

Viewing Pathology Digital Images in Techcyte Fusion AP

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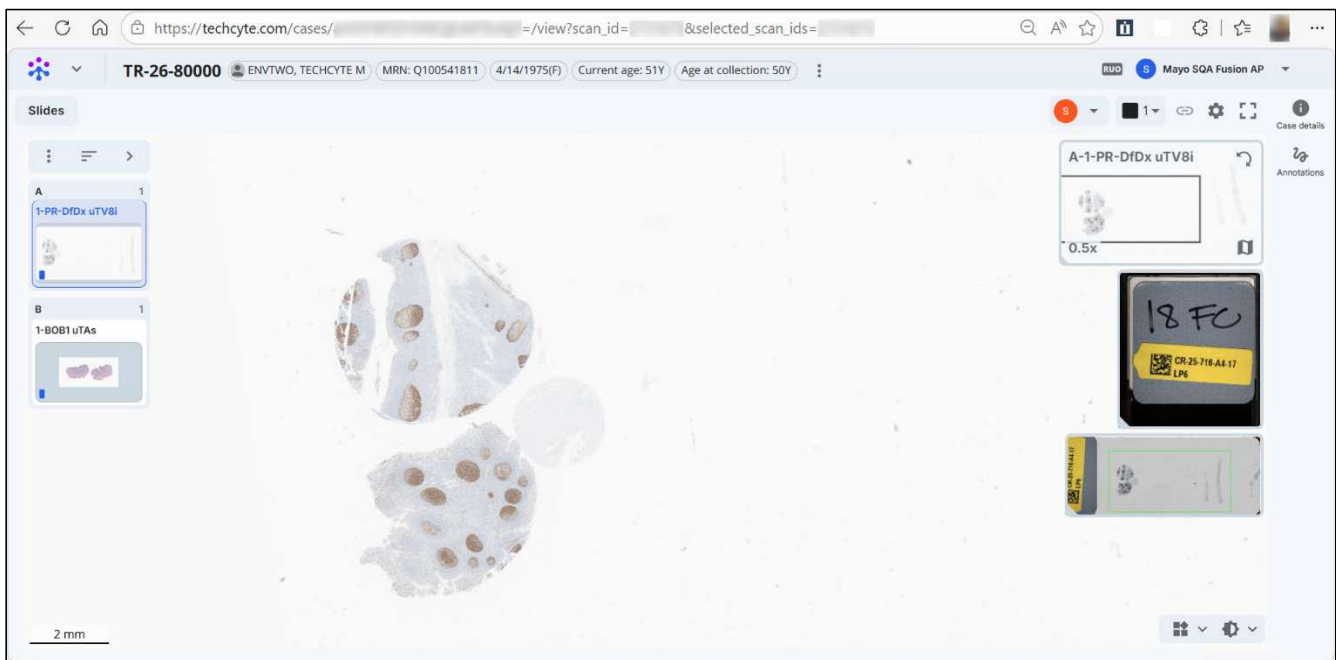
Introduction

This guide provides instructions on using Techcyte Fusion AP to view digital slide images for technical-only immunohistochemistry (IHC) and in situ hybridization (ISH) stains, as well as images for Renal Pathology consultations.


You can access Techcyte Fusion AP through MayoACCESS, MayoLINK, or a Notifications email link. For instructions, see “Viewing Digital Images” in the [MayoACCESS](#) or [MayoLINK](#) User’s Guide, or “Report Type (Supplemental, Referral, Digital Image)” in the [Notifications User’s Guide](#).

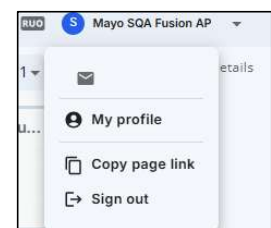
Image Window and Slide Viewer

The main area of the Image Window, where the largest image is displayed, is called the Slide Viewer. Images displayed in the Slide Viewer are all brightfield DICOM (.dcm) images scanned at 40× without polarization.




Application settings

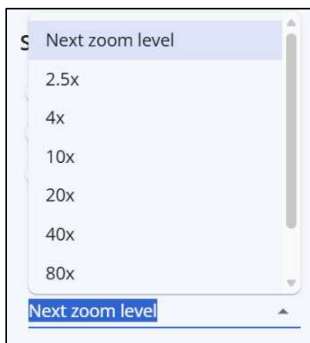
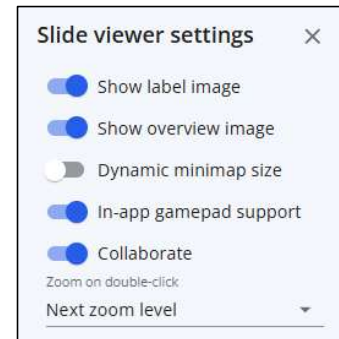
In the far top right corner of the Image Window, to the right of the words **Mayo SQA Fusion AP**, a down-arrow  offers options specific to internal Mayo Clinic Laboratories users (right). Clients can disregard this menu.



Slide Viewer settings

At top right of the Slide Viewer at top right is a gear icon.  Clicking it opens the **Slide viewer settings** panel (right), which includes the following toggles:

- Show [label image](#).
- Show [overview image](#).
- **Dynamic minimap size**, which automatically adjusts the [Minimap](#) to optimal size for tissue scanned on a slide.
- **In-app gamepad support**, which allows the use of alternate input devices for panning and zooming.





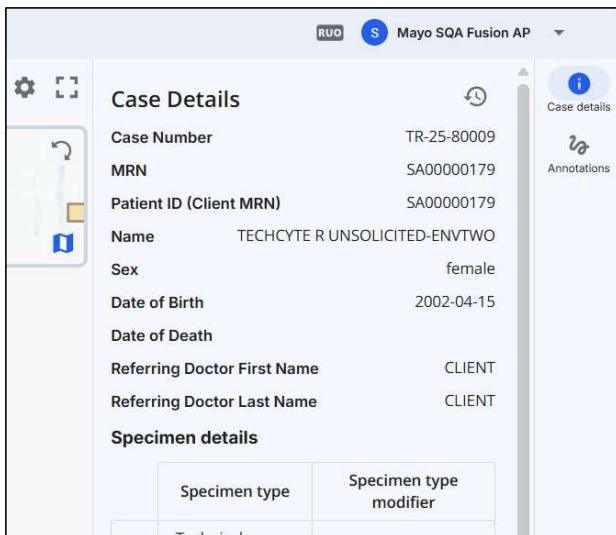
At the bottom of the panel is the **Next zoom level** drop-down menu (left), which offers various zoom options, including **Reset to default** at bottom (below).




Case Details panel

To view the details of a case:

1. Click the left arrow  below the **Dock** icon.
2. At the top of the screen, on the side where the panels are docked, click the **Case Details** button. 



The **Case Details** panel appears (left), providing a variety of information about the case. The **Case Details** button now displays the blue **Information** icon. 

Notes: The following sections and features are for internal use: Case Logs (clock icon at top right), **Tags**, **Block details**, **Slide details**, and **DICOM Metadata** link.

- The **Case Details** section shows the information seen in [Demographic Details](#), as well as the **Date of Death**, the referring doctor's last and first names, any **Tags** applied to this case, and any applicable **Tag notes**.

Case Details 🔄

Case Number	TR-26-80000
MRN	Q100541811
Patient ID (Client MRN)	C7234577-0014641
Name	TECHCYTE M ENVTWO
Sex	female
Date of Birth	1975-04-14
Date of Death	
Referring Doctor First Name	DIGPATH
Referring Doctor Last Name	TESTING

Tags

Tag notes

Enter tag notes here...

- The **Specimen details** section lists the **Specimen type** and, if applicable, the **Specimen type modifier**.

Note: The **Specimen type modifier** may be blank, depending on case type.

Specimen details

	Specimen type	Specimen type modifier
A	Technical Cut/Stain	
B	Technical Cut/Stain	

- The **Block details** section lists the **Block** and **Modifier**.

Block details

Block	Modifier
-------	----------

- The **Slide details** section lists the **Request type**.

Slide details

Request type

- The **Scan details** section lists the **Barcode** number, **Scanner** number, scan **Status**, **Request type**, and **Uploaded** date and time.

Scan details

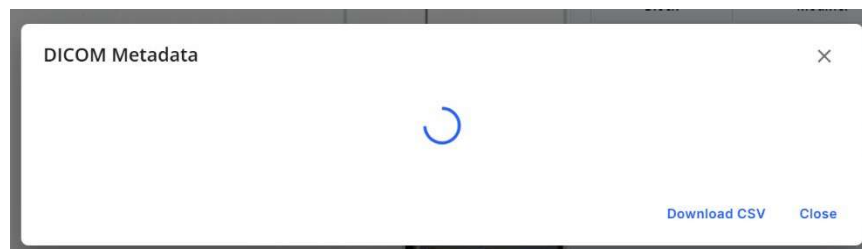
Barcode	TR-26-80000-A-1
Scanner	SS12198
Status	Processing complete
Request Type	.
Uploaded	1/28/2026, 12:34 PM

[DICOM Metadata](#)

- At the bottom of this section is the **DICOM Metadata** link.

Notes:

- This link does not appear for EM images.
- Clicking the **DICOM Metadata** link opens a pop-up window, but the window will not display .dcm slide attributes because it is for internal use only.



- At bottom right of the panel, click the **Download CSV** link [Download CSV](#) to download a file of DICOM metadata in comma-separated values format.

Demographic Details

At the top of the Image Window above the Slide Viewer are the Demographic Details:



- Mayo case number **TR-26-80000**
- Patient name **ENVTWO, TECHCYTE M**
- Mayo Medical Record Number (**MRN**) **MRN: Q100541811**, which is the Mayo Clinic Laboratories accession number
- Date of birth and sex **4/14/1975(F)**
- **Current age** **Current age: 50Y**
- **Age at collection** **Age at collection: 50Y**

This and other information can also be seen in the **Case Details** section of the [Case Details panel](#).

Slide Viewer navigation and tools

Zooming

To zoom in or out on the Slide Viewer:


- Scroll your mouse wheel up or down to zoom in or out, respectively.
- Use the **X**, **+**, or **Shift + →** keys to zoom in.
- Use the **Z**, **-**, or **Shift + ←** keys to zoom out.
- Double-click the image to zoom to the **Next Zoom Level**.
- On certain touch devices, pinch the screen to zoom in and out.

To reset **Zoom**, press your **0** key.

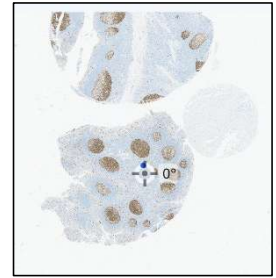
Panning

To pan an image in the Slide Viewer:

- Click and hold your left mouse button while dragging your cursor in the desired direction.
- Pan one full screen view Up (**W** or **↑**), Down (**S** or **↓**), Left (**A** or **←**), or Right (**D** or **→**).



- In Windows, click your mouse scroll wheel to activate auto-pan (right), then drag the cursor  without holding down the left mouse button to pan. Click the scroll wheel again to deactivate auto-pan. Toggle auto-pan on and off using your **L** or **Esc** key.

Note: A mouse with a scroll wheel that permits clicking is required for image panning in Windows.



Rotating an image

To freely rotate the image in the Slide Viewer, do one of the following:

- Click the **Rotation** icon  at top right of the [Minimap](#) and drag your cursor up or down.
- Hold down your **ALT** key and left mouse button, then drag your cursor in the desired direction.
- On a Macintosh computer, press your **Option** key. .

To reset **Rotation**, press your **0** key.

Image view panels

The three panels described below appear at either the top left or top right of the Slide Window.

To resize a panel, drag its bottom left corner inward or outward.

Minimap


The **Minimap** (right) provides an overview thumbnail of the image, as well as the following features:

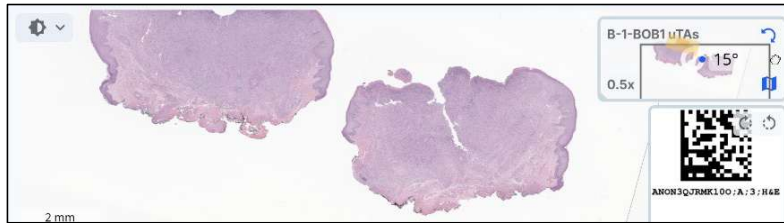
- The Mayo Clinic Laboratories block, slide, and stain code label.

A-1-PR-DfDx uT...





Note: The additional letters and numbers on the label after the stain name are for in-lab use only and refer to the control tissue used.

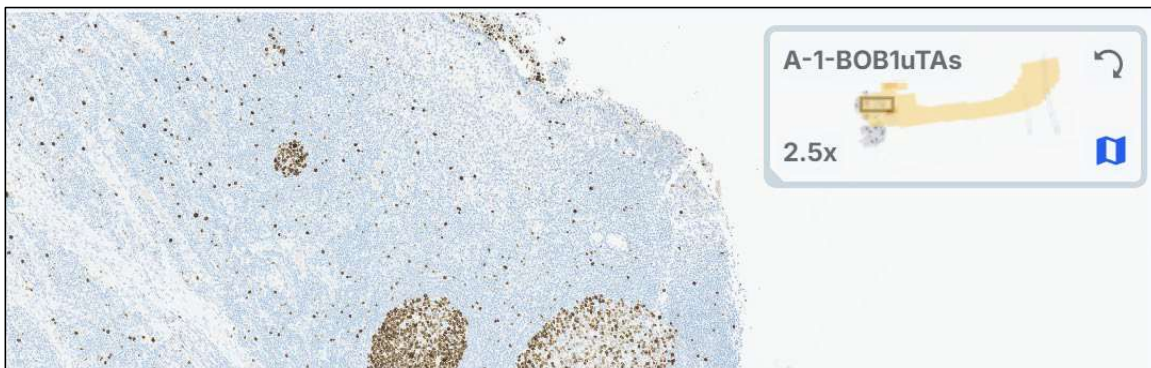
The **Rotation** icon.  To rotate the Slide Viewer image, click the icon, then hold down your left mouse button and either move your cursor as desired or press your **Alt** key.



- The current magnification. **0.63x** To increase or decrease the magnification, hover over the figure and select a new value from the drop-down menu (right).



- The heatmap toggle.  When heatmapping is on , all areas of the Slide Viewer image that you have already viewed are highlighted in yellow within the **Minimap**. This is much more apparent if you zoom in on the image in the Slide Viewer.

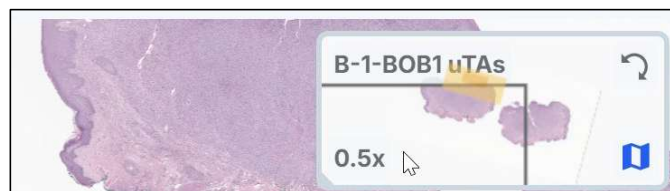


To toggle the heatmap off, click the icon again, or right-click it and select **Clear** (right).



To move a different region of the Slide Viewer image into view, do one of the following:

- Drag the black rectangle around the image thumbnail.



- Click the relevant area of the thumbnail within the **Minimap**.



To restore the default view in the Slide Viewer, press your **0** key.

Under the [Slide viewer settings](#) panel, toggle [Dynamic minimap size](#) on to resize the Minimap optimally for tissue scanned on a slide (right).



Label Image panel

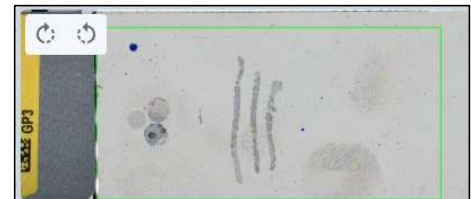
The **Label Image** panel (right) shows a photo of the scanned label.



You can rotate the label image 90° to the right or left by clicking the **Rotate right**  or **Rotate left**  icon, respectively. Click the opposite icon to undo the rotation.

Overview Image panel

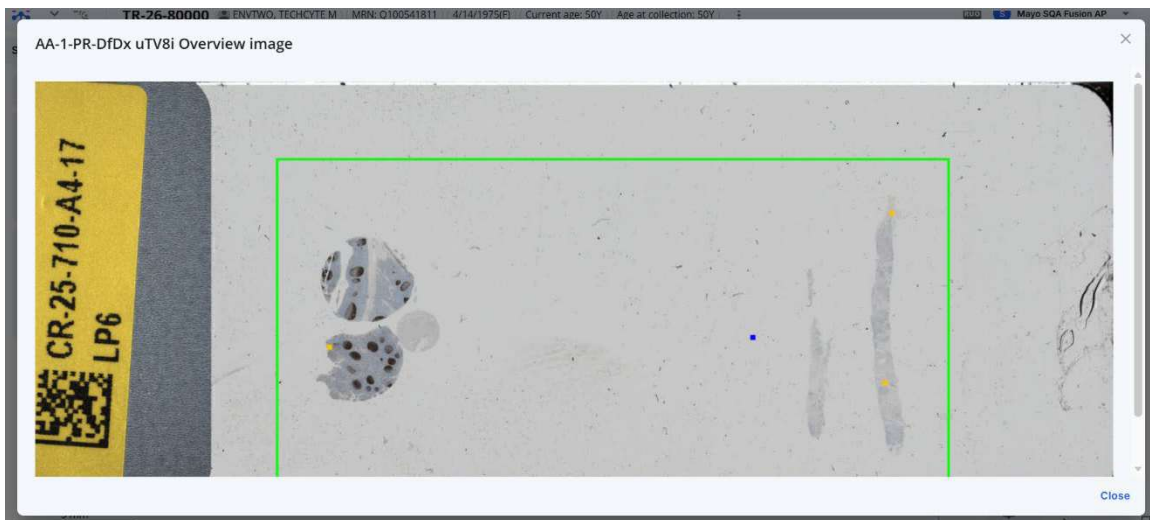
The **Overview Image** panel (right) shows the viewable scanned area of the slide in the Pathology Image Window. The thin green rectangle around the image thumbnail indicates the area of the slide that has been scanned.

To resize the panel, drag its bottom left corner inward or outward.



You can rotate the overview image 90° to the right or left by clicking the **Rotate right**  or **Rotate left**  icon, respectively. Click the opposite icon to undo the rotation.

To expand the panel to **Full Screen** mode, double-click it.



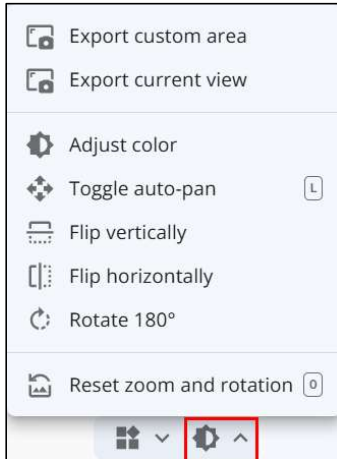
To move a different region of the slide image into view within the **Overview Image** panel, drag the thin green rectangle around the image thumbnail. To restore the default view in the panel, press your **0** key.


To restore the overview image to its original size and position, do one of the following:

- Click **Close** [Close](#) at bottom right of the expanded panel.
- Click the **X** at top right of the expanded panel (right).
- Press your **Esc** key.





Slide view tools



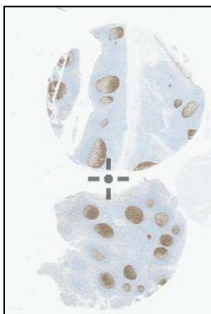
To open the **Slide view tools** panel (left), click the **Slide view tools** icon  at the top or bottom of the screen. The currently selected option replaces the **Slide view tools** icon above the panel.



From this panel, you can:

-  **Export current view** and **Export custom area**. See [Exporting images](#).
-  **Adjust color**. This option opens the **Adjust color** panel (left), where you can use sliders to adjust the **Brightness**, **Contrast**, **Saturation**, **Hue**, and **Gamma** of the slide image.



At the bottom of the panel, to undo your changes, click the **Reset** link. [Reset](#)


Note: Remember my settings is not available to non-Mayo users.

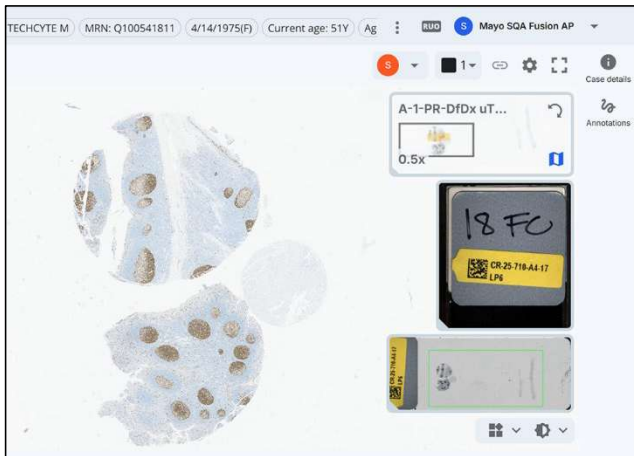


-  **Toggle auto-pan**. This option lets you pan the slide image without clicking your left mouse button. Your cursor changes to the crosshairs icon  (left). You can also access this option by pressing **L** on your keyboard.

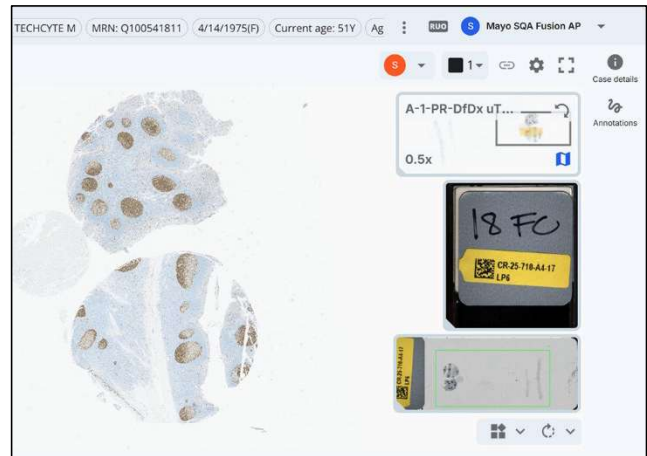
To change your cursor back to its regular appearance, press your **Esc** button.

-  **Flip horizontally** flips the slide image 180° on its horizontal axis.
-  **Flip vertically** flips the slide image 180° on its vertical axis.


-  **Rotate 180°** rotates the image 180°.

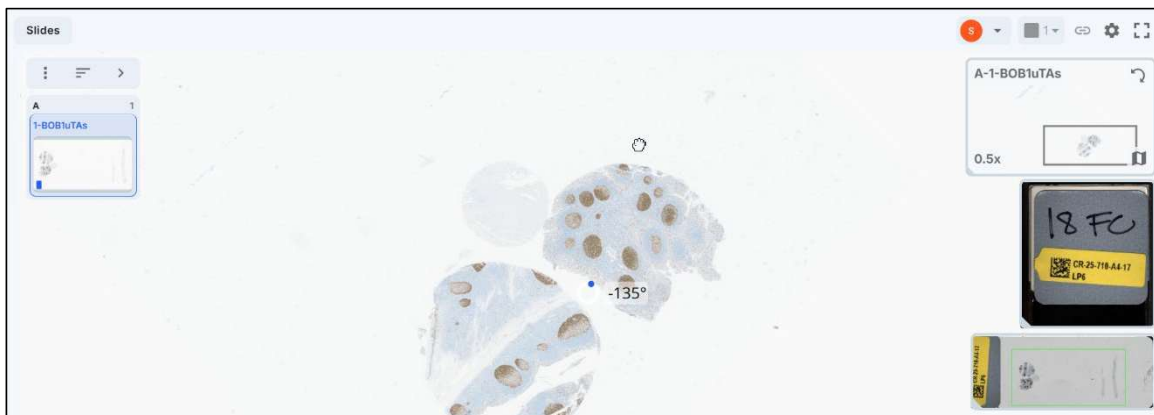



Unrotated



Rotated 180°


With this option selected, you can also hold down your **Ctrl** key and, when your cursor changes to a fist icon , freely rotate the image with your mouse.



-  **Reset zoom and rotation** restores the default zoom and rotation settings. You can also do this by pressing **0** on your keyboard.

Note: This option is available only after any of the changes described above have been made to the image.

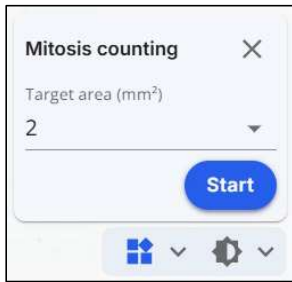
Mitosis counting

To the left of the [Slide view tools icon](#) is the **Flows** icon  (right). This functionality allows you to perform a mitotic count within 0.2, 1, or 2 square millimeters of tissue on a slide.



To count mitoses within an area of a slide:

1. Click the **Flows** icon. 

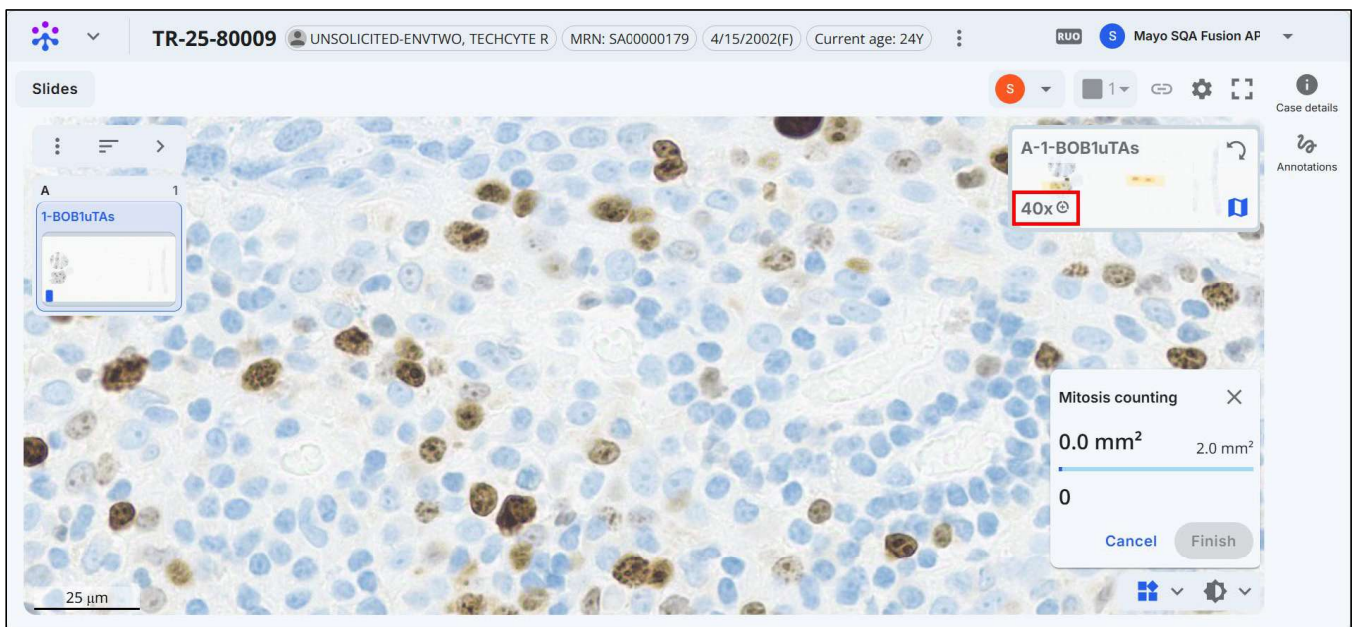


The **Mitosis counting** dialog box appears (left).

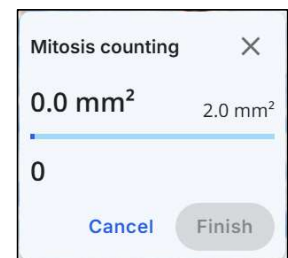
- From the **Target area (mm²)** drop-down menu (right), choose the area of tissue you want to review: **0.2**, **1**, or **2** square millimeters.
- At bottom right of the dialog box, click the **Start** button.




Your view immediately zooms to 40x...

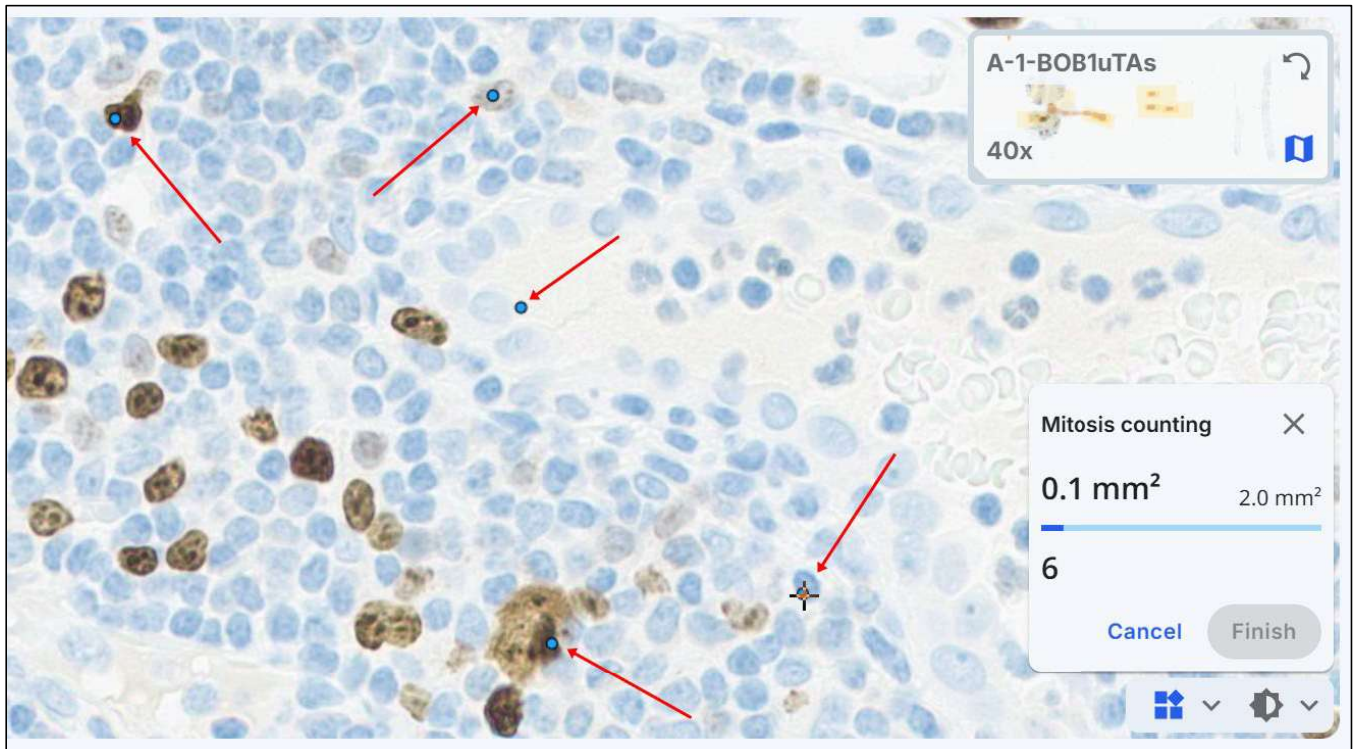


...and a progress bar appears in the **Mitosis counting** dialog box (right).

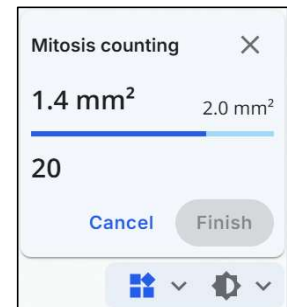


- Pan around the area of tissue in which you want to count mitoses.
Your cursor becomes a crosshairs with a blue dot behind it. ✚

5. Click on each mitosis you see, which leaves the dot  on that mitosis.




As you pan around the target area and add dots to mitoses, the **Mitosis counting** progress bar indicates how much area you have covered. Below it and to the left is a count of the dots (right).

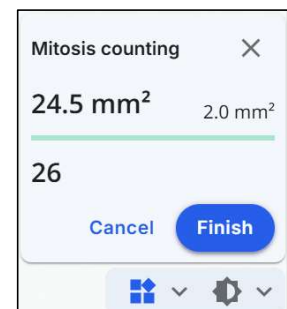


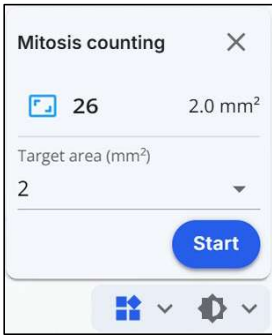
Area threshold reached

When you have assessed the entire target area, the **Area threshold reached** banner appears at the bottom of your screen (left)...

...the **Mitosis counting** progress bar shows that you have covered at least all of the target area, and the **Finish** button  is activated (right).

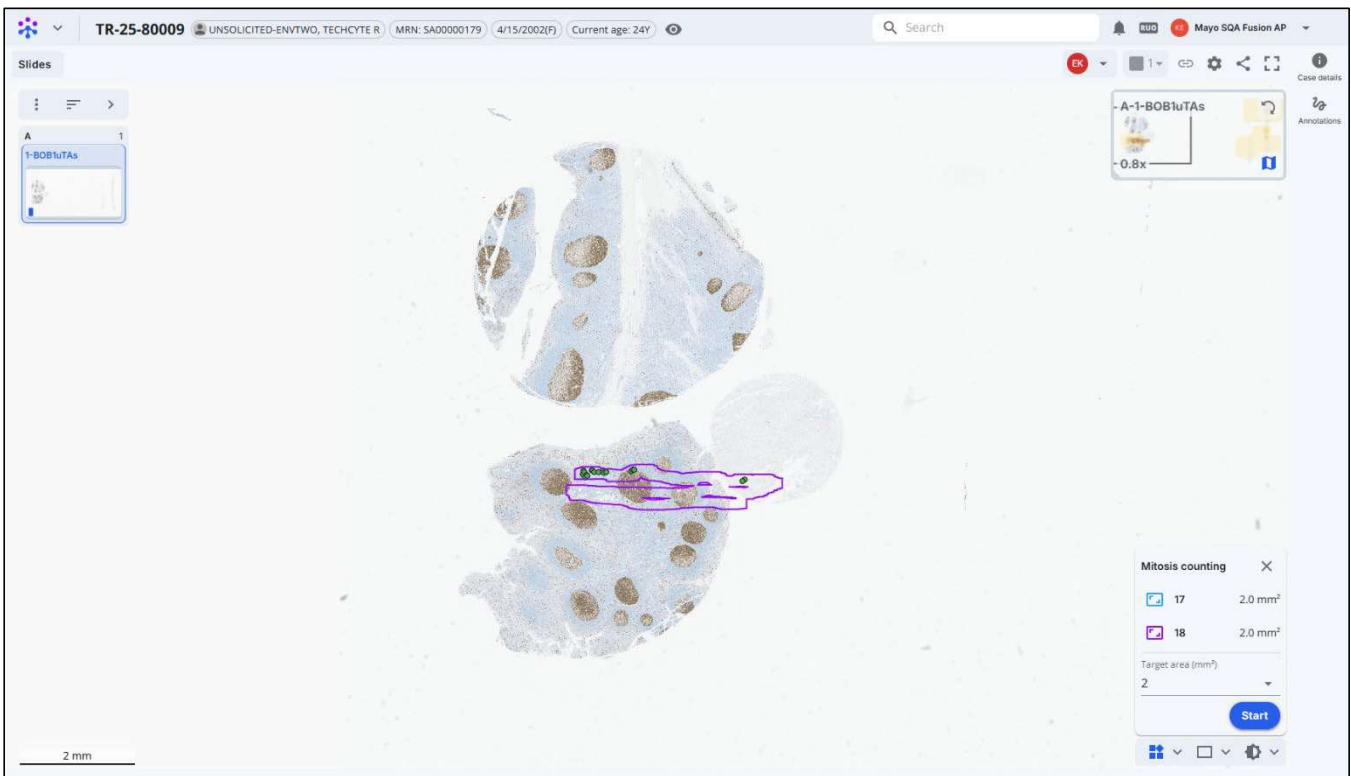
6. Click the **Finish** button.





The **Mitosis counting** progress bar disappears. The dialog box shows the final mitosis count to the right of the **Target area** icon. At right is the target area measurement. Below, you can select a new **Target area** and start counting again.

For multiple mitosis counts, the target areas are bordered in different colors, which correspond to those of the respective **Target area** icons in the **Mitosis counting** dialog box. In the screenshot below, the area with a purple border is represented by the purple **Target area** icon in the dialog box. The area with a blue border is not visible.



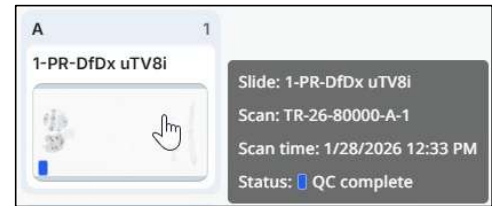
Slide Tray




The Slide Tray (left) displays block and slide information, as well as thumbnail images of all scanned slides for the order.

To display the previous or next slide image in the Slide Viewer, press your ← or → key, respectively.

Hover over a slide to bring up a tooltip showing the **Slide** number, **Scan** number, **Scan time**, and **Status** (right).




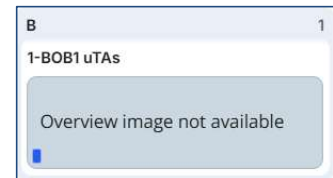
To display all slides in a traditional pathology slide flat view, click the up-arrow icon  to **Expand** the Slide Tray (below).



Note: This option is available only when the Slide Tray is in the **Horizontal** position (see below).

Click the left-arrow  to **Collapse** the slides again.

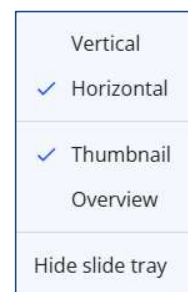
Note: If an image has been deleted from active storage, its slide displays the **Overview image not available** message (right). The slide may be represented on the Slide Viewer with the following icon: , which indicates the image is no longer available.



Slide Tray menu

Click the ellipsis icon  to bring up the Slide Tray menu (right), which provides options to:

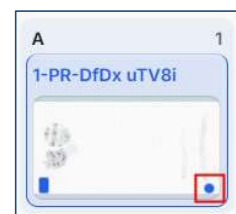
- Dock the Slide Tray in the **Vertical** (default) or **Horizontal** position.
- Display **Thumbnail** or **Overview** images in the Slide Tray.
- **Hide slide tray**.



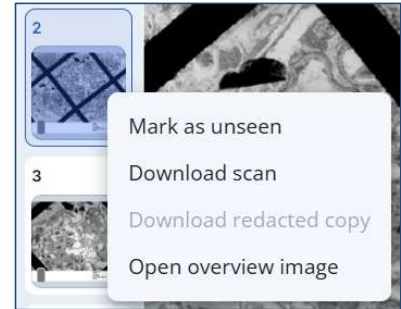
Right-click a thumbnail image in the Slide Tray to bring up a pop-out menu with several options, depending on image type:




- For H&E and IHC slides (left):
 - **Mark as unread** returns the slide to unviewed status, as indicated by a blue dot on the slide (right).



- **Open overview image** opens the [Overview image panel in Full Screen mode](#).
- For EM and IF slides (right):
 - **Mark as unseen** returns the slide to unviewed status, as indicated by a blue dot on the slide (see previous page for close-up screenshot).
 - Note:** The slide is marked as unseen only for the duration of the Fusion AP session.
 - **Download scan** allows you to [download the scanned image locally](#).
 - **Download redacted copy** is greyed out and can be ignored.
 - **Open overview image** opens the [Overview image panel in Full Screen mode](#).





Click the **Sort By** icon  to bring up the **Sort By** menu (left). Here, you can sort slides by **Block**, **Stain**, or whether the slide is **Unviewed**, as well as in **Ascending** or **Descending** order.

To restore the default **Block** sort order, click **Reset Sort**.

Select Multi-slide

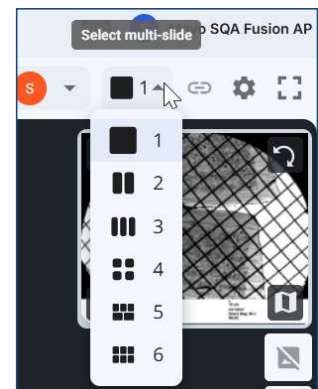
To display multiple slides in the Slide Viewer:


1. At top right, between your user icon and the gear icon, click the triangle  to the right of the **Select Multi-slide** icon  1.

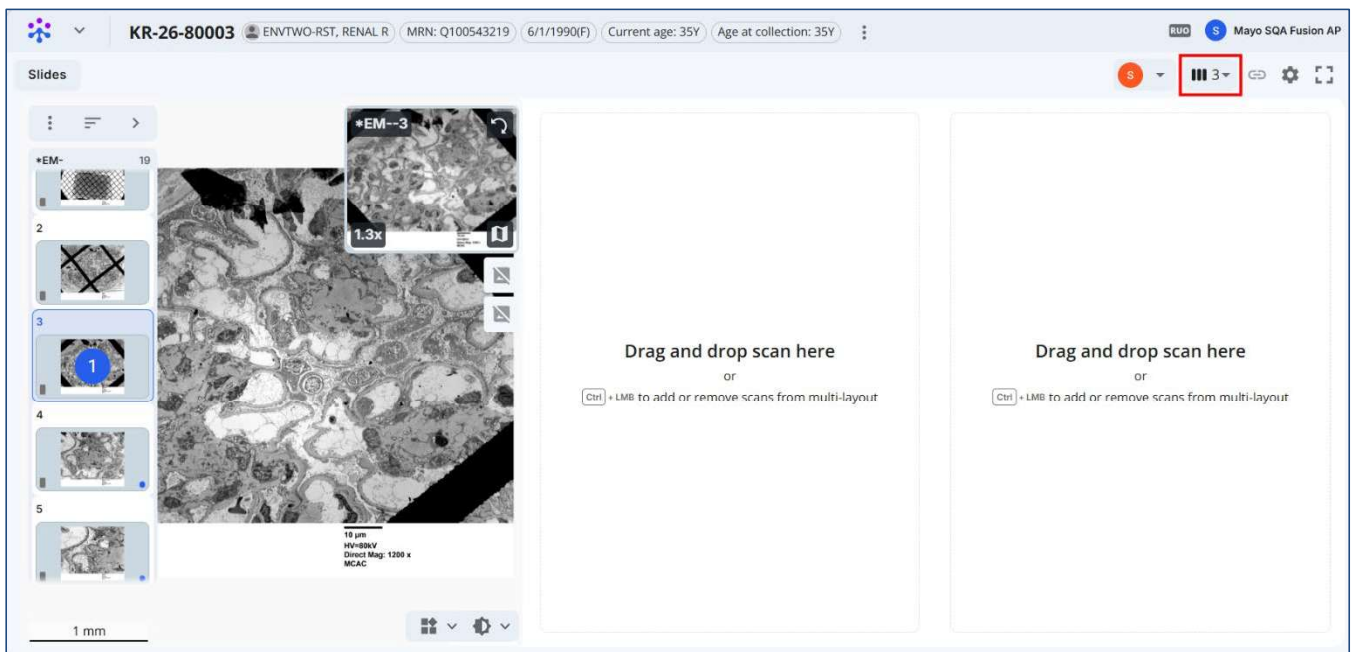
A drop-down menu appears, offering the options to display two to six slides concurrently (right).

2. Select the desired number of slides.

For each additional slide you choose to display, a **Drag and drop scan here** pane appears in the Slide Viewer to the right of the default single slide.

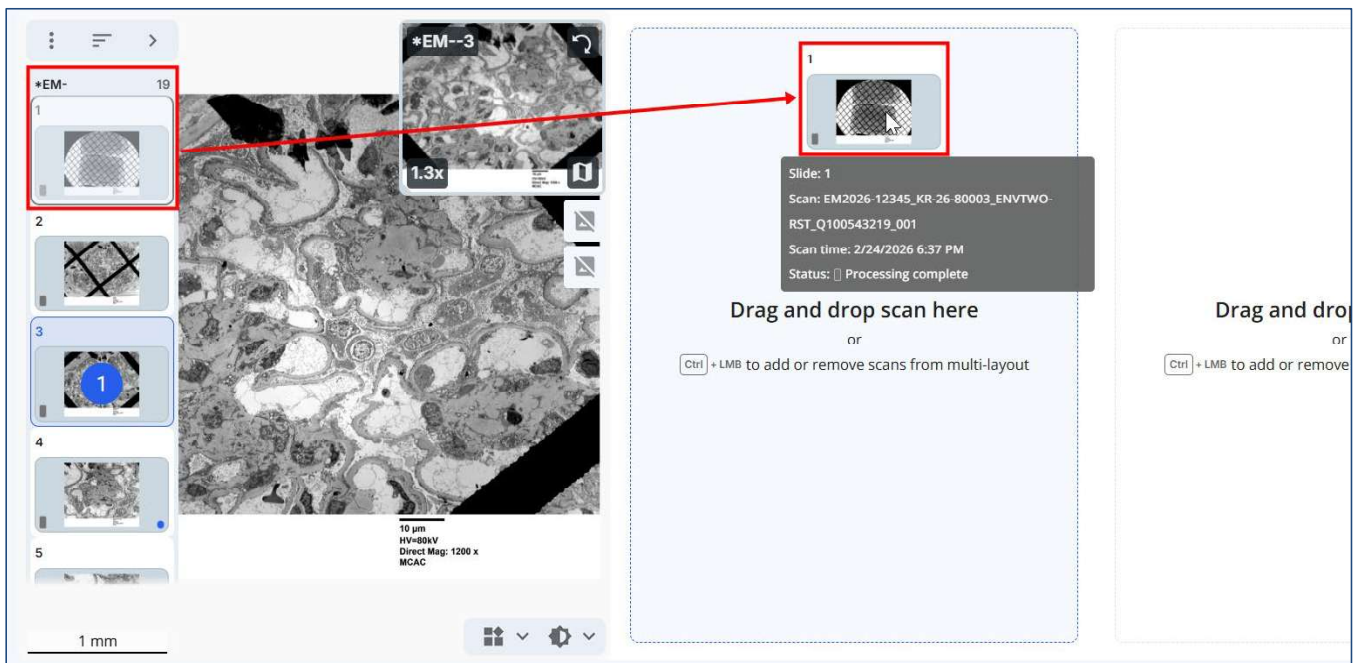


In the screenshot below, the user has chosen to display three slides, as indicated by the **3** icon  in the **Select Multi-slide** menu at top right. Therefore, in addition to the default Slide Viewer pane, two more panes appear into which slide thumbnails can be dragged and dropped.



3. Do one of the following:

- Drag the image thumbnail of each slide you choose to display into one of the **Drag and drop scan here** panes.



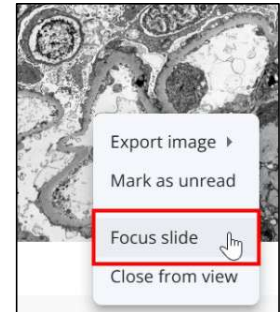
- Hold down your **Ctrl** key and select multiple slides from the [Slide Tray](#).


- Hold down your **Ctrl** key and your left mouse button, and then click a thumbnail in the [Slide Tray](#) to add the slide to the next or last **Drag and drop scan here** pane.

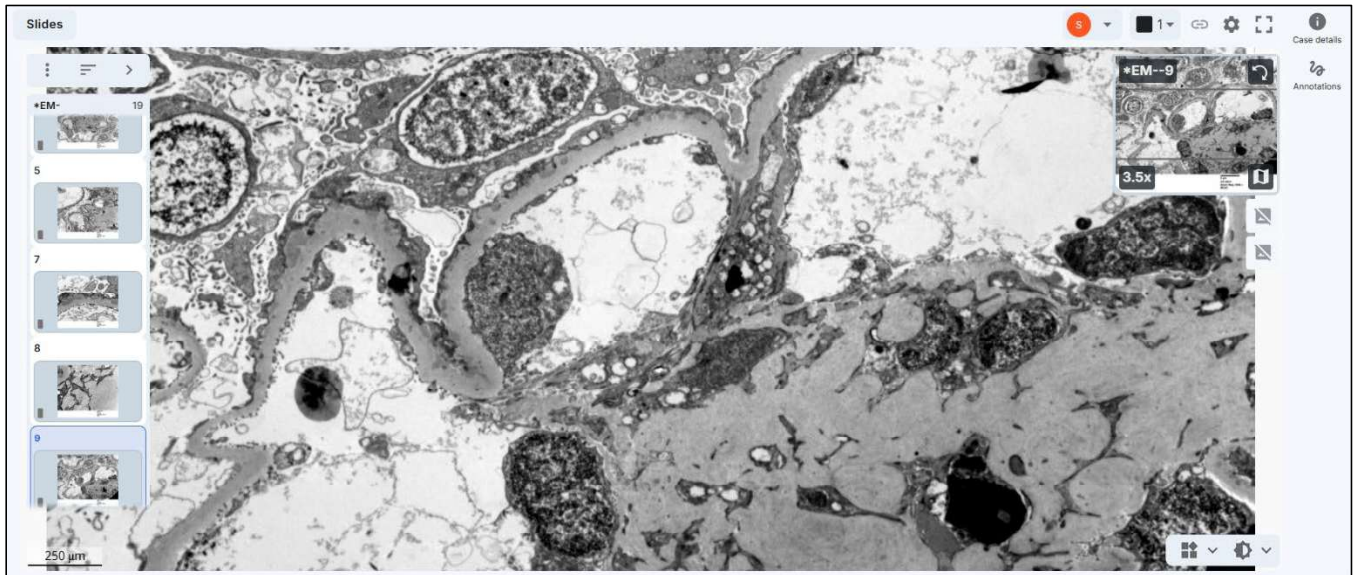
A white number in a blue circle **1** appears on each thumbnail displayed in the Slide Viewer (right), indicating its order on the screen.



To enlarge one of the displayed slides, right-click the pane and, from the pop-out menu, select **Focus slide** (right).

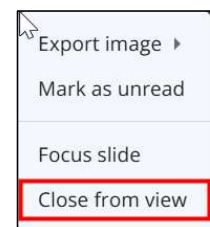


The slide expands to fill the entire Slide Viewer and is closely zoomed in on. The **Select multi-slide** menu displays the **1** option  **1** again.




To close one or more panes, do one of the following:


- Right-click the pane and, from the pop-out menu, select **Close from view** (right).
- Deselect each slide from the Slide Tray by clicking it.




To return to **Single Slide** view mode, do one of the following:

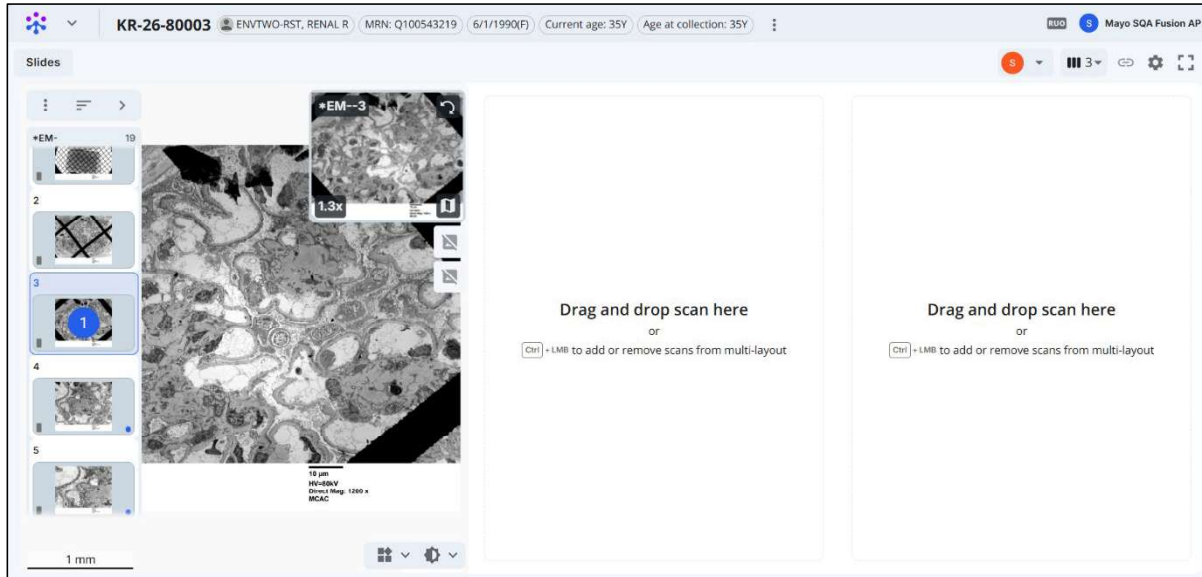
- Select the **1** option  **1** in the **Select Multi-slide** menu.
- Deselect slides from the Slide Tray by clicking them.

Link slides

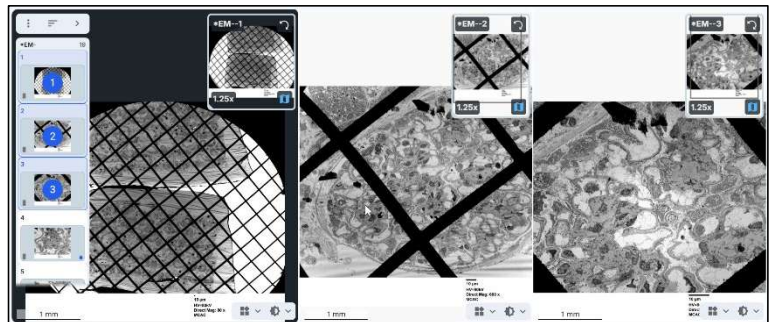
The **Link slides**  functionality at top right of the Image Window (right) is for use in conjunction with **Select Multi-slide**. If you are viewing multiple slides from the same block at once, clicking the **Link slides** icon allows Fusion AP “syncs” the images together, so that you can move, resize, or rotate them simultaneously.



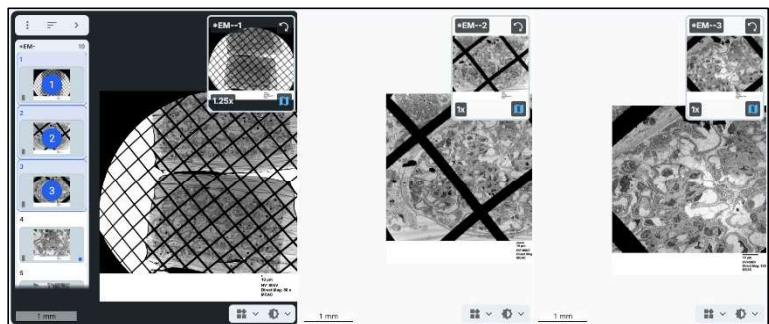
The clicked icon turns **blue**  (below, red rectangle), and link lines appear in all slides displayed except for the default one (below, red arrows).



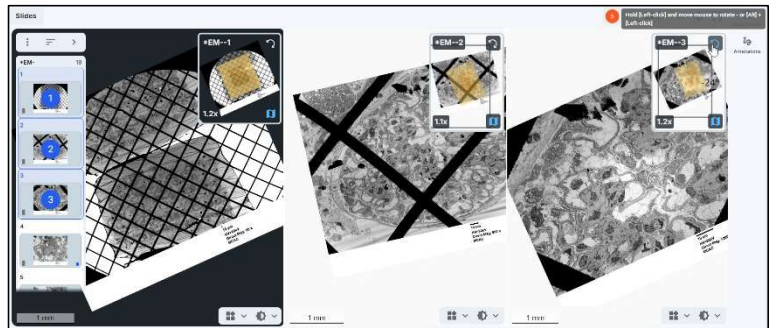
All displayed images will move together when you move one of them...




...be resized simultaneously when you resize one of them...

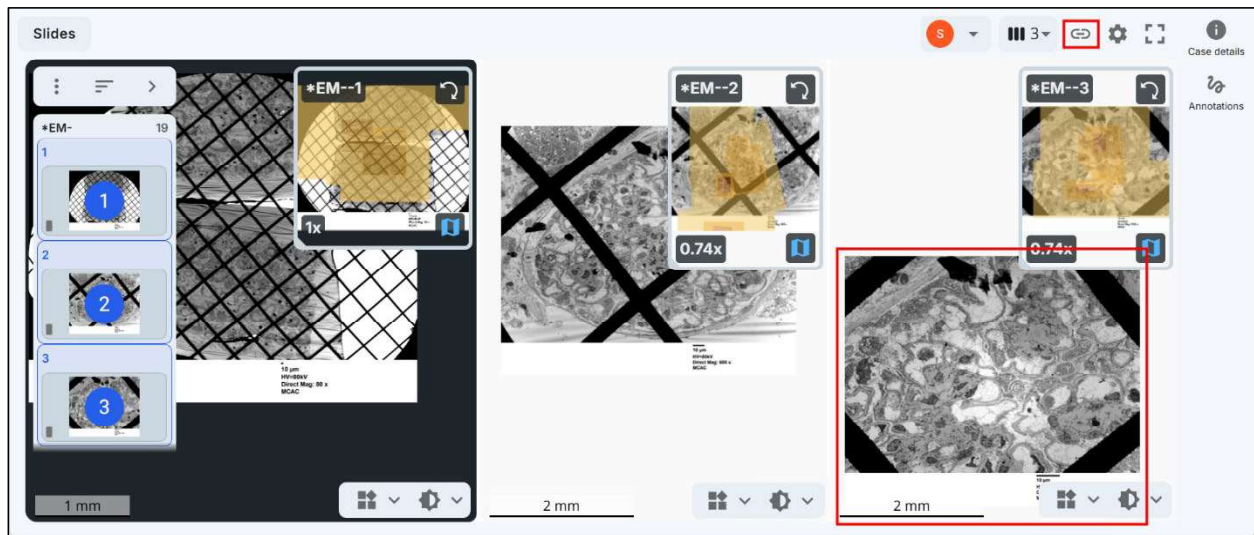


...and rotate simultaneously when you rotate one of them.




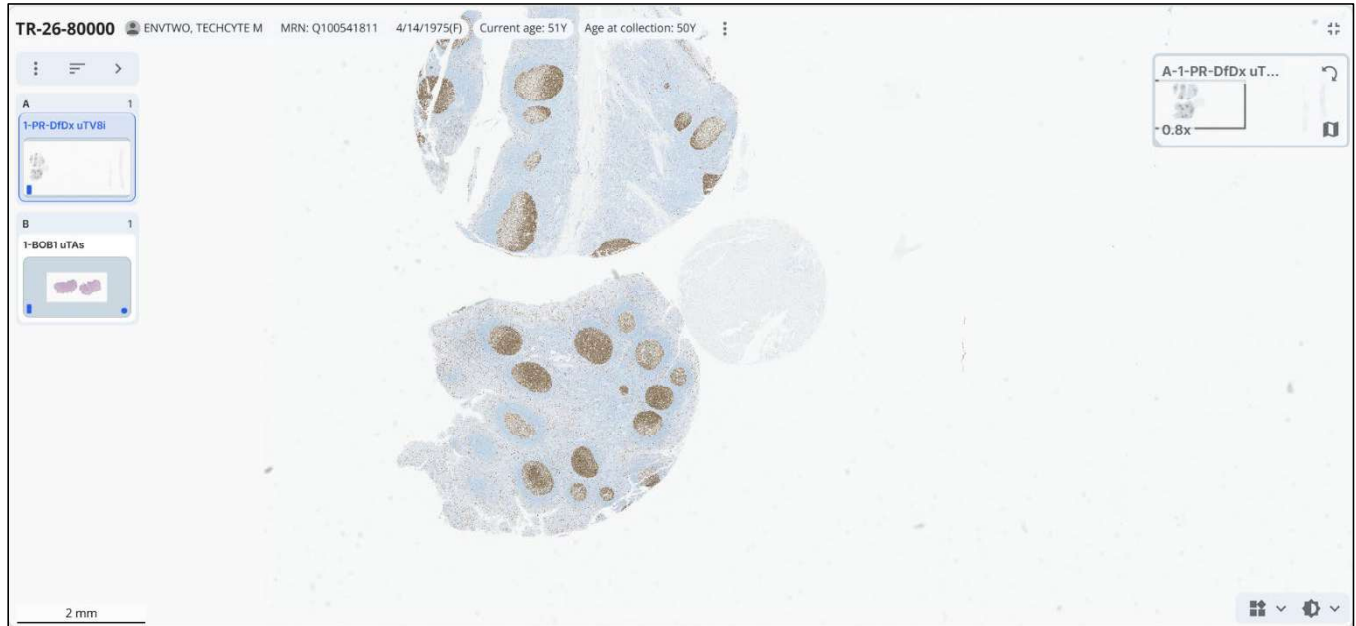
You can also undo these changes in tandem. For example, when slides are linked and then rotated, pressing your **0** key returns them to the default angle.

To unlink the slides, click the **Link slides** icon. It turns back to its default gray , and you can now adjust one of the images without affecting the others.



Toggle Full Screen

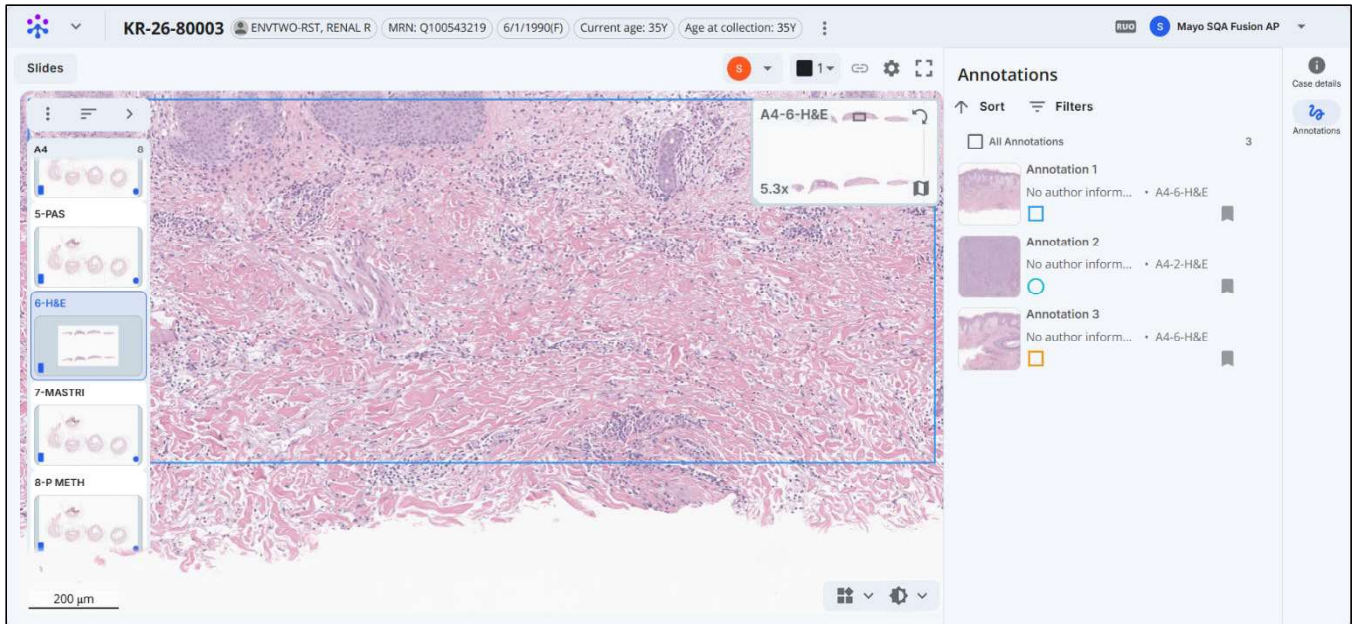
At top right, to the right of the gear icon, click the **Toggle Full Screen** icon  to toggle the top-row features and side panels of the Slide Viewer in and out of sight. The Demographic Details still appear at the top, overlying the slide image.



To return to the default view, click the **Exit Full Screen** icon  at top right.

Annotations

Fusion AP allows you to view Annotations made on slides in Renal Pathology cases by Mayo Clinic Laboratories pathologists.



Note: Mayo Clinic Laboratories does not make annotations on H&E or IHC images.

Annotations panel

Right-click the Slide Viewer or click the **Annotations** button  at top right to open the **Annotations** panel within and to the side of the Slide Viewer.

Sort or Filter Annotations

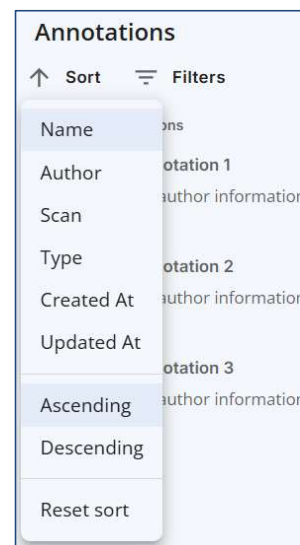
The **Annotations** panel provides various **Sort** and **Filter** options.

You can **Sort** Annotations (right) by any one of the following:

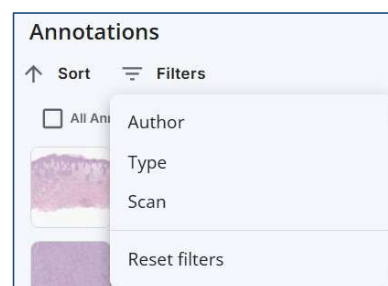
- **Name**
- **Author**
- **Scan**
- **Type**
- **Created at**
- **Updated at**

You can then sort secondarily by **Ascending** or **Descending** order.


To return to the default **Sort** order, select **Reset sort**.





Under **Filters** (right), you can choose **Author**, **Type**, or **Scan**. To undo your filtering choices, select **Reset Filters**.



Showing and hiding Annotations

To **Hide** a specific Annotation in the Slide Viewer, click the eye icon  to its right in the **Annotations** panel (right).

The Annotation is hidden, and the icon changes to a slashed eye. 

To **Show** that Annotation again, click the icon again. It changes back to the default eye icon  (right), and the Annotation appears again in the Slide Viewer.





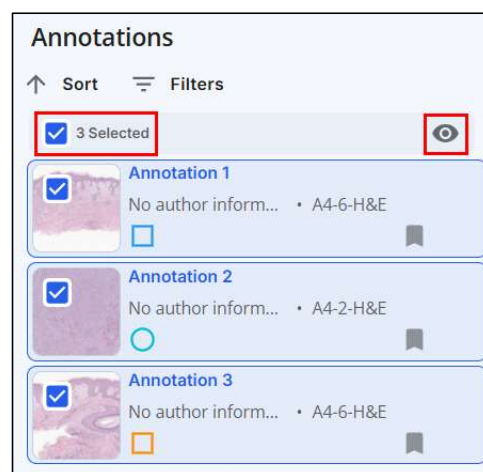
To **Hide** or **Show** multiple Annotations in the Slide Viewer, check their boxes on the image thumbnails in the **Annotations** panel (left), then click the eye icon at top right.

Above the list of Annotations, the phrase **All Annotations** changes to **x Selected** (right), with x being the number of selected Annotations. If you did not select all Annotations, a minus sign icon appears in the check box.



To **Hide** or **Show all** Annotations in the Slide Viewer, check the **All Annotations** box. All Annotations

The phrase **All Annotations** changes to **x Selected** (right), with x being the total number of Annotations on this case. The box to its left is checked.

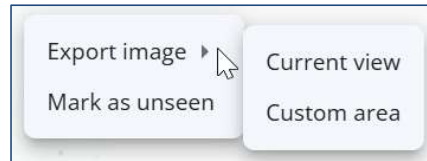


Exporting images

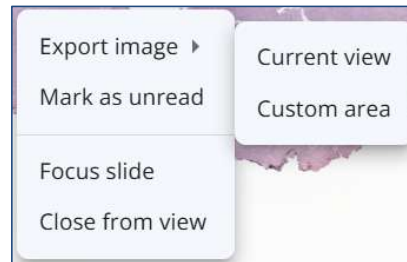
To save a snapshot of a pathology whole-slide image:

1. Do one of the following:
 - Right-click on one of the following:
 - Anywhere on the Image Window.
 - The desired image pane, if you are [displaying multiple images](#).

A pop-up menu appears.



Right-clicking anywhere on the Image Window



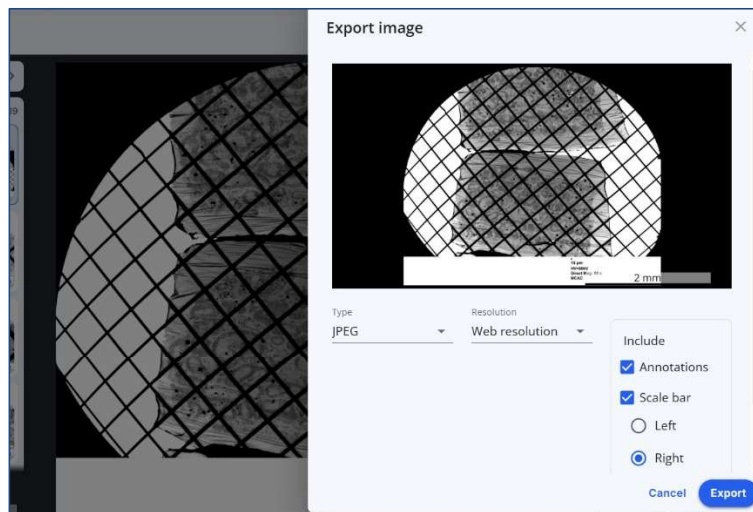
Right-clicking on an image pane

Choose **Export Image**, and then either **Current View** or **Custom Area**.

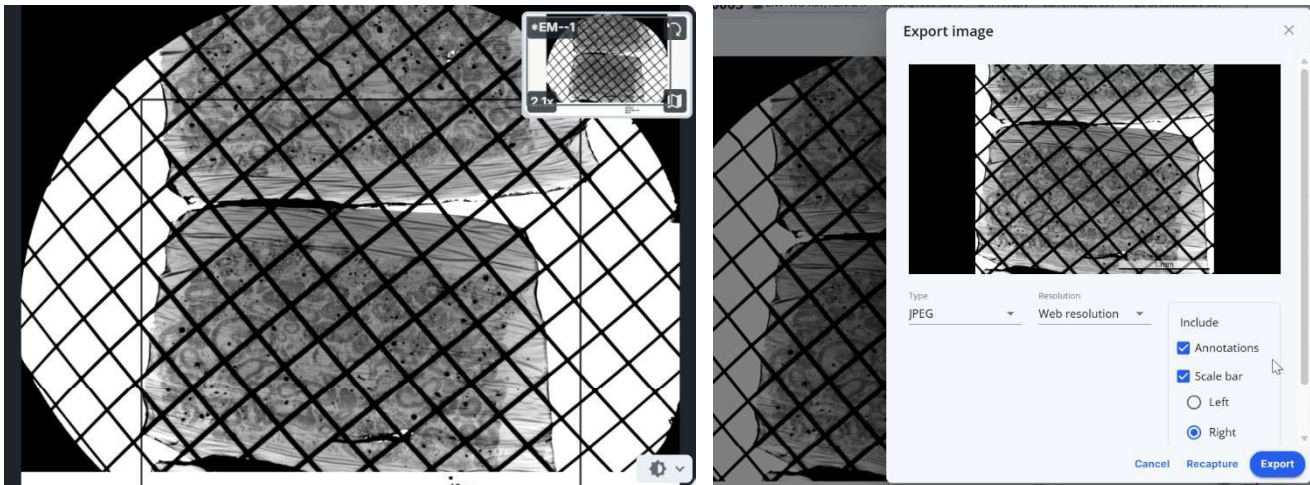
- In the [Slide view tools panel](#), select either **Export current view** or **Export custom area**.

Current View selects the slide image area currently visible in the Image Window.

Below is an example of how the image appears in the [Export Image window](#).



If you select **Custom Area**, left-click the slide image area and drag your cursor to select a portion of the visible image area (below, left). That portion then appears in the [Export Image window](#) (below, right).



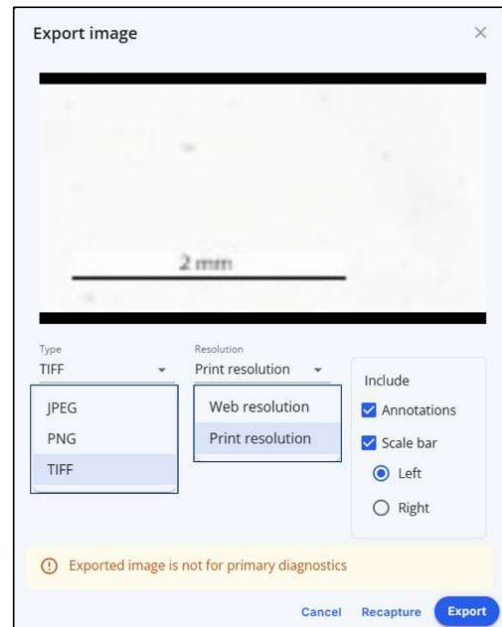
As mentioned in the previous step, once an area is selected for saving a snapshot, the **Export Image** window appears (right).

2. In the bottom half of this window:
 - a. From the **Type** drop-down menu, select **JPEG**, **PNG**, or **TIFF** format.
 - b. From the **Print Resolution** drop-down menu, select **Web resolution** or **Print resolution**.

- **Web Resolution** creates an image at the same resolution in microns per pixel (mpp) as one captured by a scanner at your current zoom level.
- **Print Resolution** creates an image five times the resolution of one captured by a scanner at your current zoom level, up to the scanner's maximum of 40× the mpp of the original captured image.

For example, if each pixel represents 0.25 μm , the resulting image is much sharper than would be the case if each pixel represented 1.25 μm .

- c. Under **Include**, check or uncheck the boxes to respectively:
 - i. Include or exclude **Annotations**.
 - ii. Dock or not dock the **Scale bar**. If you choose to dock it, select either the **Left** or **Right** radio button.

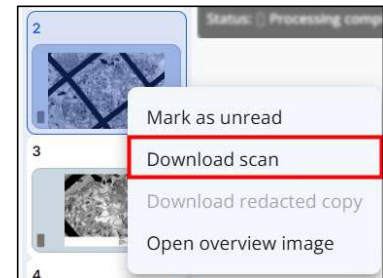


d. At bottom right, do one of the following:

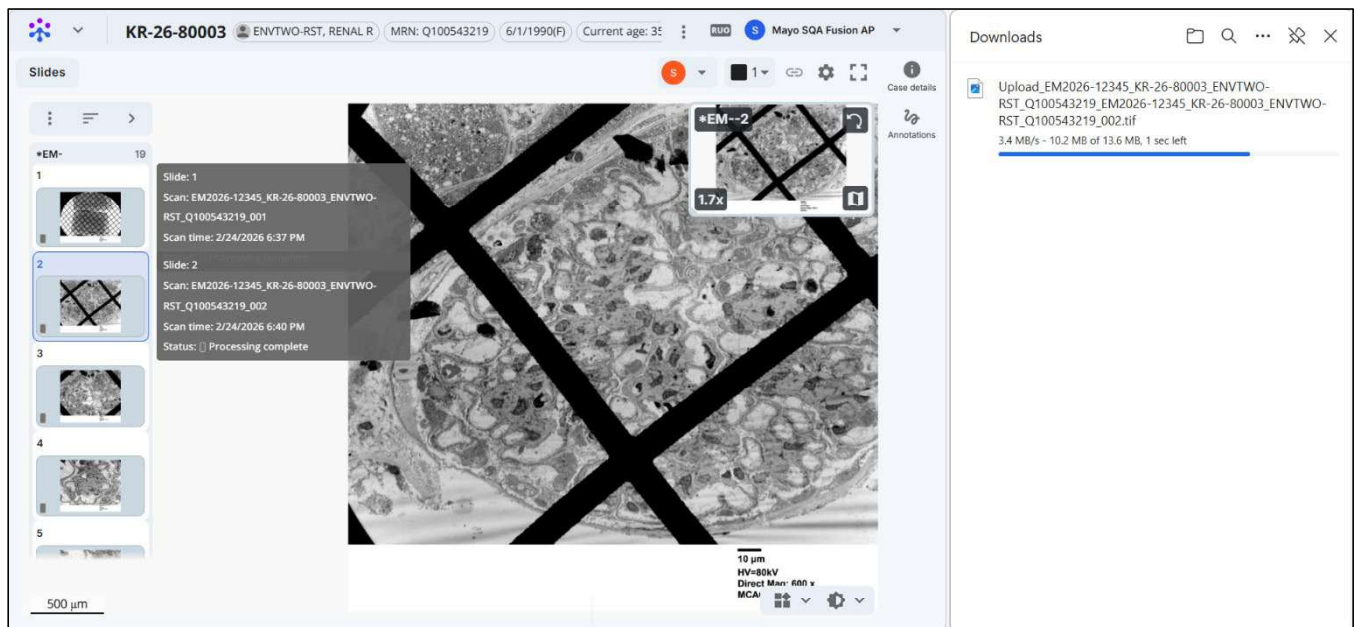
- **Cancel** the snapshot.
- **Recapture** the snapshot.
- **Export** the snapshot to the local **Downloads** folder on your PC.

Downloading files

To download EM and IF images for Renal Pathology cases in their native file formats or sizes, right-click the thumbnail image in the Slide Tray and choose **Download scan** (right).



The image downloads to your PC.



Note: This functionality is offered only for EM and IF images due to their small file sizes. Whole-slide images, which are 1 GB each, must be snapshotted instead.

Frequently asked questions

For a list of FAQs about Techcyte Fusion, go to the [IHC Stains](#) page on MayoClinicLabs.com.



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