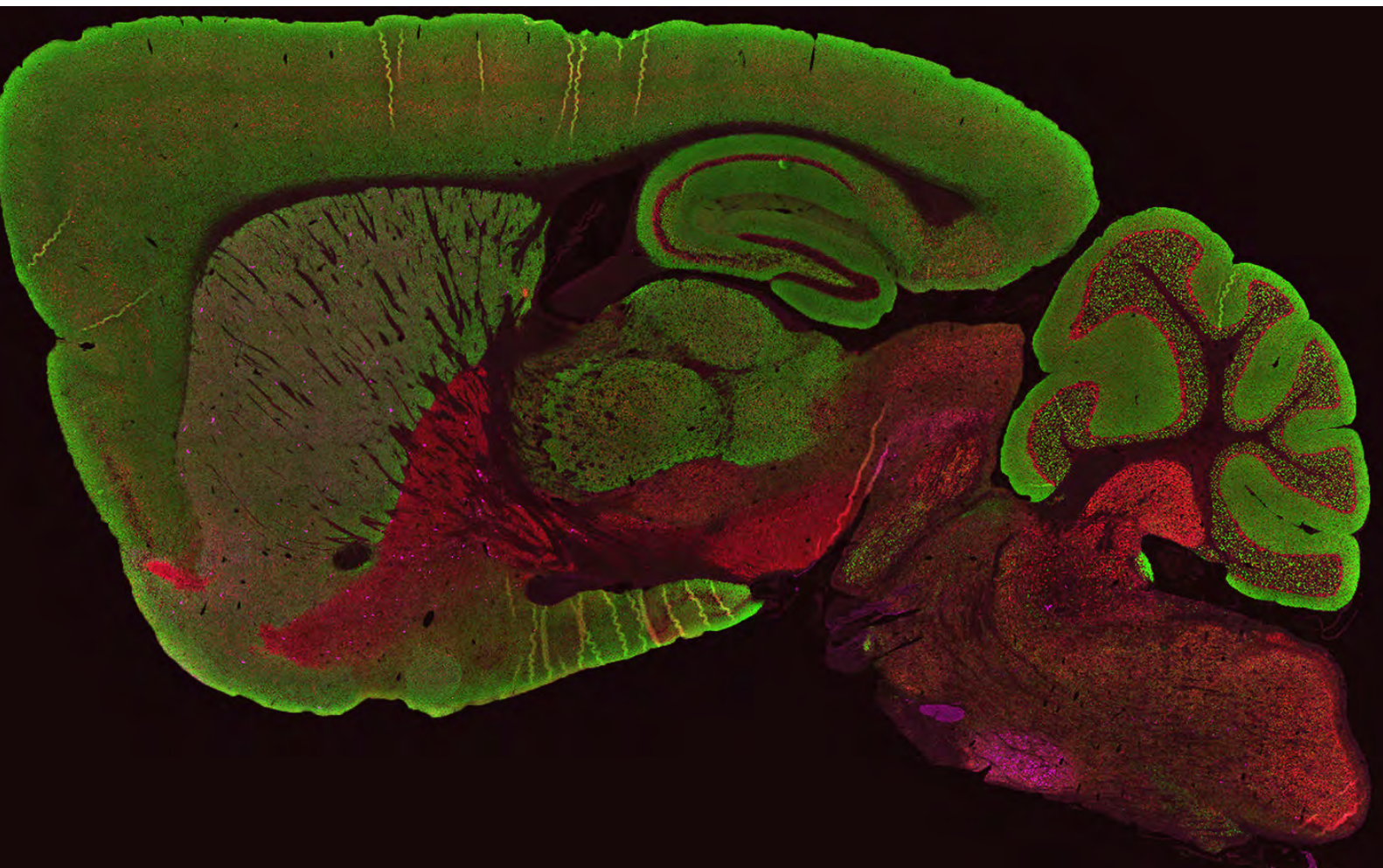


NEUROSCIENCE



NEUROSCIENCE MARKER PANEL



 **ATLAS ANTIBODIES**

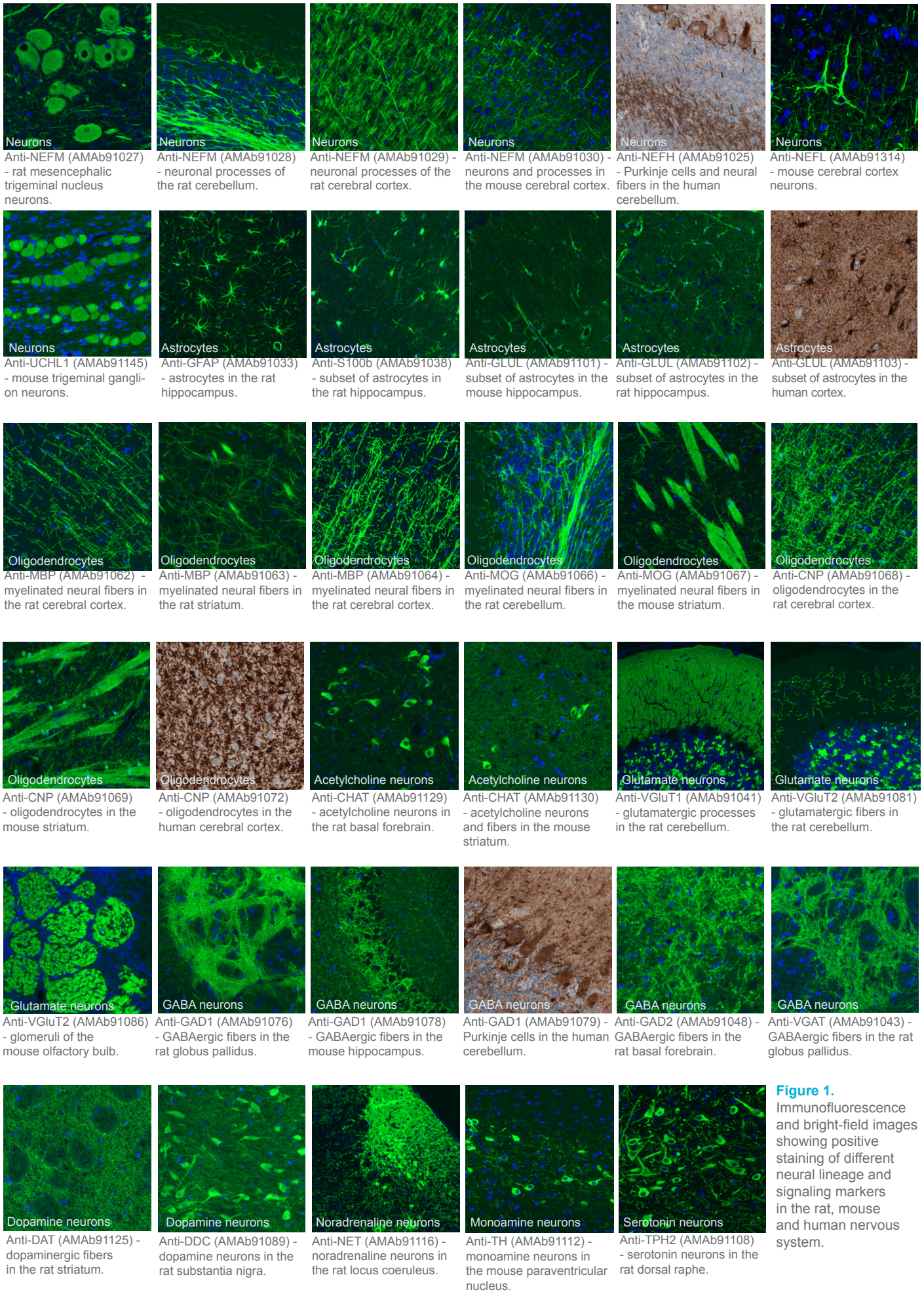


Figure 1. Immunofluorescence and bright-field images showing positive staining of different neural lineage and signaling markers in the human, mouse and human nervous system.

PrecisA Monoclonals™ as Neuroscience Markers

The Neuroscience Marker Panel

The nervous system controls and regulates involuntary and voluntary processes in the organism, including higher-order functions such as perception, cognition, emotions, and others.

The principal cells of the central nervous system are the neurons, which process and transmit neural signals. Besides, different glial cells are present, including astrocytes, oligodendrocytes, and Schwann cells that support, nourish, and provide electrical isolation to the neural processes. The complexity of the nervous system is further augmented by the fact that different types of neurons utilize various kinds of chemical substances to transmit the information (chemical neurotransmitters) acting via multiple receptor subtypes.

Antibody-based immunohistochemistry is widely used in neuroscience research to detect, characterize and classify various cell types in the nervous system. Therefore, the need for highly-characterized and specific antibodies in neuroscience research is high.

At Atlas Antibodies, we have developed a panel of PrecisA Monoclonals primary antibodies designed to recognize the main anatomical and neurochemical cell types in rodents and the human nervous system (Figure 1).

The monoclonal antibodies within the panel have been developed under the same stringent conditions as all PrecisA Monoclonals™, guaranteeing a secured continuity and a stable supply.

- Selected target proteins are expressed only by a single cell type.
- IHC-validation in rat, mouse, and human tissues.
- WB-validation in mouse and human tissue lysates for the majority of the markers.
- Antibodies are available with different isotypes, allowing for multiplexing experiments.
- Information on antigens used for immunization and epitope information are provided (when available).

Neural Lineage and Signaling Markers

The Neuroscience Marker Panel consists of neural lineage markers for neurons, astrocytes, and oligodendrocytes/Schwann cells. These markers target glutamate, GABA, acetylcholine, noradrenaline, dopamine, and serotonin systems.

The three different cell types, including neurons, oligodendrocytes, and astrocytes, are shown in Figure 2. The antibodies used are Anti-NEFM (AMAb91030), Anti-CNP (AMAb91068), and Anti-GFAP (AMAb91033), respectively, detected with isotype-specific secondary antibodies.

Immunohistochemical staining for some of the major brain neurotransmitter systems is shown in Figure 3. The image depicts the GABAergic, glutamatergic, and acetylcholine systems, visualized by Anti-GAD1 (AMAb91076), Anti-VGLUT1 (AMAb91041), and Anti-CHAT (AMAb91129) antibodies, respectively.

Isotype-specific secondary antibodies were used for detection.

High Specificity and Interspecies Reactivity

PrecisA Monoclonals neuroscience markers show high specificity and selectivity for their target proteins.

Figure 4, on the next page, shows examples of IHC staining for Anti-NET (AMAb91116) monoclonal antibody. This antibody recognizes the noradrenaline transporter (NET, SLC6A2) and can be used to detect both noradrenergic cell bodies and processes in rats, mice, and human nervous systems. The Anti-NET antibody AMAb91116 is highly-specific and does not show any cross-reactivity with, e.g., the dopamine transporter (DAT, SLC6A3).

The specific staining of noradrenergic cell bodies and fibers in the rat locus coeruleus (A), noradrenergic fibers in the mouse cerebral cortex (B), and noradrenergic cell bodies and fibers in the human locus coeruleus (C) (Figure 4). The specificity of the AMAb91116 is further demonstrated in images D and E. These images show a coronal section of a rat brain at the level of caudate-putamen stained with Anti-NET (AMAb91116) and Anti-DAT (AMAb91125).

The caudate-putamen is virtually devoid of noradrenaline fibers, mostly present in the cortex. The striatum shows a dense network of thin dopamine fibers (in magenta). Single noradrenaline fibers can sometimes be observed (D in green).

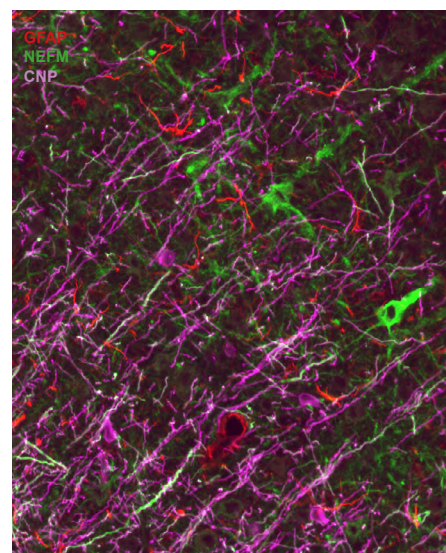


Figure 2.

Multiplexed IHC-IF staining on a rat brain coronal section shows labelling of neurons and their processes in green using the anti-NEFM monoclonal (AMAb91030, IgG2b). Oligodendrocytes (magenta) are detected using the anti-CNP antibody (AMAb91068, IgG2a). Astrocytes (red) are labeled with the anti-GFAP (AMAb91033, IgG1) monoclonal antibody.

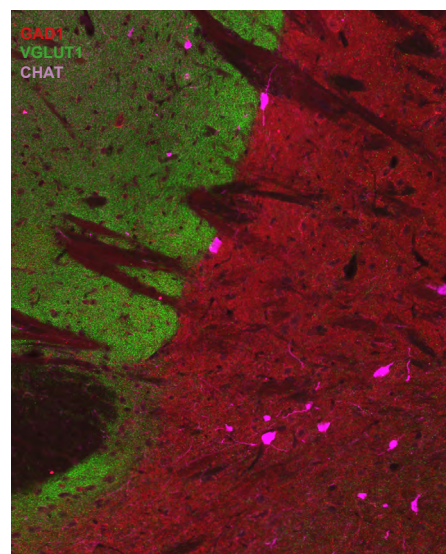


Figure 3.

Multiplexed IHC-IF staining of mouse caudate-putamen/globus pallidus section shows labelling of the GABAergic system (red) using the anti-GAD1 (AMAb91076, IgG2a), the glutamatergic system (green) using the anti-VGLUT1 (AMAb91041, IgG2b) and acetylcholine system (magenta) using the anti-CHAT (AMAb91129, IgG1) monoclonal antibodies.

Cover image:

Multiplexed IHC-IF staining of a mouse brain sagittal section showing the GABAergic system in red (Anti-GAD1 antibody AMAb91076), the glutamatergic system in green (Anti-VGLUT1 antibody AMAb91041) and the acetylcholine system in magenta (Anti-CHAT antibody AMAb91129).

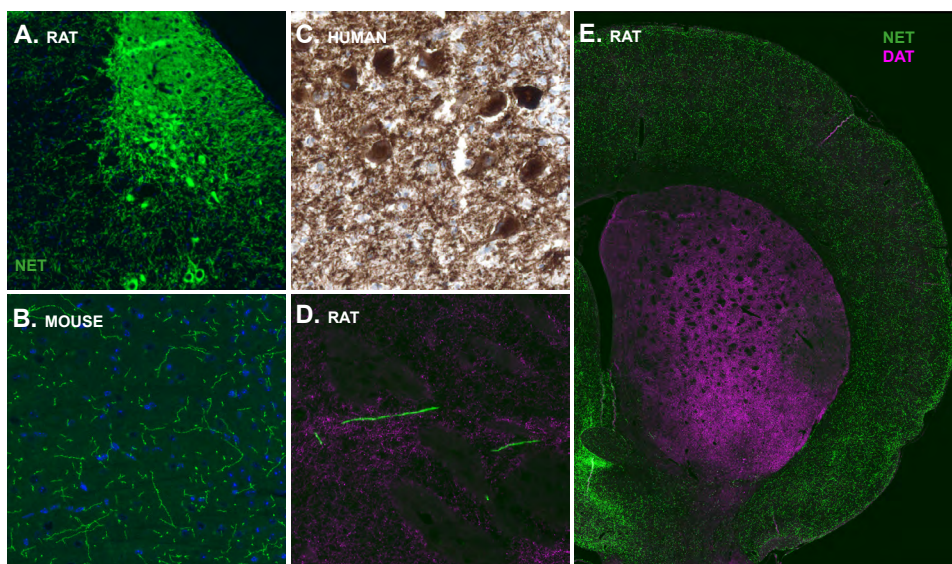


Figure 4. The specificity and selectivity of **anti-NET** monoclonal antibody (AMAb91116) are demonstrated with IHC-IF (**A, B, D, E**, in green) and bright-field IHC (**C**, in brown) in the rat (**A,D,E**), mouse (**B**) and human (**C**) brains.

DAT immunoreactivity (**D, E**) is visualized in magenta using **anti-DAT** monoclonal antibody (AMAb91125), for comparison. Nuclei, stained with DAPI, are visible in blue.

Table 1. Selection of the PrecisA Monoclonals Neuroscience Markers available from Atlas Antibodies.

Targeted Cells	Product Name	Product ID	Isotype	Validated Applications	Interspecies Homology	PrEST Control Antigen
Neurons	Anti-NEFM (NF160)	AMAb91027	IgG1	IHC, WB	Mouse 98/ Rat 98%	APrEST76207
	Anti-NEFM (NF160)	AMAb91028	IgG1	IHC, WB	Mouse 98/ Rat 98%	APrEST76207
	Anti-NEFM (NF160)	AMAb91029	IgG2a	IHC, WB	Mouse 98/ Rat 98%	APrEST76207
	Anti-NEFM (NF160)	AMAb91030	IgG2b	IHC, WB	Mouse 98/ Rat 98%	APrEST76207
	Anti-NEFH (NF200)	AMAb91025	IgG1	IHC, WB	Mouse 88/ Rat 94%	APrEST87930
	Anti-NEFL (NF68)	AMAb91314	IgG1	IHC, WB, ICC-IF	Mouse 97/ Rat 99%	APrEST88940
	Anti-UCHL1 (PGP9.5)	AMAb91145	IgG1	IHC, WB, ICC-IF	Mouse 97/ Rat 97%	APrEST86224
Astrocytes	Anti-GFAP	AMAb91033	IgG1	IHC*, WB*	Mouse 98/ Rat 100%	APrEST85954
	Anti-S100B	AMAb91038	IgG1	IHC*, WB	Mouse 99/ Rat 98%	APrEST73328
	Anti-GLUL	AMAb91101	IgG1	IHC, WB*	Mouse 95/ Rat 92%	APrEST70153
	Anti-GLUL	AMAb91102	IgG1	IHC, WB*	Mouse 95/ Rat 92%	APrEST70153
	Anti-GLUL	AMAb91103	IgG2a	IHC, WB	Mouse 95/ Rat 92%	APrEST70153
Schwann cells, oligodendrocytes	Anti-MBP	AMAb91062	IgG2a	IHC, WB, ICC-IF	Mouse 97/ Rat 97%	APrEST78641
	Anti-MBP	AMAb91063	IgG1	IHC, WB, ICC-IF	Mouse 97/ Rat 97%	APrEST78641
	Anti-MBP	AMAb91064	IgG1	IHC, WB	Mouse 97/ Rat 97%	APrEST78641
Oligodendrocytes	Anti-MOG	AMAb91066	IgG1	IHC, WB	Mouse 91/ Rat 89%	APrEST72887
	Anti-MOG	AMAb91067	IgG1	IHC, WB	Mouse 91/ Rat 89%	APrEST72887
	Anti-CNP	AMAb91068	IgG2a	IHC, WB*	Mouse 76/ Rat 77%	-
	Anti-CNP	AMAb91069	IgG1	IHC, WB	Mouse 76/ Rat 77%	-
	Anti-CNP	AMAb91072	IgG2b	IHC, WB, ICC-IF	Mouse 76/ Rat 77%	-
Acetylcholine neurons	Anti-CHAT	AMAb91130	IgG2b	IHC*, ICC-IF	Mouse 96/ Rat 96%	APrEST86792
	Anti-CHAT	AMAb91129	IgG1	IHC*	Mouse 96/ Rat 96%	APrEST86792
Glutamate neurons	Anti-SLC17A7 (VGLUT1)	AMAb91041	IgG2b	IHC*, WB	Mouse 94/ Rat 94%	APrEST88047
	Anti-SLC17A6 (VGLUT2)	AMAb91081	IgG1	IHC*	Mouse 85/ Rat 85%	APrEST80507
	Anti-SLC17A6 (VGLUT2)	AMAb91086	IgG1	IHC*	Mouse 85/ Rat 85%	APrEST80507
GABA neurons	Anti-SLC32A1 (VGAT)	AMAb91043	IgG1	IHC	Mouse 95/ Rat 93%	APrEST83027
	Anti-GAD1 (GAD67)	AMAb91076	IgG2a	IHC, WB	Mouse 94/ Rat 94%	APrEST79051
	Anti-GAD1 (GAD67)	AMAb91078	IgG1	IHC, WB	Mouse 94/ Rat 94%	APrEST79051
	Anti-GAD1 (GAD67)	AMAb91079	IgG2b	IHC, WB	Mouse 94/ Rat 94%	APrEST79051
	Anti-GAD2 (GAD65)	AMAb91048	IgG1	IHC*, WB	Mouse 84/ Rat 88%	APrEST80257
Dopamine neurons	Anti-SLC6A3 (DAT)	AMAb91125	IgG1	IHC	Mouse 85/ Rat 85%	APrEST72519
	Anti-DDC	AMAb91089	IgG1	IHC*, WB	Mouse 90/ Rat 88%	APrEST72511
Noradrenaline neurons	Anti-SLC6A2 (NET)	AMAb91116	IgG1	IHC	Mouse 93/ Rat 93%	APrEST86811
Dopamine and noradrenaline	Anti-TH	AMAb91112	IgG1	IHC	Mouse 88/ Rat 88%	APrEST87899
Serotonin neurons	Anti-TPH2	AMAb91108	IgG1	IHC	Mouse 100/ Rat 100%	APrEST81951

VERY RELIABLE ANTIBODIES

Atlas Antibodies manufactures and provides over 22,000 highly validated monoclonal and polyclonal primary antibodies and control antigens targeting the majority of human proteins for tissue and cell analysis to explore and accelerate research in biology, pathology, and medicine. The portfolio covers different research areas such as neuroscience, cancer, cell biology, stem cell & development. All our products are rigorously evaluated for specificity, reproducibility, and performance and characterized for use in IHC, WB, and ICC-IF. Enhanced validation is applied as an extra level of security of antibody specificity in a defined context. Available in 25 µL and 100 µL unit sizes.



Atlas Antibodies Advanced Polyclonals.

Triple A Polyclonals™ are rabbit polyclonal primary antibodies developed within the Human Protein Atlas project. IHC characterization data from 44 normal and 20 cancer tissues is available on the Human Protein Atlas portal.

CREATED BY THE HUMAN PROTEIN ATLAS

With our roots in the Human Protein Atlas project, an integration of antibody-based imaging, proteomics, and transcriptomics, our antibodies are affinity-purified, reproducible, selective, and specific for their target proteins through our enhanced validation process. Our Triple A Polyclonals™ are developed within the Human Protein Atlas project.



Precise. Accurate. Targeted.

PrecisA Monoclonals™ are mouse monoclonal primary antibodies developed against a number of carefully selected targets. Clones are selected to recognize only unique non-overlapping epitopes and isotypes.

VALIDATED BY ENHANCED VALIDATION

We take great care to validate our antibodies in IHC, WB, and ICC-IF. Our antibodies are validated in all major human tissues and organs and 20 cancer tissues. Over 500 staining images support each antibody. As an additional layer of security, we perform Enhanced Validation. By using 5 different enhanced validation methods, we validate our antibodies for each combination of protein, sample, and application. Discover our Triple A Polyclonals™ and PrecisA Monoclonals™ antibodies targeting the majority of human proteins in cells, tissues, and organs.

PrEST Antigens

Recombinant protein fragments

PrEST Antigens™ are used as immunogens for the generation of Triple A Polyclonals and PrecisA Monoclonals.

EVIDENCED BY SCIENCE

Made by researchers for researchers, our products are used all over the world and referenced in thousands of scientific peer-reviewed papers.

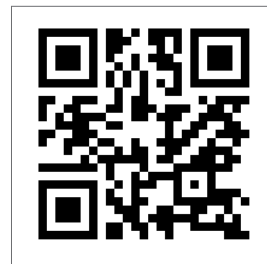
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