Overview

About Sylvius 4
Sylvius 4 provides a unique computer-based learning environment for exploring and understanding the structure of the human central nervous system. Sylvius features fully annotated surface views of the human brain, as well as interactive tools for dissecting the central nervous system and viewing fully annotated cross-sections of preserved specimens and living subjects imaged by magnetic resonance. Sylvius is more than a conventional atlas; it incorporates a comprehensive, visually rich, searchable database of more than 500 neuroanatomical terms that are concisely defined and visualized in photographs, magnetic resonance images, and illustrations from the textbook Neuroscience, by Purves et al. Sylvius incorporates the atlas content and utility of the main modules with the reference content of the Visual Glossary, making it a single source for teaching and understanding the organization of the human central nervous system.

Surface Anatomy Atlases—Provide a visual introduction to the location and names of the major external features and subdivisions of the human brain
  - Photographic Atlas: Digitally enhanced photographic images of a human brain specimen
  - Magnetic Resonance Image Atlas: High-resolution 3D reconstructions of a human brain specimen illustrating the major surface features
  - Brainstem Model: 3D views of a widely used model illustrating the surface features of the brainstem as well as the location of cranial nerve nuclei

Sectional Anatomy Atlases—Allow the user to explore the internal organization of the brain
Photographic Atlas: Allows the student to “virtually dissect” a human brain specimen in the three standard planes (coronal, axial, and sagittal)
  - Magnetic Resonance Image Atlas: High-resolution in vivo atlas comprised of coronal, axial, and sagittal sections, newly expanded to include complete series of sections in each anatomical plane
  - Brainstem and Spinal Cord: A high-resolution, cross-sectional histological atlas of the human spinal cord and brainstem, allowing students to examine principal tracts and nuclei

Pathways—Allows students to follow the flow of information in several important long-tract pathways of the central nervous system

Visual Glossary—Searchable glossary providing visual representations, concise anatomical and functional definitions, and audio pronunciation of neuroanatomical structures.
System Requirements
Sylvius 4 Online is a Web-based program that runs within an Internet browser and requires an active Internet connection. The following

- **Desktops/Laptops**: Internet Explorer 9 or newer, Firefox 18 or newer, Chrome 25 or newer, Safari 5 or newer. (Latest version of Chrome recommended.)
- **Tablets**: 10-inch screen and 1GB of RAM recommended. (For iPad, iPad 3 or newer recommended.) Older and/or smaller tablets may work, but performance may not be optimal.

Creating an Account and Logging In
Before logging in to *Sylvius 4 Online* for the first time, you must register with the site and create an account. Registration requires a registration code. These may be purchased either online from the Sinauer Associates website or *Sylvius 4 Online* homepage, or at a book store, on a printed card.

Once you have your registration code, go to http://sites.sinauer.com/sylvius and click “Register Using a Registration Code.” Follow the instructions to create your account, then go back to the homepage and log in.

Getting Around *Sylvius* 4: The Basics

Using the Atlas Navigator
When you log in to *Sylvius* 4, you will first see a “site map” of *Sylvius* 4 content—that is, a complete list of atlas filters available for viewing, as well as the Visual Glossary. Select an entry from the list to load it. Subsequent navigation is performed via the tabs in the upper left corner of the application, or you can click the **Go to Atlas Navigator** button in the upper right corner to re-open the site map.

Using Windows
Use the tabs to select an atlas class (Surface, Sectional, Pathways). Beneath the tabs, a horizontal list of available atlases appears—click one see the list of atlas filters available for that atlas. Clicking on a filter will load that configuration (see below). Additional palettes will appear and the list in the **Structures** palette will be populated.

Click and hold the title bar of any window or palette to drag it around the work area.
Most windows and palettes can also be resized. If the palette is resizable, three short diagonal lines will be present in the lower right-hand corner of the palette. To resize, click and drag the lower right-hand corner. Note that, for some palettes, there are limits to the maximum or minimum widths or heights that the palette can be.

**Tool Tips**
Throughout the application, tool tips provide a quick and convenient way to get more information about an item’s properties, behaviors, or actions. A tool tip appears almost immediately when you roll over an object that has a tool tip defined. For example, rolling over the speaker icon in the **Structures** palette will activate a tool tip that reads “Audio pronunciation.”

**Working with Atlases**

**Common Features**
As noted previously, **Sylvius** is arranged into atlas classes. Each atlas class has one or more atlases. Each atlas has one or more filters (configurations) for how to view its content.

All atlases use the **Structures** palette, which lists the structures present in the structure mode. Some structures will appear grayed-out when certain images are loaded into the image window, as not all images in the atlas contain all the structures listed.

Most atlases also use a **Navigator** palette. In its simplest form, it is a scrollable list of thumbnails of the images defined in the filter. Clicking on a thumbnail will load that image into an image window.

Selecting a structure in an image or in the list of structures in the **Structures** palette highlights all instances of that structure in the current image, for quick and easy identification.

**Interactive features**

- **Audio pronunciation**
  Hear the name of the currently selected structure pronounced in English.

- **Notes**
  The **Notes** palette allows you to enter and save comments about any image. Notes are stored online, so they will be available to you regardless of what computer you use to access **Sylvius**. Open the Notes window by clicking the Notes button in the upper right corner of the application. To add a note for the current image, simply click in the Notes window and start typing. Notes are saved automatically as soon as you click outside the Notes window. To modify a note or delete a note, click the Notes window and edit the notes text.

- **Orientation**
  View an image showing the orientation of the selected brain image relative to the cranial cavity and the body.

- **Quiz mode**
  When rolling over a structure, the tool tip displayed will read “Press ‘A’ key for answer” instead of displaying the name of the structure. Pressing the “A” key will reveal the name of the structure.
Structure visibility toggle
Hide or show the structure highlighting on the images.

Draw Tools
Draw tools allow you to annotate an image using a pencil/freehand tool and a line/arrow tool.

Surface Anatomy Atlas

Photographic Atlas
The surface photographic atlas contains photographs of the surface of the brain from different perspectives. Lightly colored areas mark the location, shape, and size of structures.

MR Atlas
The surface MR atlas contains a 3D reconstruction of the surface of a human brain specimen derived from T1-weighted magnetic resonance images. The dots serve to mark the location of a structure. The user can examine the specimen from multiple viewpoints by selecting thumbnails in the Navigator palette.

Brainstem Model
This module comprises images of dorsal and ventral views of a rubber brainstem model illustrating the topography of surface features of the brainstem and the locations of cranial nerves and cranial nerve nuclei. Lightly colored areas mark the location, shape, and size of structures.

Sectional Anatomy Atlas

MR Atlas
The sectional MR atlas contains T1-weighted magnetic resonance images (coronal, axial, and sagittal) of a single human subject. The dots serve to mark the location of prominent structures. The Navigator palette for this atlas uses a 3D selector tool in addition to the usual list of thumbnail images. Use the sliders in the three different axes (coronal, axial, and sagittal) to select an axis and a section to view.

Photographic Atlas
The sectional photographic atlas comprises images of a single human brain specimen that was sectioned and photographed in the three standard planes (coronal, axial, and sagittal). The Navigator palette for this atlas uses a 3D selector tool in addition to the usual list of thumbnail images. Use the sliders in the three different axes (coronal, axial, and sagittal) to select an axis and a section to view. Each image in this atlas includes a smaller image showing the same section in 3/4 view.

Brainstem and Spinal Cord Sectional Atlas
This atlas contains transverse sections of the brainstem and spinal cord. The images were acquired and processed to simulate myelin staining; thus, white matter appears darker and gray matter, lighter. Lightly colored areas mark the location, shape, and size of structures. In addition to the thumbnails, the Navigator palette for this atlas uses two images to view the location of the sections at a glance. Use the sliders alongside these orientation images to quickly select sections to examine in detail.

Pathways Atlas

Animated Pathways
The animated pathways atlas allows you to view the flow of information between the structures comprising the major long tract pathways of the central nervous system. Use the Play/Pause and Rewind buttons to control the neural impulse traveling along the pathway.
Visual Glossary

The Visual Glossary component of Sylvius is an interactive glossary of the human central nervous system. The Visual Glossary contains over 500 neuroanatomical structures and terms, each including a definition, location, and function; one or more high-resolution images or animations; audio pronunciation; and links to related terms and structures also found in the glossary. The interactive features in the glossary focus on efficient navigation, learning, and sharing:

- Glossary content is fully cross-referenced
- The Browse by Category feature allows the user to view structures and terms related to specific anatomical groups (e.g., cranial nerves, visual system)
- Recently viewed images can be quickly reviewed via the History function
- Structures and images of interest can be bookmarked
- Term descriptions can be annotated via powerful Notes feature
- Quiz mode allows for testing on structure identification
- Printing allows users to create a hardcopy version of any glossary entry complete with image, description, and notes
- Keyboard navigation allows users to quickly browse through terms and images

Using the Visual Glossary

The left side of the window contains interface elements related to navigating glossary content while elements on the right side apply to the currently selected term.

In the upper left-hand corner of the window, there are three tabs: Index, Bookmarks, and History. Changing the selected tab updates the contents of the terms list directly below the tabs. The Index listing contains all of the terms included in the Visual Glossary. The History maintains a list of the images viewed most recently. Any structures bookmarked will be included in the Bookmarks listing. Use the up and down arrows keys to step through the terms list.
Below the terms list is a list of categories. Selecting a category filters the terms list to include only those terms assigned to the category. For example, choosing the category “Cranial Nerves” will show all of the glossary terms related to the cranial nerves.

To the right of the lists are interface elements related to the currently selected term. The definition of the term is displayed below the image viewing area. The Notes tool is located to the right of the definition and is used to view and manage your notes about the structure you are currently viewing.

To the right of the main image is the image toolbar. Use the buttons in the toolbar to interact with the currently selected image; for example, to hear the term pronounced or bookmark the current term. If you are unsure of a button’s action, you can pause for a moment with the mouse over a button to activate the button’s tool tip. Tool tips provide a convenient way to get more information about a button’s function.

Your browser window can be resized to provide more space for the interface elements. As the size increases, the window elements will resize. Although the window can be made smaller than its initial size, the content will be cropped.

**Quiz Mode**
The Visual Glossary contains a self-quiz feature. Clicking the Quiz button on the right side of the window will enable quiz mode, hiding the terms list, description, notes field, and image labels. The quiz toolbar will appear with buttons for navigating through the terms, as well as a button to show and hide the description and notes fields. The terms *in the currently selected category* will be presented in a random order. Clicking the Quiz button again will exit quiz mode. Selecting the Bookmarks or History tabs will also turn off quiz mode.

**Printing**
The print feature in the Visual Glossary allows the user to create a hardcopy version of the selected term. The printout includes the term name, its description, your notes, and the image. Clicking the Print button will open the printer setup prompts.

**Audio Pronunciation**
Click the Speaker button to hear the pronunciation of the selected term.

**Notes**
As with the Notes window in the main atlases, you can use the Notes field in the Visual Glossary to enter and save notes related to any term.

**Technical Support**

For technical support with any aspect of the *Sylvius 4 Online* program, registration, or accounts, please contact us:
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