florida.

**Prices:** \$165 - Individual Vial - (200 µl, 2.0 mg IgY/ml) (Cat.# GFAP)  
\$165 - 1 - NeuroSampler® kit (200 µl)  
\$320 - As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Microtubule-Associated Protein (MAP-2)

### CAT.# MAP-2

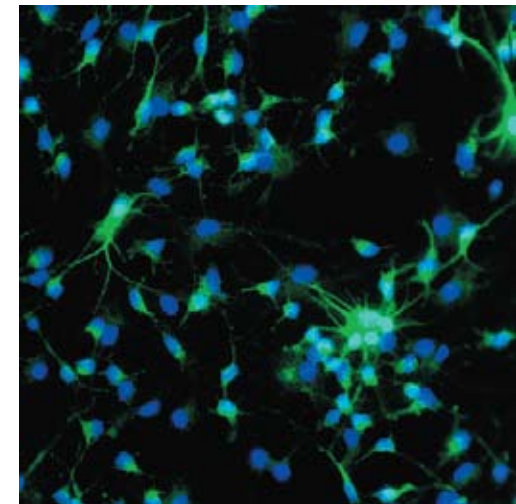
#### About MAP-2:

Human MAP-2 is a 199,296 dalton protein (1827 amino acids) expressed in neurons of the PNS and CNS, where it serves as a major component of the neuronal cytoskeleton. MAP-2 contributes to structural integrity and cell shape.

**Anti-MAP-2 Antibodies:** Two antipeptide antibodies were generated in chickens against sequences shared between the mouse (P20357) and human (NP\_002365) MAP2 gene products. Antibodies were affinity-purified and mixed in equal concentrations.

**IgY Concentrations:** 200 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Each of the three antipeptide antibodies constitutes 100 µg/ml.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



Dissociated cell cultures of an e13 mouse brain showing MAP-2 (green staining) of neurons. DAPI (blue staining) allows visualization of nuclei.

**Prices:** \$320 - Individual Vial - (1000 µl, 200 µg/ml) (Cat.# MAP-2)  
\$165 - 1 - NeuroSampler® kit (200 µl)  
\$320 - As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Myelin Basic Protein (MBP)

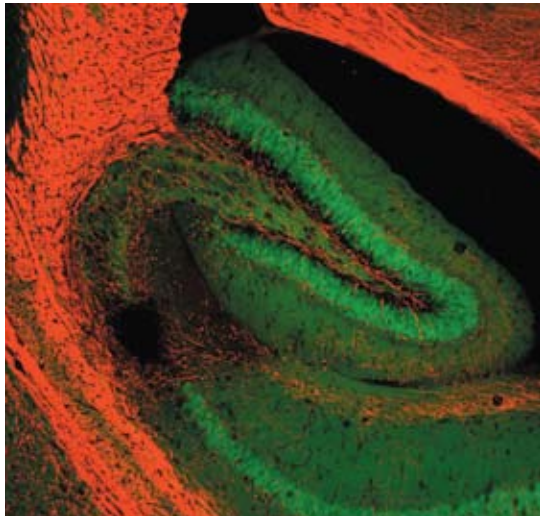
### CAT.# MBP

**About MBP:** Human myelin basic protein (MBP) is a 20,115 dalton protein (186 amino acids) found in myelin of the CNS and PNS. Expressed as an intracellular protein by oligodendrocytes and Schwann cells, MBP aids in the compaction and stability of myelin.

**Anti-MBP Antibodies:** An antipeptide antibody was generated in chickens against a sequence shared between the mouse (NP\_034907) and human (NP\_002376) gene products. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

**IgY Concentrations:** 100 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



A tissue section through an adult mouse brain showing MBP (red staining) of white matter tracts adjacent to the hippocampal formation. Green staining is autofluorescence from green fluorescent protein (GFP) expressed in this transgenic mouse.

**Prices:** \$320 – Individual Vial - (1000 µl, 100 µg/ml) (Cat.# MBP)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Nestin

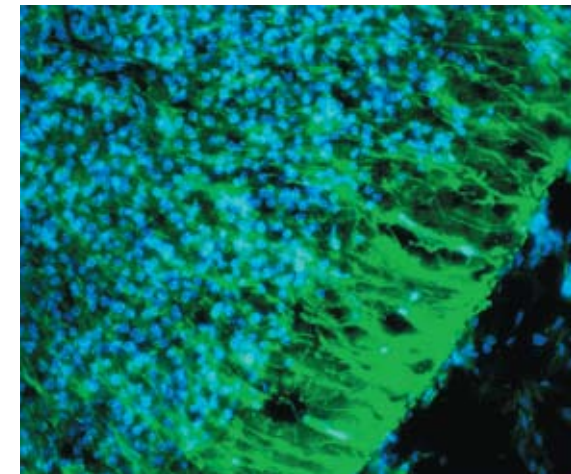
### CAT.# NES

**About Nestin:** Mouse nestin is a 206,994 dalton protein (1864 amino acids) expressed in neural crest cells, CNS neural stem cells, as well as a few non-neural cell types in the embryo, including cells within the pancreatic islets of Langerhans and the limb bud. Nestin is an intermediate filament-associated protein, and contributes to the cytoskeleton.

**Anti-Nestin Antibodies:** Three antipeptide antibodies were generated in chickens against a sequence in mouse (NP\_057910) gene product. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

**IgY Concentrations:** 300 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

**Applications:** Immunohistochemistry (1:10,000 - 1:20,000 recommended dilution)  
Immunocytochemistry (1:10,000 - 1:20,000 recommended dilution)



A tissue section through an e13 mouse brain showing Nestin (green staining) in neural stem cells of the ventricular zone of the CNS. DAPI (blue staining) allows visualization of nuclei.

**Prices:** \$320 – Individual Vial - (1000 µl, 300 µg/ml) (Cat.# NES)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Netrin-1

### CAT.# NET

#### About Netrin-1:

Murine netrin-1 precursor is a 67,768 dalton protein (604 amino acids) expressed by subpopulations of cells within the developing CNS, as well as in various non-neural tissues, including the gut, liver, heart, and prostate. In the embryonic CNS, netrin-1 is expressed by cells of the floor plate, and acts to attract axons of commissural neurons from the dorsal horn gray matter. Netrin-1 is also believed to play a role in the growth of motor axons in the PNS.

#### Anti-Netrin-1 Antibodies:

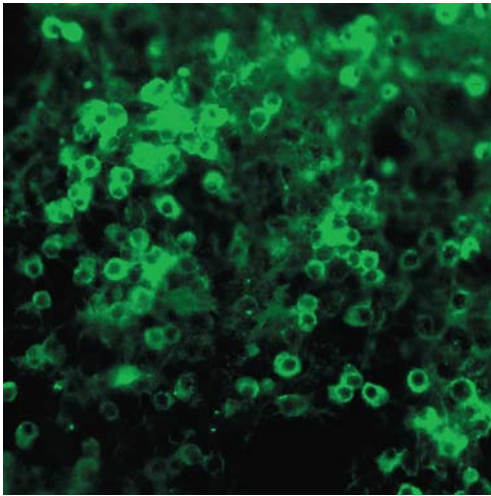
An antipeptide antibody was generated in chickens against a sequence shared between the mouse (009118) and human (095631) gene products. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

#### IgY Concentrations:

100 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



Dissociated cell cultures of an e13 mouse brain showing Netrin-1 (green staining) in neuronal precursor cells.

#### Prices:

\$320 – Individual Vial - (1000 µl, 100 µg/ml) (Cat.# NET)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Neurofilament, Heavy Chain (NF-H)

### CAT.# NF-H

#### About NF-H:

Human Neurofilament Heavy Chain (NF-H) is a 115,378 dalton protein (1072 amino acids) that forms part of the neuronal cytoskeleton. NF-H is physically associated with 10 nm intermediate filaments, and is said to be one of the “neurofilament triplet” proteins, although it probably serves more to stabilize the cytoskeleton, rather than to be an integral structural component. NF-H immunoreactivity is found in neuronal somata, dendrites and axons.

#### Anti-NF-H Antibodies:

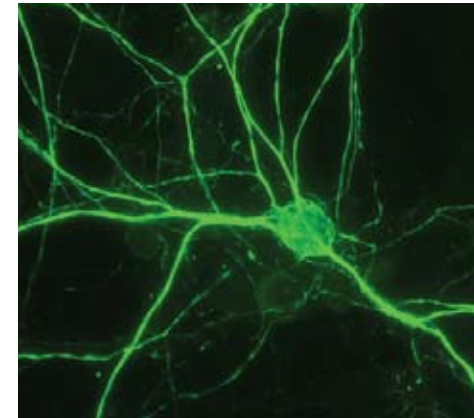
NF-H protein was purified from bovine spinal cords following the method of Delacourte et al. [“Study of the 10-nm-filament fraction isolated during the standard microtubule preparation” (1980). *Biochem. J.* 191(2): 543-546], followed by Prepcell purification (Bio-Rad). Antibodies were prepared by injecting purified NF-H protein into laying hens, and purifying the IgY fraction from eggs collected from hyper-immunized hens. These antibodies have been found to cross-react with NF-H protein from a variety of species, including human, mouse and rat.

#### IgY Concentrations:

1.0 mg IgY/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:20,000 - 1:50,000 recommended dilution)  
Immunocytochemistry (1:20,000 - 1:50,000 recommended dilution)



Dissociated cell culture prepared from an adult rat brain. NF-H (green staining) can be found within the neuronal cell body and in the neurites. Picture courtesy of Dr. Gerry Shaw (University of Florida).

#### Prices:

\$165 – Individual Vial - (200 µl, 1.0 mg IgY/ml) (Cat.# NF-H)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Neurofilament, Light Chain (NF-L)

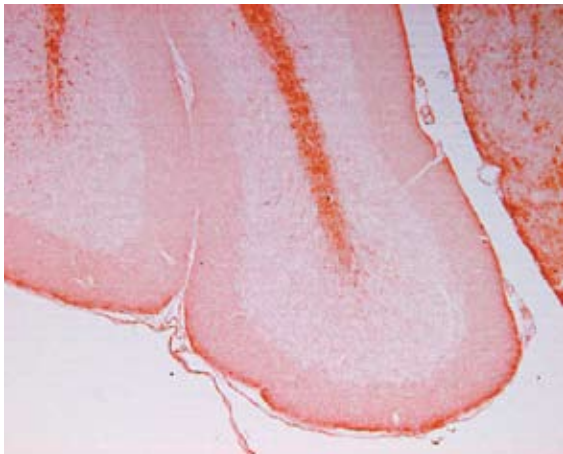
### CAT.# NF-L

**About NF-L:** Human neurofilament light chain (NF-L) is a 61,516 dalton protein (543 amino acids) expressed in the axons of CNS and PNS neurons, where it plays a role in maintaining the structural integrity of the axon. Mutations of the NF-L gene product are responsible for some forms of autosomal dominant Charcot-Marie-Tooth neuropathies in humans (i.e., CMT type 1F).

**Anti-NF-L Antibodies:** Three antipeptide antibodies were generated in chickens against sequences shared between the mouse (P08551) and human (P07196) gene products. Antibodies were affinity-purified and mixed in equal concentrations.

**IgY Concentrations:** 300 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Each of the three antipeptide antibodies constitutes 100 µg/ml.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



Tissue section through an adult mouse brain showing NF-L (brown staining) of axons in the white matter of the cerebellum.

**Prices:** \$320 – Individual Vial - (1000 µl, 300 µg/ml) (Cat.# NF-L)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## NF-M (Neurofilament, 160 kDa)

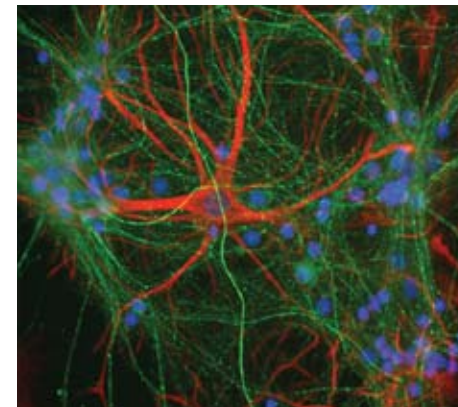
### CAT.# NF-M

**About NF-M:** Human Neurofilament Medium Chain (NF-M) is a 102,448 dalton protein (916 amino acids) expressed in CNS and PNS neurons. This cytoskeletal protein is normally phosphorylated in vivo, and its extent of phosphorylation correlates with different states of axonal growth and stabilization. These observations have led to the hypothesis that the NF-M protein cross-links adjacent neurofilament strands, and contributes to the structural integrity of the axon.

**Anti-NF-M Antibodies:** NF-M protein was purified from bovine spinal cords following the method of Delacourte et al. ["Study of the 10-nm-filament fraction isolated during the standard microtubule preparation" (1980). Biochem. J. 191(2): 543-546], followed by Prepcell purification (Bio-Rad). Antibodies were prepared by injecting purified NF-M protein into laying hens, and purifying the IgY fraction from eggs collected from hyper-immunized hens. After several boosts, hens were co-boosted with recombinant NF-M protein expressed in bacteria. These NF-M antibodies have been found to cross-react with NF-M protein from a variety of species, including human, mouse and rat.

**IgY Concentrations:** 2.0 mg IgY/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

**Applications:** Immunohistochemistry (1:2,000 - 1:5,000 recommended dilution)  
Immunocytochemistry (1:2,000 - 1:5,000 recommended dilution)



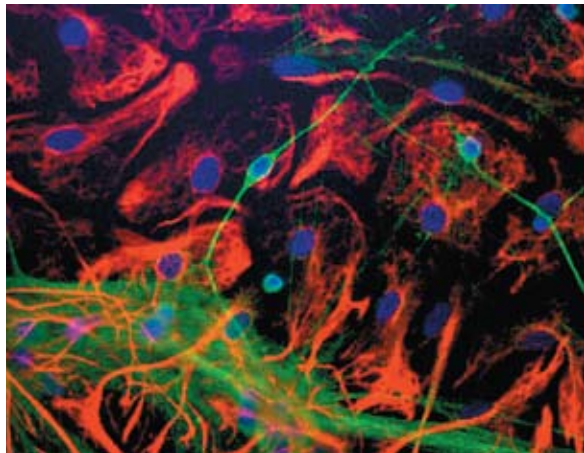
Dissociated cell culture prepared from an adult rat brain. NF-M (green staining) stains neurites in a punctate fashion, corresponding to neuritic varicosities. As a control, rabbit GFAP antibodies were used to costain astrocytes, producing a red fluorescence. Blue nuclei demonstrate DAPI DNA staining. Picture courtesy of Dr. Gerry Shaw, University of Florida.

**Prices:** \$165 – Individual Vial - (200 µl, 2.0 mg IgY/ml) (Cat.# NF-M)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Neuron-Specific Enolase (NSE), type 2

### CAT.# NSE

- About NSE:** Human NSE-2 (EC 4.2.1.11) is a 47,138 dalton protein (434 amino acids) expressed in neurons of the peripheral nervous system (PNS) and central nervous system (CNS). NSE-2 catalyzes the conversion of 2-phospho-D-glycerate into phosphoenol pyruvate, and is an essential enzyme in energy metabolism in nervous tissues.
- Anti-NSE Antibodies:** Two anti-peptide antibodies were generated in chickens against a sequence shared between the rat (AAA41119) and human (NP\_001966) gene products. Antibodies were affinity-purified and mixed in equal concentrations.
- IgY Concentrations:** 200 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Both of the anti-peptide antibodies constitutes 100 µg/ml.
- Applications:** Immunohistochemistry (1:2,000 - 1:5,000 recommended dilution)  
Immunocytochemistry (1:2,000 - 1:5,000 recommended dilution)



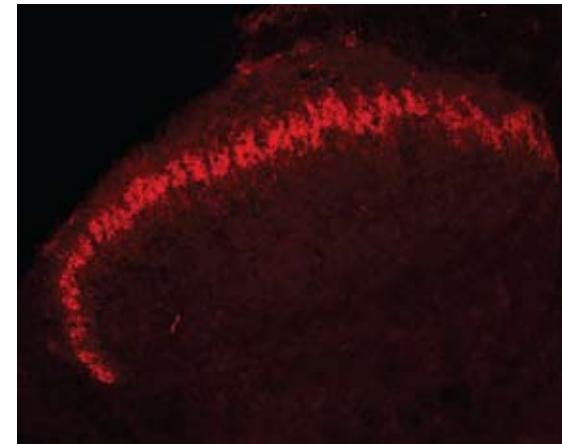
Dissociated cell cultures of neonatal mouse brains, showing NSE-2 (green staining) in neurons. These cultures were counter-stained with a rabbit anti-GFAP to localize astrocytes, as well as with DAPI (blue staining) to localize nuclei.

- Prices:** \$320 – Individual Vial - (1000 µl, 200 µg/ml) (Cat.# NSE)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Prostatic Acid Phosphatase (Marker of Pain Neurons)

### CAT.# PAP

- About PAP:** Mouse PAP is a 43,698 dalton protein (381 amino acids; NCBI accession number AAF23171) associated with prostatic cancer cells, as well as primary afferent sensory neurons involved in the pain pathway. This protein is an enzyme that dephosphorylates adenosine monophosphate (AMP) in the dorsal horn gray matter of the spinal cord, generating free adenosine. Injections of PAP into the dorsal horn of experimental mice has been shown to decrease pain perception by acting in an antinociceptive, antihyperalgesic, and antiallodynic fashion.
- About PAP Antibodies:** Recombinant mouse PAP protein was expressed in bacteria. Antibodies against this protein were prepared by injecting purified recombinant PAP into laying hens, and purifying the IgY fraction from eggs collected from hyper-immunized hens.
- IgY Concentrations:** 10 mg/ml of chicken total IgY antibody supplemented with 20 µg/ml of affinity purified antibody. The vehicle is phosphate-buffered isotonic saline (PBS) (50% by volume) and glycerol (50% by volume) supplemented with 0.02% sodium azide as a preservative.
- Applications:** Immunohistochemistry (1:500-1:1000 recommended dilution)



Tissue section through an adult mouse brain showing PAP (red fluorescence) in the superficial laminae of the adult mouse spinal cord dorsal horn gray matter.

- Prices:** \$165 – Individual Vial - (200 µl, 10 mg IgY/ml) (Cat.# PAP)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Peripherin

### CAT.# PER

#### About PER:

Human Peripherin is a 53,651 dalton protein (470 amino acids) expressed in all PNS neurons and some CNS neurons, including a subset of cortical neurons, hippocampal neurons, and ventral horn spinal cord motor neurons. At an ultrastructural level, peripherin immunoreactivity is associated with the neurofilament portion of the cytoskeleton, being particularly abundant in the cell body. Peripherin protein has been shown to undergo upregulation during periods of trophic stress in cultured neurons, and mutations of the peripherin gene have been associated with the neurodegenerative disease amyotrophic lateral sclerosis.

#### Anti-PER Antibodies:

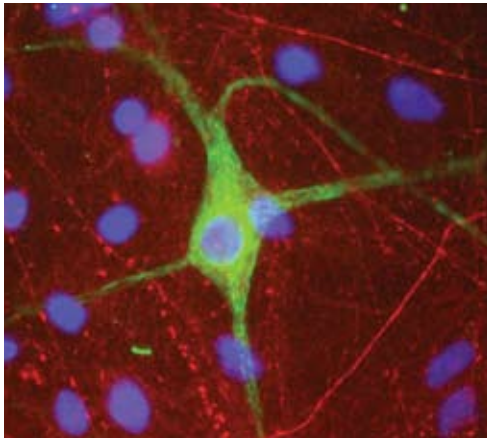
Full length recombinant peripherin was injected into laying hens, and then the IgY fraction was purified from hyperimmunized animals. These anti-peripherin antibodies have been found to cross-react with NFM protein from a variety of species, including human, mouse and rat.

#### IgY Concentrations:

2.0 mg IgY/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:2,000 - 1:5,000 recommended dilution)  
Immunocytochemistry (1:2,000 - 1:5,000 recommended dilution)



Dissociated cell culture prepared from neonatal dorsal root ganglia. Peripherin (green) stains neuronal cell bodies. As controls, rabbit NFL antibodies (red) were used to costain neurites, and DAPI (blue) was used to demonstrate nuclei. Picture courtesy of Dr. Gerry Shaw, University of Florida.

#### Prices:

\$165 – Individual Vial - (200 µl, 2.0 mg IgY/ml) (Cat.# PER)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Proteolipid Protein (PLP)

### CAT.# PLP

#### About PLP:

Human PLP (also known as lipophilin) is a 29,946 dalton protein (277 amino acids) found in myelin of the CNS and PNS. Expressed by oligodendrocytes and Schwann cells, PLP stabilizes myelin by preventing lipid bilayer fusion, and aids in its compaction. Different mutations of the human PLP gene product result in two neurological disorders – Pelizaeus-Merzbacher disease and Spastic Paraplegia type 2.

#### Anti-PLP Antibodies:

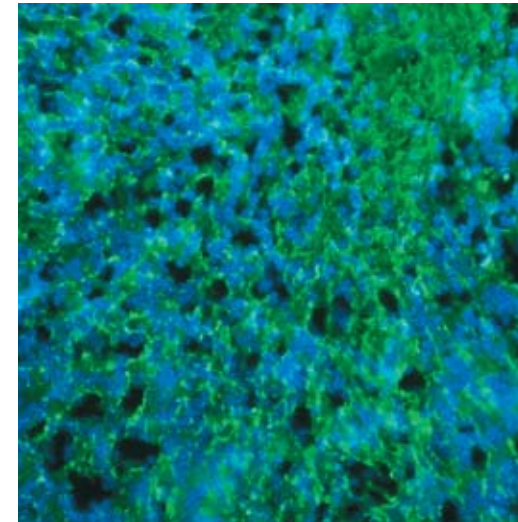
An antipeptide antibody was generated in chickens against a sequence shared between the mouse (P60202) and human (NP\_000524) gene products. Antibodies were affinity-purified and the concentration adjusted to 100 µg/ml.

#### IgY Concentrations:

100 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



In this tissue section through an e13 mouse brain, PLP (green staining) can be seen in immature oligodendrocytes of white matter tracts. DAPI (blue staining) allows visualization of nuclei.

#### Prices:

\$320 – Individual Vial - (1000 µl, 100 µg/ml) (Cat.# PLP)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## P-Zero Myelin Protein (PZO)

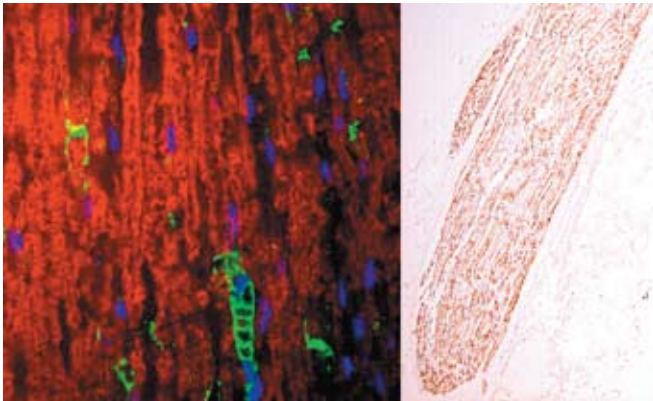
### CAT.# PZO

**About Po:** Human Myelin Protein Zero (Po) is a 28,400 dalton protein (258 amino acids) found in myelin of the PNS. Expressed in myelinating Schwann cells, Po serves as a homophilic adhesion molecule, allowing adjacent laminae of the myelin sheath to undergo compaction. Po is also a marker of a subpopulation of neural crest cells. Mutations of the MPZ gene product in humans is responsible for Charcot-Marie-Tooth type 1B neuropathies (HMSN1B).

**Anti-Po Antibodies:** Two antipeptide antibodies were generated in chickens against sequences shared between the mouse (NP\_032649) and human (NP\_000521) gene products. Antibodies were affinity-purified mixed in equal concentrations.

**IgY Concentrations:** 200 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Both of the antipeptide antibodies constitutes 100 µg/ml.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



In the left panel (a tissue section through an adult sciatic nerve), Po (green staining) can be seen in the myelin and Schwann cell processes surrounding the nodes of Ranvier. In this photomicrograph, rabbit antibodies against LAMP (lysosome-associated membrane glycoprotein) (red staining) serves as the counterstain, and DAPI (blue staining) allows visualization of nuclei. In the right panel (a lower power tissue section through an adult sciatic nerve), Po (brown staining) can be seen in all of the myelinating Schwann cells.

**Prices:** \$320 – Individual Vial - (1000 µl, 200 µg/ml) (Cat.# PZO)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Synaptotagmin, type 1

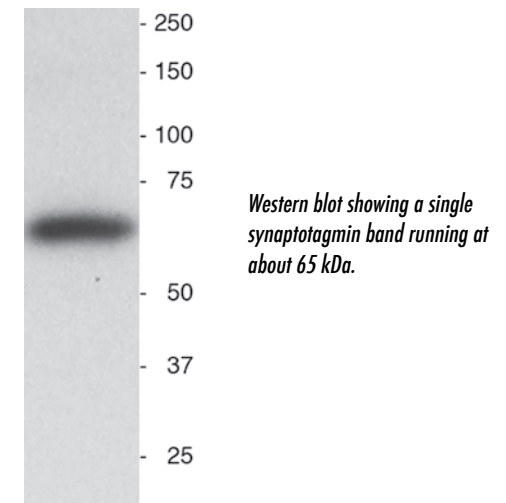
### CAT.# STG

**About Synaptotagmin:** Human Synaptotagmin-1 is a 47,442 dalton protein (422 amino acids) associated with pre-synaptic terminals of the PNS and CNS. Synaptotagmin-1 binds calcium in synaptic terminals and initiates the fusion of vesicles with the pre-synaptic membrane. This protein is also believed to be the target of proteolytic activity associated with Botulinum neurotoxin A.

**Anti-Synaptophysin Antibodies:** Four different antipeptide antibodies were generated in chickens against sequences shared between the mouse (NP\_033332) and human (NP\_005630) gene products. Antibodies were affinity-purified and mixed in equal concentrations.

**IgY Concentrations:** 400 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Each of the four antipeptide antibodies constitutes 100 µg/ml.

**Applications:** Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



**Prices:** \$320 – Individual Vial - (1000 µl, 400 µg/ml) (Cat.# STG)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Tau

### CAT.# TAU

#### About Tau:

Human Tau protein (a.k.a., "microtubule-associated protein tau isoform 1") is a 78,902 dalton protein (758 amino acids) expressed in cortical neurons of the CNS. In normal individuals, tau contains moderate degrees of phosphorylation on various serine and threonine residues scattered throughout the N-terminal half of this protein. However in various neurodegenerative diseases, such as Alzheimer's disease, Tau becomes hyperphosphorylated on these residues, leading to the pathological formation of intracellular "neurofibrillary tangles." Such tangles are hallmarks of Alzheimer's disease, as well as various other neurodegenerative diseases, collectively known as the "tauopathies."

#### Anti-Tau Antibodies:

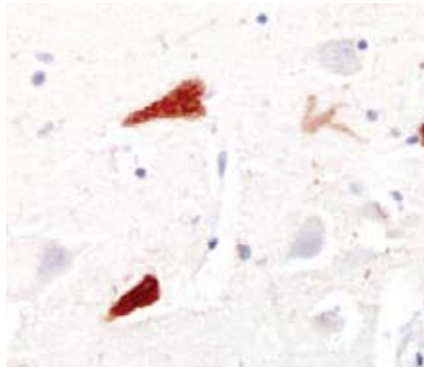
Anti-peptide antibodies were generated in chickens against two sequences shared between the mouse (P01637) and human (NP\_05819) gene products. Neither of these sequences contain phosphorylated serine or threonine residues, so these tau antibodies recognize both the euphosphorylated and hyperphosphorylated forms of tau. Antibodies were affinity-purified from IgY fractions prepared from yolks collected from hyperimmunized hens.

#### IgY Concentrations:

200 µg/ml (100 µg/ml of each antibody) in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial.

#### Applications:

Immunohistochemistry (1:10,000 - 1:20,000 recommended dilution)  
Immunocytochemistry (1:10,000 - 1:20,000 recommended dilution)



Tissue section through the hippocampus of a patient diagnosed with Alzheimer's disease. Note the high concentrations of intracellular tau immunoreactivity in pyramidal neurons (brown reaction product), as well as lower concentrations of reaction product in the neuropil. The slide was counterstained with hematoxylin. Picture courtesy of Dr. Randy Woltjer, Oregon Health & Sciences University.

#### Prices:

\$320 - Individual Vial - (1000 µl, 200 µg/ml) (Cat.# TAU)  
\$165 - 1 - NeuroSampler® kit (200 µl)  
\$320 - As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Tyrosine Hydroxylase (TYH)

### CAT.# TYH

#### About TYH:

Human TYH (EC 1.14.16.2) is a 58,523 dalton protein (528 amino acids) responsible for the enzymatic conversion of L-tyrosine to L-DOPA (dihydroxyphenylalanine). This enzyme is expressed in all catecholaminergic neurons of the CNS and PNS. In the CNS, TYH-positive neurons can be found within the substantia nigra, ventral tegmental area, locus ceruleus, and hypothalamus. In the PNS, TYH-positive neurons can be found within the sympathetic chain, pre-vertebral ganglia and the adrenal medulla.

#### Anti-TYH Antibodies:

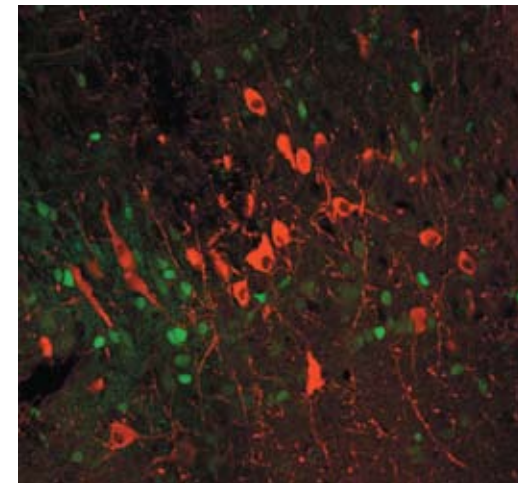
Two anti-peptide antibodies were generated in chickens against sequences shared between the mouse (P24529) and human (P07101) gene products. Antibodies were affinity-purified and then mixed in equal concentrations.

#### IgY Concentrations:

200 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Both of the anti-peptide antibodies constitutes 100 µg/ml.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



Tissue section through an adult mouse brain showing TYH (red staining) in catecholaminergic neurons of the substantia nigra (pars compacta). The green staining is the autofluorescence of green fluorescent protein (GFP) in neurons in this transgenic animal.

#### Prices:

\$320 - Individual Vial - (1000 µl, 200 µg/ml) (Cat.# TYH)  
\$165 - 1 - NeuroSampler® kit (200 µl)  
\$320 - As part of a 3 - NeuroSampler® kit (200 µl of 3)

## Vimentin

### CAT.# VIM

#### About Vimentin:

Human vimentin is a 53,521 dalton protein (466 amino acids) expressed in many cell types of mesodermal origin, and is one of the intermediate filament types that form the cytoskeleton. In the embryonic nervous system, however, vimentin is expressed by migrating neural crest cells forming the PNS, and by neural stem cells of the CNS. In some forms of glioblastoma, vimentin is reexpressed GAP-43 by the tumor cells and serves as a general indicator of their undifferentiated state.

#### Anti-Vimentin Antibodies:

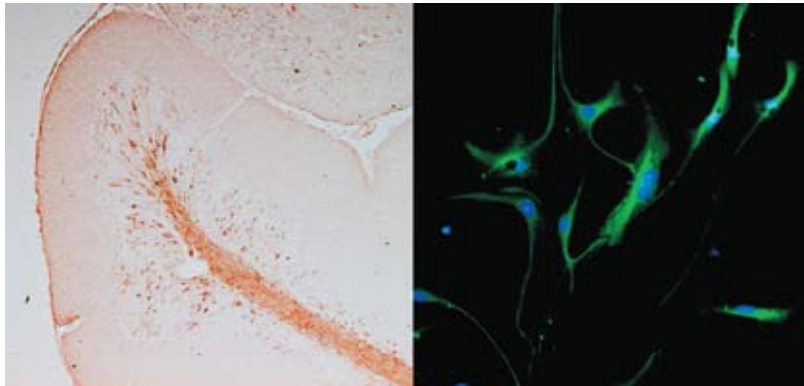
Three different anti-peptide antibodies were generated in chickens against sequences shared between the mouse (NP\_035831) and human (NP\_003371) gene products. Antibodies were affinity-purified and mixed in equal concentrations.

#### IgY Concentrations:

300 µg/ml in phosphate-buffered isotonic saline (PBS) with 0.02% sodium azide as an anti-microbial. Each of the three anti-peptide antibodies constitutes 100 µg/ml.

#### Applications:

Immunohistochemistry (1:1,000 - 1:2,000 recommended dilution)  
Immunocytochemistry (1:1,000 - 1:2,000 recommended dilution)



In the left panel (a tissue section through an e18 mouse cerebellum), vimentin (brown staining) can be seen in immature astrocytes of the white matter, as well as in vascular endothelial cells. In the right panel (cultured dissociated cells from an e13 mouse brain), vimentin (green staining) can be seen forming the cytoskeleton of immature astrocyte progenitor cells. DAPI (blue staining) allows visualization of nuclei.

**Prices:** \$320 – Individual Vial - (1000 µl, 300 µg/ml) (Cat.# VIM)  
\$165 – 1 - NeuroSampler® kit (200 µl)  
\$320 – As part of a 3 - NeuroSampler® kit (200 µl of 3)

## NEURAL MARKER PACKAGES

### Neural Marker antibodies are sold in three types of packages:

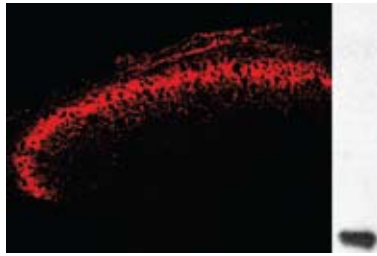
**Individual Aliquot:** | 1.0 ml of antibody  
Price: \$320

**1-NeuralSampler® Kit:** | One 200 µl vial of one Neural Marker Antibody  
Price: \$165 | One 50 µl vial of Secondary Antibody (see box below)  
| 1.0 mls of BlokHen® blocking reagent

**3-NeuralSampler® Kit:** | Three 200 µl vials of any combination of Neural Marker Antibodies  
Price \$320 | Three 50 µl vials of any combination of Secondary Antibodies (see box below)  
| 3.0 mls of BlokHen® blocking reagent

**Secondary Antibodies:** Unlabeled goat anti-chicken IgY (Cat.# U-1010)  
HRP-labeled goat anti-chicken IgY (Cat.# H-1004)  
Fluorescein-labeled goat anti-chicken IgY (Cat.# F-1005)  
Biotin-labeled goat anti-chicken IgY (Cat.# B-1005)

## GFP & Epitope Tag Antibodies



**Left Panel** - GFP immunostaining of neurons in the spinal cord of a transgenic mouse expressing GFP under the control of a gene product specifically expressed in laminae 2 of the dorsal horn gray matter.

**Right Panel** - Western blot showing a single band at about 27 kDa, the molecular weight of GFP.

■ Green Fluorescent Protein (GFP) Antibody	0.4 ml, 10.0 mg/ml	Cat.# GFP-1020	\$275
■ Anti-HA (Hemagglutinin) Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-HA100	\$195
■ Fluorescein-labeled Anti-HA Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-HA100FL	\$200
■ HRP-labeled Anti-HA Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-HA100HRP	\$220
■ Anti-C-MYC Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-MY100	\$195
■ Fluorescein-labeled Anti-C-MYC Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-MY100FL	\$200
■ HRP-labeled Anti-C-MYC Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-MY100HRP	\$220
<b>NEW</b> ■ Anti-DYKDDDDK Epitope TAG Antibody	1.0 ml, 0.1 mg/ml	Cat.# ET-DY100	\$195

### Secondary Antibodies

■ Alkaline Phosphatase Goat Anti-Chicken IgY	1000 µl, 0.1 mg/ml	Cat.# AP-1001	\$95
■ Biotin-labeled Goat Anti-Chicken IgY (heavy & light chains)	500 µl, 1.0 mg/ml	Cat.# B-1005	\$135
■ Fluorescein Goat Anti-Chicken IgY	500 µl, 1.0 mg/ml	Cat.# F-1005	\$95
■ Horseradish Peroxidase Goat Anti-Chicken IgY	400 µl, 1.0 mg/ml	Cat.# H-1004	\$125
■ Non-Immune Chicken IgY	1.0 ml	Cat.# N-1010	\$65
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<b>NEW</b> ■ HA-PrecipHen® [for immunoprecipitation of recombinant proteins containing an HA (hemagglutinin) epitope tag]	2.0 ml	Cat.# PHA-1010	\$300
■ PrecipHen® (Agarose-coupled Goat Anti-Chicken)	2.0 ml	Cat.# P-1010	\$275
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### Chicken Anti-Mammalian IgG Secondary Antibodies

■ Chicken Anti-Goat IgG-Unlabeled	1000 µl, 1.0 mg/ml	Cat.# IGU-1010	\$75
■ HRP-labeled Chicken Anti-Goat IgG	1000 µl, 1.0 mg/ml	Cat.# IGH-1010	\$120
■ Fluorescein-labeled Chicken Anti-Goat IgG	1000 µl, 0.1 mg/ml	Cat.# IGF-1010	\$95
■ Chicken Anti-Human IgG-Unlabeled	1000 µl, 1.0 mg/ml	Cat.# IHU-1010	\$75
■ HRP-labeled Chicken Anti-Human IgG	1000 µl, 1.0 mg/ml	Cat.# IHH-1010	\$120
■ Fluorescein-labeled Chicken Anti-Human IgG	1000 µl, 0.1 mg/ml	Cat.# IHF-1010	\$95
■ Chicken Anti-Mouse IgG-Unlabeled	1000 µl, 1.0 mg/ml	Cat.# IMU-1010	\$90
■ HRP-labeled Chicken Anti-Mouse IgG	1000 µl, 1.0 mg/ml	Cat.# IMH-1010	\$115
■ Fluorescein-labeled Chicken Anti-Mouse IgG	1000 µl, 0.1 mg/ml	Cat.# IMF-1010	\$95
■ Chicken Anti-Rabbit IgG-Unlabeled	1000 µl, 1.0 mg/ml	Cat.# IRU-1010	\$75
■ HRP-labeled Chicken Anti-Rabbit IgG	1000 µl, 1.0 mg/ml	Cat.# IRH-1010	\$120
■ Fluorescein-labeled Chicken Anti-Rabbit IgG	1000 µl, 0.1 mg/ml	Cat.# IRF-1010	\$95

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We specialize in the generation of custom chicken antibodies. Using protein sequence data, we can identify immunogenic peptides with our proprietary Immunogenicity Algorithm®, and then synthesize the peptide and produce custom-made chicken antibodies. Contact us and we can provide cost quotations.

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- (2) Billing address, including telephone numbers.
- (3) Quantities and catalog numbers for each product.
- (4) Either purchase order (PO) number or credit card information, including expiration date and name on the card.

**By Online:** Please visit our website at [www.aveslab.com](http://www.aveslab.com) for detailed instructions.

## **Technical Information:**

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