

Science-Specific Alt Text Guide

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Alt text (short for **alternative text**) is a **brief written description of an image** that allows people who cannot see the image to understand what it conveys. Screen readers read the alt text aloud when they encounter an image, so the user receives the information the image was meant to communicate.

Typical Alt Text Length Expectations

There is no strict character limit in most software, but guidance is generally:

- ~1 sentence
- usually under ~125–150 characters
- occasionally up to ~1–2 sentences for instructional images

Accessibility standards recommend using a **short alt text + longer description nearby**. You can place the longer explanation in:

- the figure caption
- **slide speaker notes**
- surrounding paragraph text
- a linked description
- the LMS page content

If your alt text is too long, create the most accurate alt text in short format describing the relevance to the teaching point, and provide expanded text elsewhere.

Images that are **purely decorative** can be marked as decorative so screen readers skip them.

Example:

- decorative divider line
- background image
- stylistic icon

The SCI Framework

S — Structure: What is shown?

C — Change/Relationship: What interaction or process is depicted?

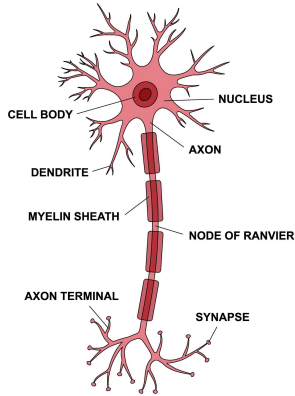
I — Instructional Purpose: Why is the student seeing this?

Most Basic Language Template

Diagram/image showing [structure/system], where [key relationship or change], illustrating [learning concept].

Examples

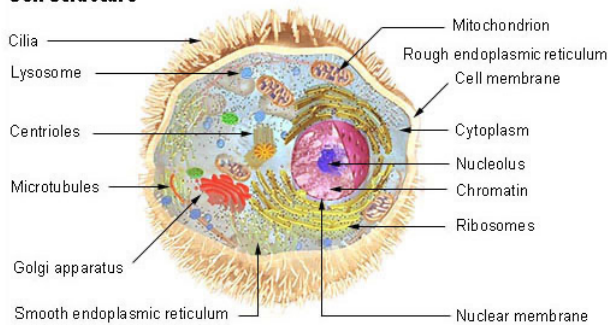
This is a foundational, entry-level instructional diagram.



Alt text: *Labeled neuron showing dendrites, soma, axon, and axon terminals. Dendrites receive synaptic input and axon terminals transmit signals by forming synapses and releasing neurotransmitter.*

Template text structure: Diagram of [structure or system] labeling [major components], illustrating [basic organization or functional relationship].

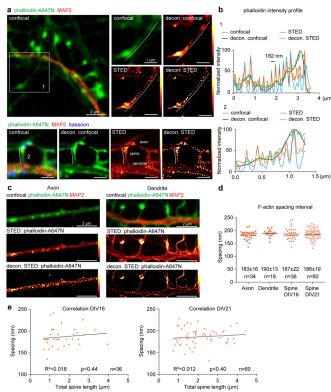
Cell Structure



In this case, identifying the structures is the objective, so listing each structure is appropriate.

Alt text: *Labeled diagram of an animal cell identifying major organelles such as nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, ribosomes, lysosomes, and cytoskeleton components, illustrating cellular structure and function.*

Template text structure: Labeled diagram of a [cell type or structure] identifying major components such as [key organelles or parts], illustrating the structural organization and basic functional roles within the cell.

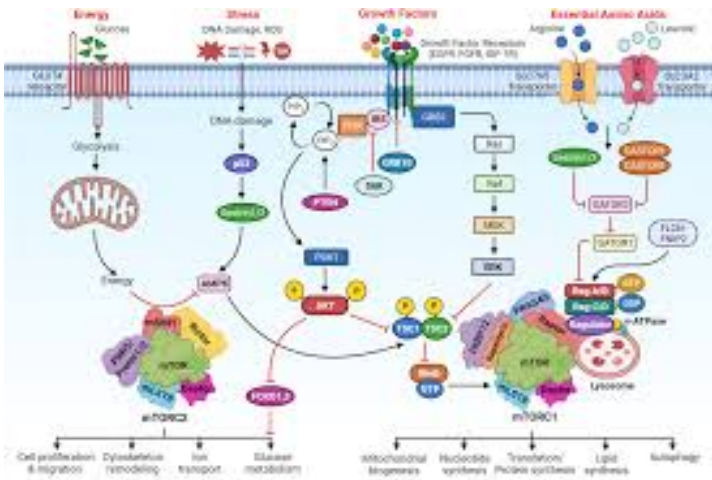


For multi-panel primary research figures:

- Alt text should summarize the central scientific conclusion
- Detailed methods remain in the caption
- Do not attempt to describe each subpanel exhaustively

Alt Text: *Figure comparing confocal and STED imaging of F-actin organization in neurons. Super-resolution images reveal periodic actin spacing in axons, dendrites, and spines (~180–190 nm), supported by intensity profiles and quantitative analysis showing similar spacing across compartments and developmental stages.*

Template text structure: Multi-panel figure examining [topic] in [system]. Panels include [methods/data types] comparing [conditions]. Results show [main finding], with quantitative analysis indicating [key conclusion].

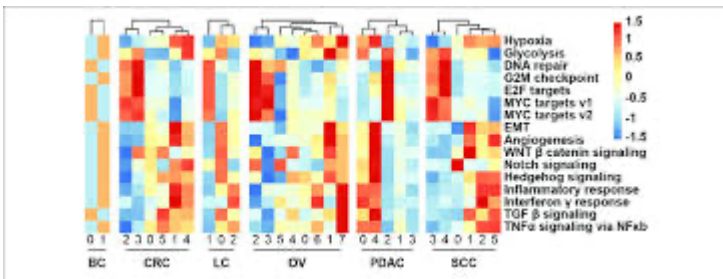


This is a dense signaling pathway schematic, so compliant alt text should summarize regulatory inputs and the biological outcome. Do not list every protein unless identification itself is the learning objective. "If I explained this pathway aloud in lecture in one breath, what would I say?"

Alt text: *Signaling network diagram showing how energy status, stress, growth factors, and amino acids integrate through PI3K–AKT, AMPK, and Rag GTPase pathways to regulate mTORC1 and mTORC2 activity and downstream cellular growth and metabolic processes.*

growth and metabolic processes.

Template text structure: Diagram showing how [inputs/signals] regulate [central pathway or key regulators], leading to [major cellular outcomes].

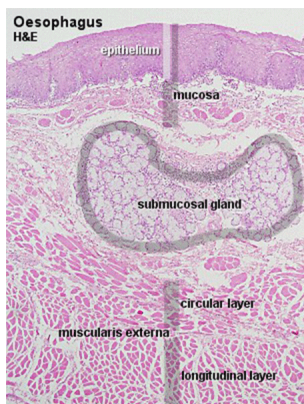


This figure is a clustered pathway enrichment heatmap, so the alt text should emphasize patterns, comparison groups, and interpretation, not individual-colored squares.

Alt text: *Heatmap comparing pathway enrichment across several cancer types, with red indicating higher pathway activity and blue indicating lower activity, revealing distinct biological signaling patterns among tumor groups.*

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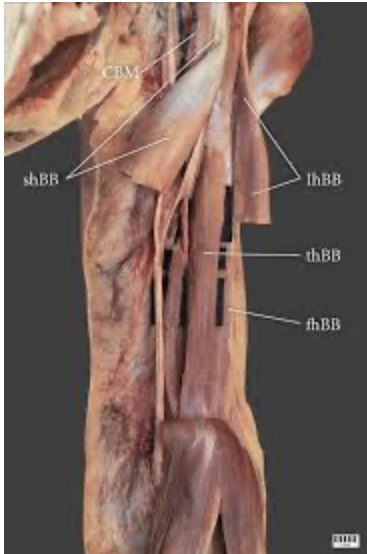
Template text structure: Heatmap showing [what rows represent] across [what columns represent], where [color meaning], illustrating [main comparison or pattern].



This is a labeled histology image, so alt text should identify the tissue, staining method, and key structural layers relevant to learning.

Alt text: *H&E-stained esophageal tissue section showing epithelium, mucosa, submucosal glands, and circular and longitudinal muscle layers of the muscularis externa.*

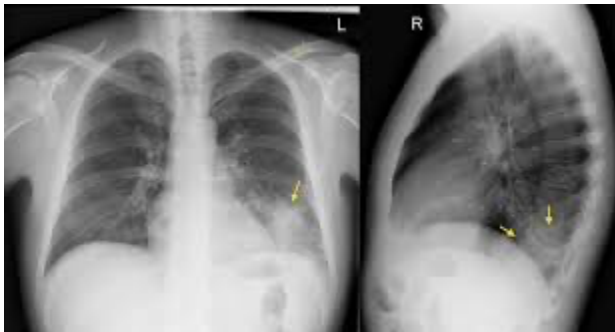
Template text structure: [stain] section of [organ/tissue] showing [major labeled structures], illustrating [structural organization or functional relevance].



This is a labeled gross anatomy dissection image, so alt text should identify the anatomical region, orientation, and the specific structures labeled, without narrating every fiber.

Alt text: *Posterior thigh dissection showing the hamstring muscles, including the long head and short head of biceps femoris, semitendinosus, and semimembranosus. The image highlights their relative positions and layering within the posterior compartment of the thigh.*

Template text structure: Cadaveric dissection of the [region] identifying [major labeled structures], demonstrating their relative positions and layering within the [anatomical compartment or system].



This is a paired chest radiograph (frontal and lateral views) with arrows indicating a focal abnormality. Alt text for radiology should identify:

- 1) Imaging modality, 2) View/orientation, 3) Location of finding, 4) Nature of abnormality, 5) Clinical interpretation (if instructional)

Alt text: *Frontal and lateral chest X-rays demonstrating right lower lobe consolidation marked by arrows, consistent with pneumonia.*

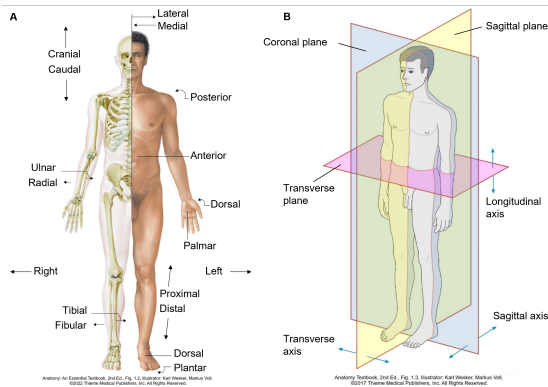
Template text structure: [Imaging modality and view] showing [radiographic finding] in the [anatomical location], consistent with [diagnosis or teaching point].



This is a clinical dermatology image, so alt text should describe observable findings, anatomical location, and the likely teaching point without subjective language.

Alt text: *Clinical photograph of the palm showing multiple well-demarcated, erythematous plaques with thick white scale and superficial fissuring. The lesions are round to oval and located on the central and lateral palm, consistent with plaque psoriasis.*

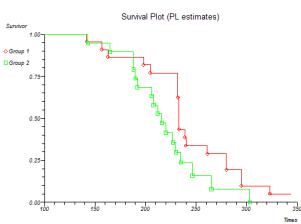
Template text structure: Clinical photograph of [anatomical region] showing [morphology: size, shape, color, borders, surface features], consistent with [condition or teaching point if appropriate].



This is a foundational anatomy orientation figure, so alt text should clearly explain: what is being illustrated (anatomical directional terms and planes), how the body is positioned, and what relationships are being defined.

Alt text: *Diagram of anatomical position labeling major directional terms and illustrating sagittal, coronal, and transverse planes with their axes to demonstrate spatial orientation of the body.*

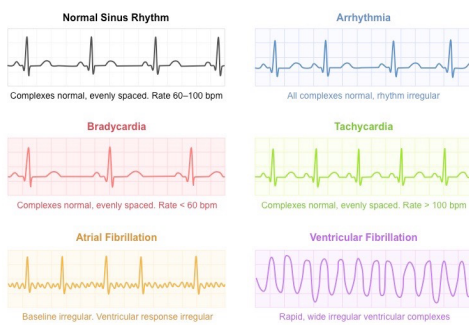
Template text structure: Diagram illustrating [anatomical position or region] with labeled [directional terms or planes], demonstrating [spatial relationships or orientation concepts].



This is a Kaplan–Meier survival curve, so alt text should describe what is being compared, what the axes represent, and the overall outcome pattern.

Alt text: *Kaplan–Meier survival curve showing probability of survival over time for two groups, with Group 2 demonstrating a faster decline in survival than Group 1.*

Template text structure: Kaplan–Meier survival curve comparing [groups], showing [relative survival pattern] over [time or follow-up period].



This is a comparison panel of ECG rhythm patterns, so the alt text should clearly indicate that the images are electrocardiogram tracings, identify the specific rhythm types displayed, describe the key distinguishing features such as rate, regularity, and waveform morphology, and convey the instructional purpose of comparing normal and abnormal cardiac rhythms.

Alt text: *Panel of ECG tracings comparing normal sinus rhythm, bradycardia, tachycardia, atrial fibrillation, and ventricular fibrillation, highlighting differences in rate, regularity, and waveform morphology.*

Template text structure: Physiologic waveform demonstrating [pattern], characterized by [defining features], consistent with [normal or abnormal condition].

Alt Text in Assessments

Providing alt text for quiz and exam images does **not** require revealing the correct answer. The goal of accessible image descriptions in assessments is to provide equivalent access to the visual information that a sighted student would use to reason toward the answer.

Alt text for assessment images should:

- Identify the image modality (e.g., MRI, histology, ECG)
- Describe observable features (location, morphology, pattern)
- Provide relevant spatial or structural relationships
- Remain neutral and non-interpretive

Alt text should **not**:

- Name the structure, diagnosis, or concept being assessed
- Provide interpretive conclusions
- Supply additional information not visible in the image

Reusable Template for Quiz Image Descriptions

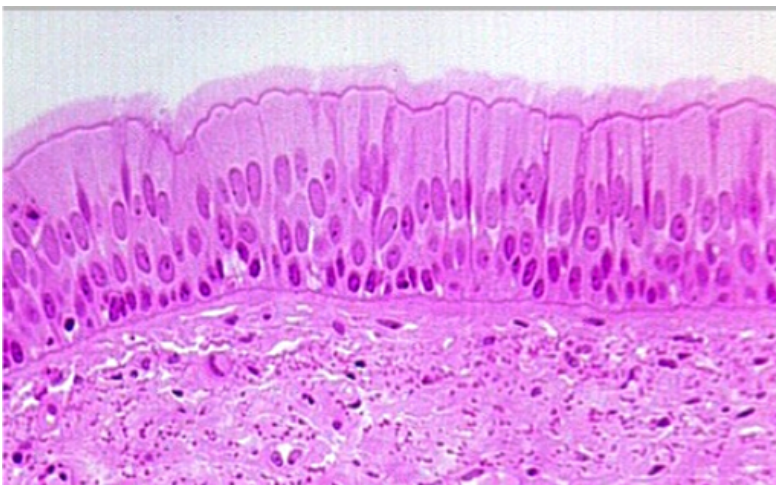
Image showing [modality or specimen] with [objective, observable features], relevant to identifying [structure, condition, or pattern].

Avoid:

- Diagnostic terms (unless question is about something else)
- Structure names when they are the answer
- Interpretive phrases like “consistent with”

Example 1: Histology Question

Q: Which epithelial type is shown in this image?



Incorrect image description: Microscopic image of pseudostratified ciliated columnar epithelium.

Correct Image Description (Accessible but Neutral): Microscopic image of epithelial tissue showing tall cells with nuclei positioned at different heights and visible cilia along the apical surface.

Example 2: Radiology Question

Q: What is the most likely diagnosis?



Incorrect image description: Chest X-ray showing right lower lobe pneumonia.

Correct Image Description (Accessible but Neutral): Frontal chest radiograph showing a focal area of increased opacity in the right lower lung field.

Example 3: ECG Question

Q: What rhythm is present?

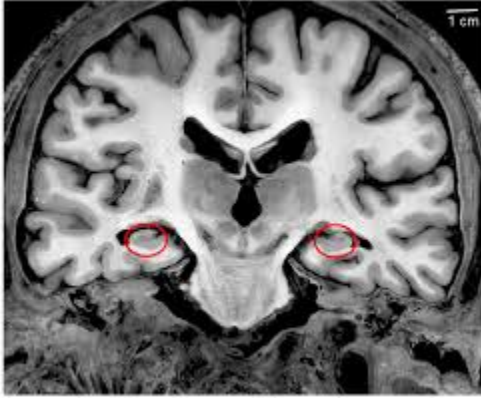


Incorrect image description: ECG showing atrial fibrillation.

Correct Image Description (Accessible but Neutral): ECG tracing demonstrating an irregularly irregular rhythm without clearly identifiable P waves.

Example 4: Neuroanatomy Diagram

Q: Which structure is within the red circle?



Incorrect image description: Coronal MRI showing the hippocampus circled bilaterally in red.

Correct Image Description (Accessible but Neutral): Coronal MRI image of the brain showing symmetrical regions in the medial temporal lobes outlined bilaterally with red circles. The highlighted structures are located inferior to the lateral ventricles and medial to the surrounding temporal cortex and are provided for anatomical identification.

Additional FAQs/Unique teaching considerations:

1. PowerPoint animations - Should animations be treated like still images with alt text?

A: Animations themselves do not require alt text, but any visual information conveyed by the animation must also be available in text or narration. It's best to avoid placing key content in an animation or to provide a static slide alternative if it does.

Acceptable:

- Animated pathway where the instructor verbally explains the steps
- Build-in bullet lists that are read aloud

2. Clinical videos used for teaching diagnosis - Faculty show patient videos and discuss features verbally. Captions of the original video wouldn't help the audience understand instructional intentions.

Acceptable:

- Videos still require captions, regardless of instructional context.
- Caption the original video and have the instructor describe the features being discussed.

3. Coding courses requiring specialized software - What if the software itself has limited accessibility?

A: Title II requires reasonable accessibility of educational experience, not that every tool be fully accessible. If the software is installed on computers and not accessed through the cloud (web-based), then Title II does not apply. The law refers to digital content that is accessed over the internet. Even if the new Title II regulation does not apply, faculty members are expected to consider accessibility when purchasing and using software and to make it available as needed to students with disabilities.

Examples of limited software:

- MATLAB
- SPSS
- some Integrated Development Environments
- specialized medical software

You can provide equivalent access when needed by:

- screen-sharing assistance
- code transcript or example files
- accessible IDE alternatives*
- teaching assistant support

* An accessible IDE is one where a student can write, navigate, and debug code using a keyboard and screen reader without relying on visual interaction.

This does not necessarily mean replacing the main software for the entire class. It often means providing an equivalent environment for a student who needs it.

4. Showing images and asking students a question while in lecture to stimulate discussion or assess learning mid-lecture - Is that inaccessible because the answer isn't given?

A: No, this is in class instruction and is not required to be accessible unless the material is distributed online to students at some point. If it is, make sure the slide being discussed has appropriate alt text.

As a follow up to this scenario, it is fine if a faculty and student PowerPoint are different versions as long as the materials distributed to students are accessible and the content presented visually in lectures is verbally explained.

5. What counts as an “educational space”? Where do we have to ensure compliance with Title II?

A: Title II applies to anything university offers online as part of its official operation. If the university organizes or sponsors it, accessibility generally applies.

Covered environments include:

- for-credit courses
- online courses
- academic workshops
- university-run seminars
- training programs
- continuing education
- orientation sessions

Journal clubs for credit fall under this category, but laboratory meetings and lab-run journal clubs do not. For journal clubs for credit, ensure that PDFs of uploaded papers are accessible. If student’s work is being used to convey educational content that is not conveyed elsewhere, it should be made accessible so that students can fully participate in the course, regardless of disability. We are creating a resource for faculty to refer students to for this.

For things like departmental seminars, third party materials (such as lectures from visiting speakers in a department seminar series) are not the university’s responsibility.

However, a reasonable accessibility approach is:

1. Provide accommodation contact information on seminar announcements
2. Caption recordings if posted online
3. Use accessible platforms for virtual seminars (Zoom captions)
4. Respond if a participant requests accessibility support

6. Student presentations - Is the university responsible for student-created content?

A: The expectation is reasonable oversight, not full enforcement.

Best practice:

- encourage accessible slides (link to university expectations in assignment)
- provide guidelines (or a template)
- intervene if a student needs accommodation

7. Discussion-based courses - Are there requirements for discussion-based courses?

A: Accessibility applies primarily to digital course materials, not spontaneous dialogue.

Required:

- accessible readings
- accessible slides
- captioned videos
- accessible LMS content

During discussions, good practice includes:

- repeating questions from the room
- describing visual references
- using microphones when available

8. Peer review assignments - Do faculty need to enforce accessible formatting when peer review is required?

A: This is best practice but not required under law.

Instructors have a responsibility to:

- Ensure course templates are accessible
- Encourage accessible formats

9. Teaching using whiteboard or overhead projector – is this compliant?

A: Accessibility expectations apply primarily to digital course materials, not spontaneous writing.

Best practices:

- read what is written
- verbalize diagrams
- provide notes or slides afterward if possible
- avoid shorthand if possible, but if used, make sure you fully state the information provided in shorthand