

Microscopy Viewer Instruction Memo

As of 8/10/2020



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Basic Navigation

a. Front Page

The front page of the Microscopy Viewer features a navigation bar, introductory statement and splash image. It can be found [here](#). To view all the different systems that the Microscopy Viewer currently has slides to view, simply scroll down the page and click on a selected organ.



1. Navigation Bar:



The navigation bar is home to the University of South Florida (USF) button, Home button and About button.

1. USF button:



The University of South Florida text is a button that can be clicked to navigate to the <https://health.usf.edu/> website from the Microscopy Viewer.

2. Home Button:



The Home button takes the user back to the front page of the website from anywhere not within a viewer page.

3. About Button:

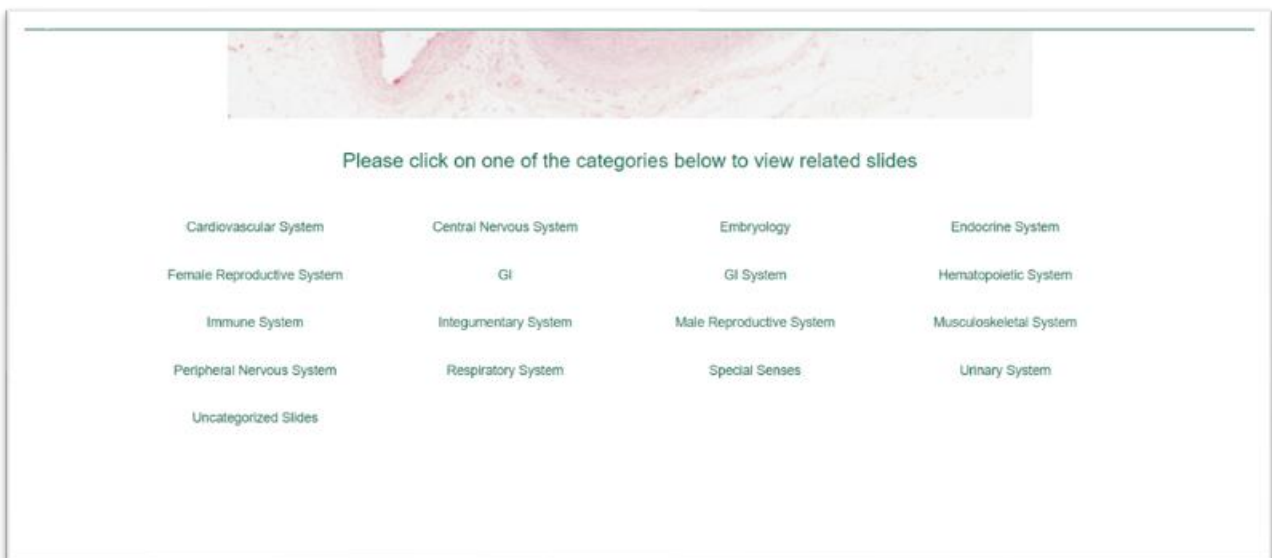


The About button takes the user to a page that describes the usage and development of the Microscopy Viewer.

i. **Categories:**

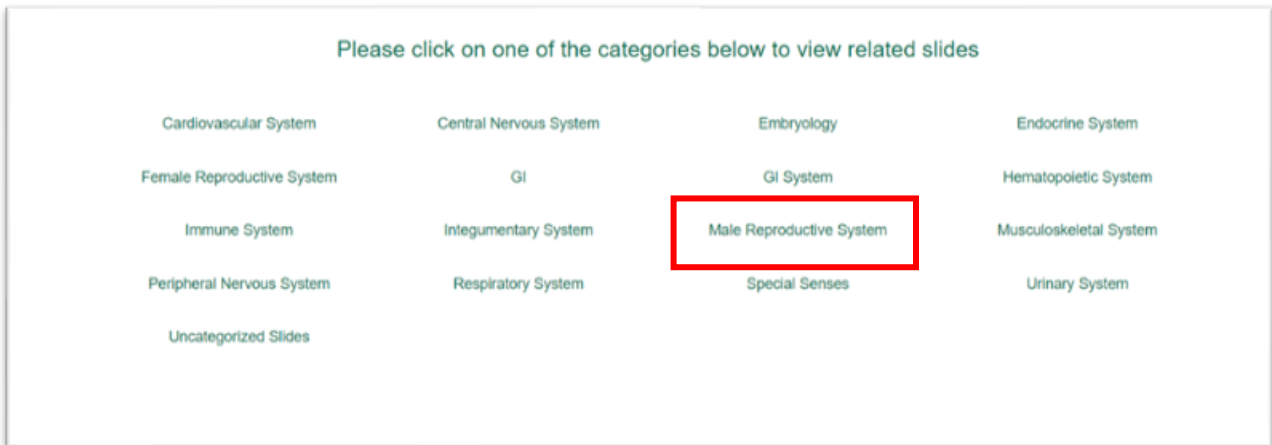
On the front page, there exists a list of all systems that the Microscopy Viewer currently has slides to view from.

1. Bookmarks:

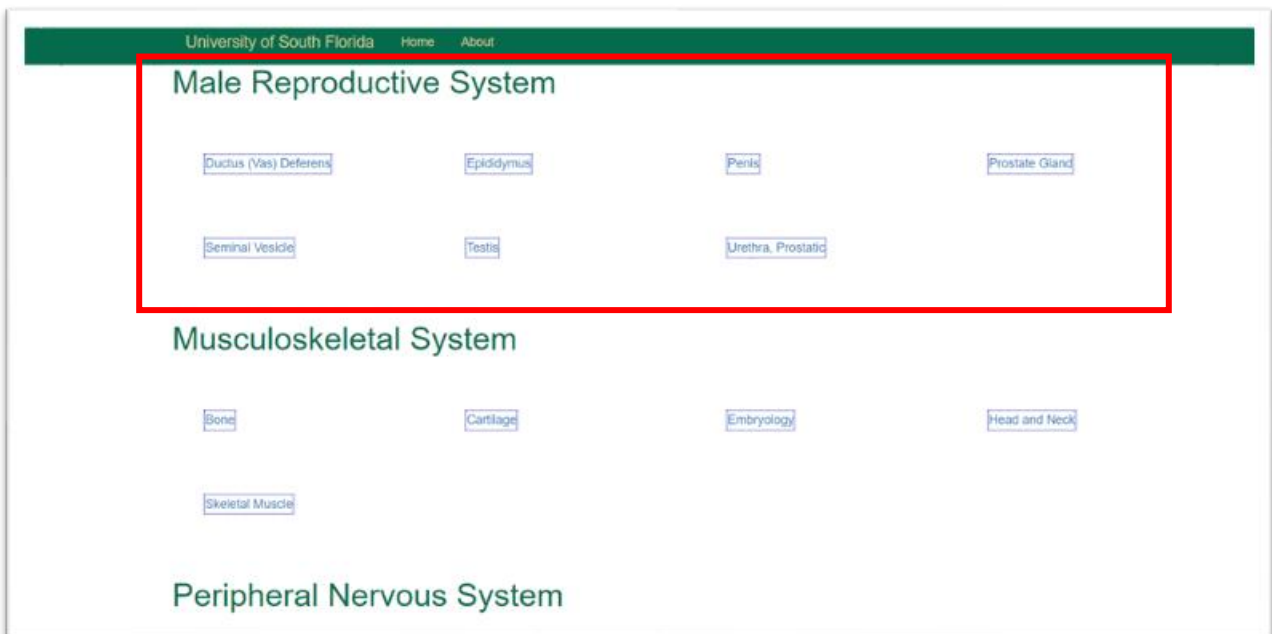


There are currently 16 systems that the Microscopy Viewer covers.

2. Navigation:

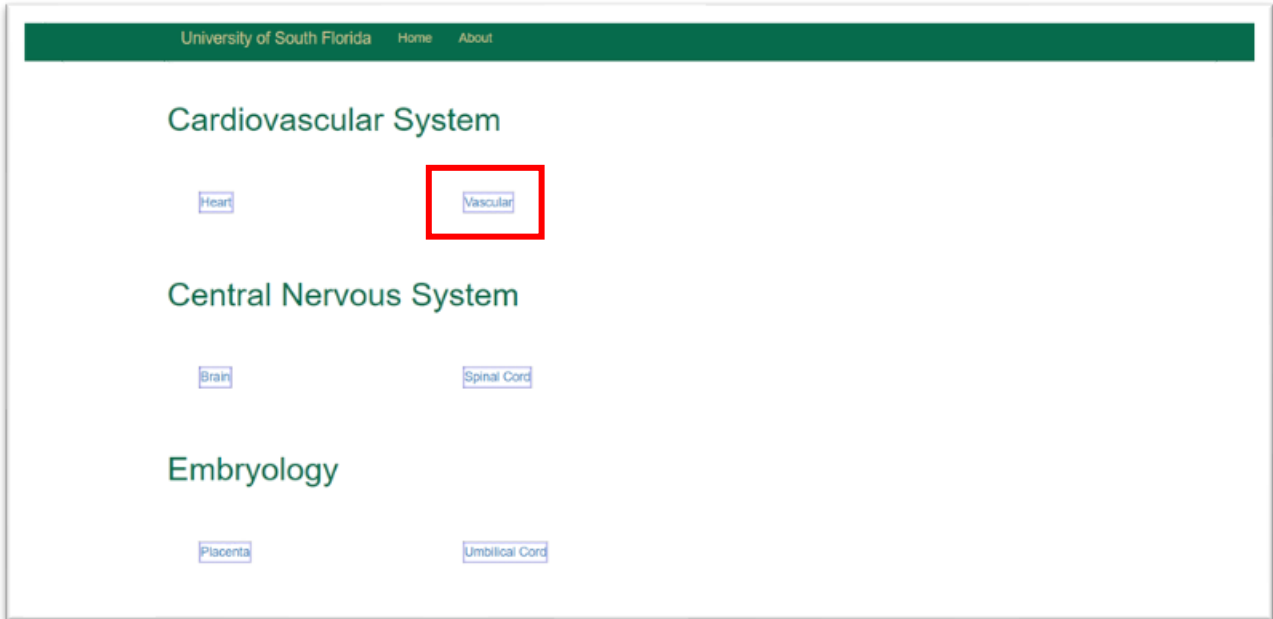


Clicking on any of the systems in the above picture will bring the user to that specified system on the webpage. For example, if we were to click Male Reproductive System, then the webpage will move to have the Male Reproductive System section at the top of the page.



3. Intro to Viewer:

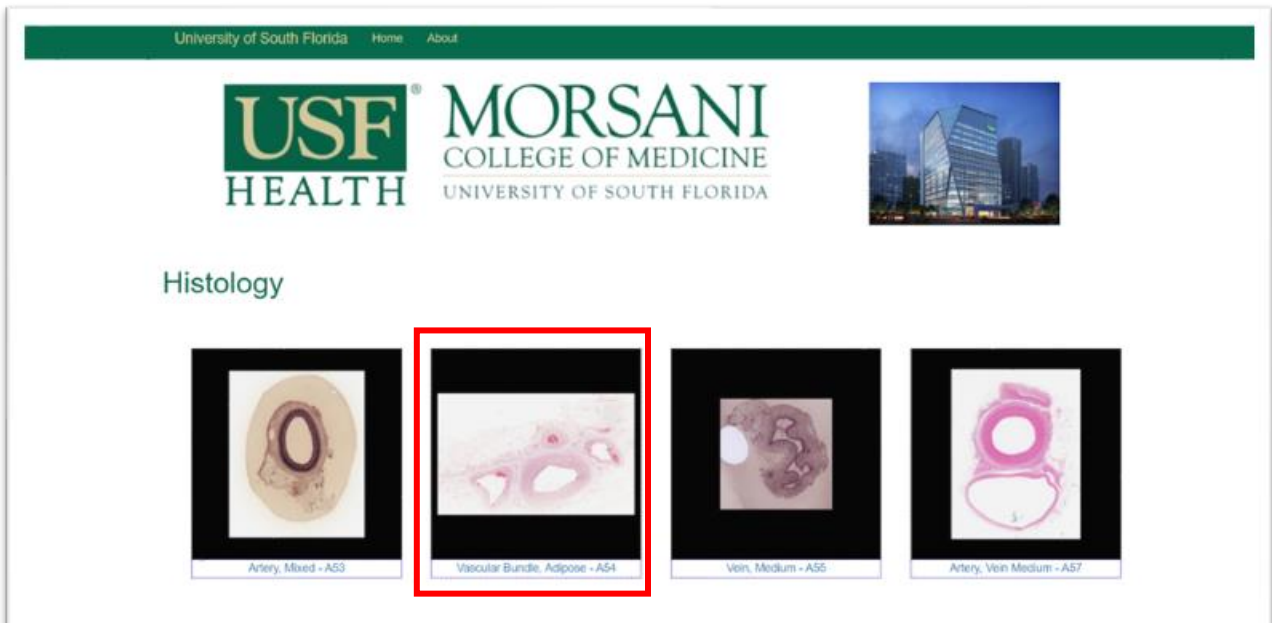
To access the viewer, the user will begin to navigate to their chosen category, through either the bookmark system highlighted on page or through scrolling down on the first page. As an example, we will navigate to slide A54 – Vascular Bundle, Adipose; which belongs to the Vascular section under the Cardiovascular System.



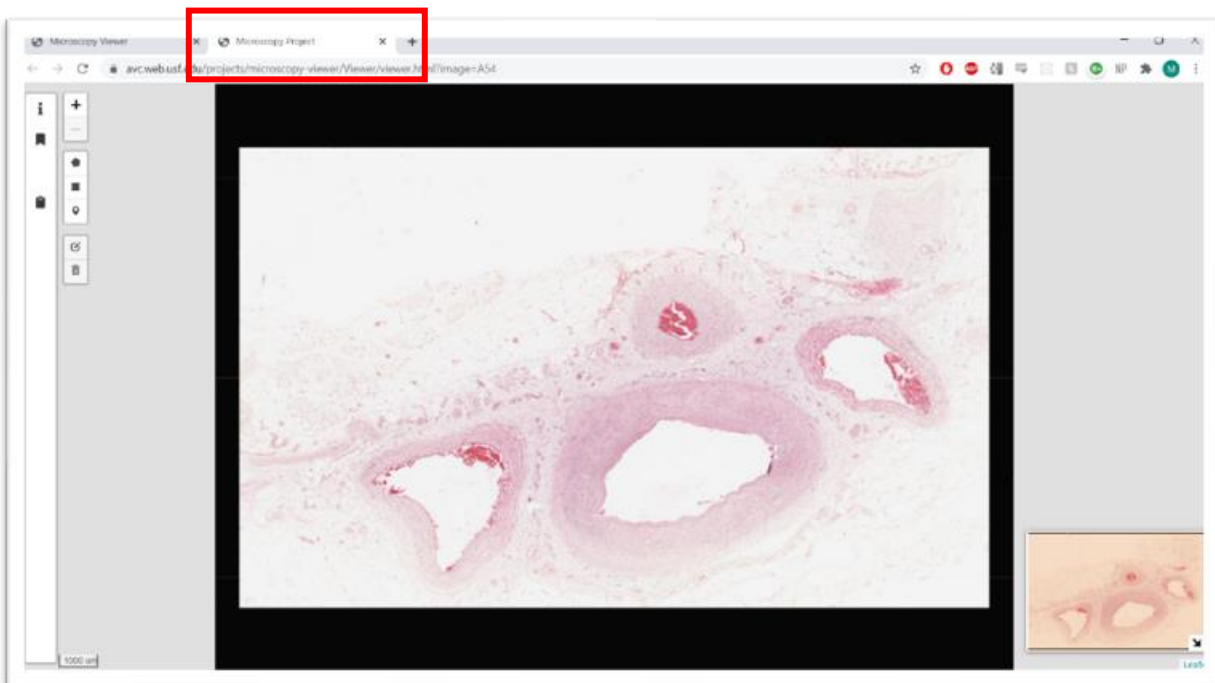
First we navigate to the Cardiovascular System on the front page. We will click on the Vascular button, which will take us to the Vascular page.



From here, we will click on Histology, which is the currently the only folder under Vascular.



On the Histology page, we can see all of the slides that pertain to the Vascular section. Clicking on any of the slides will open the viewer in a new tab, saving the current organ selection. We will click on slide A54 to open it in the viewer.



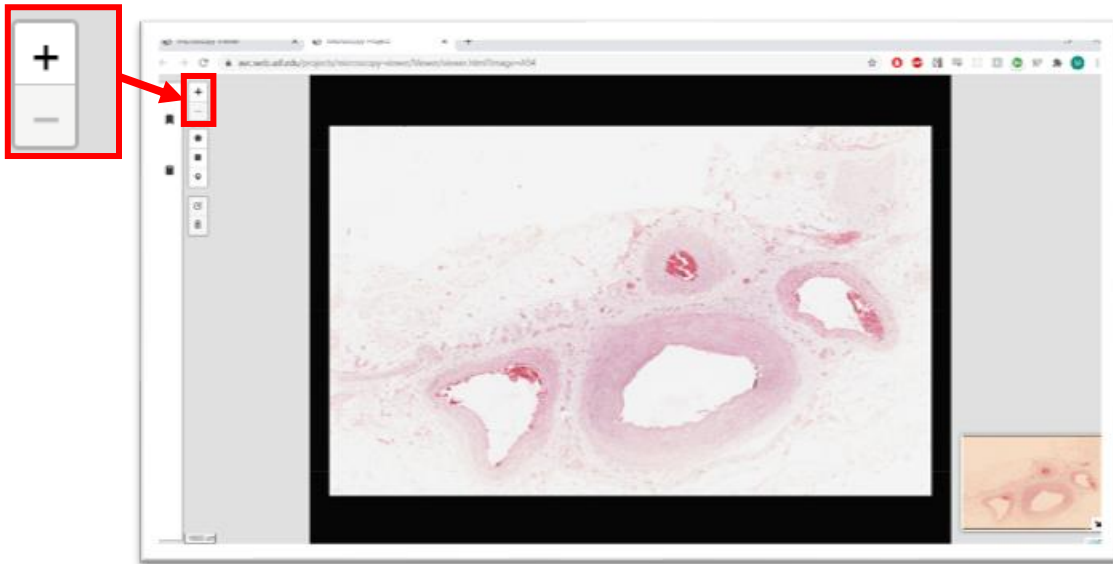
Note that the viewer opens the slide A54 in a new tab. We will now explain the functionality of the viewer.

Viewer

a. Map & Mini-map

The main portion of the viewer will have the map and a mini-map in the bottom-left corner of the viewport, which can be opened and closed to have a better view of the main image.

i. Map

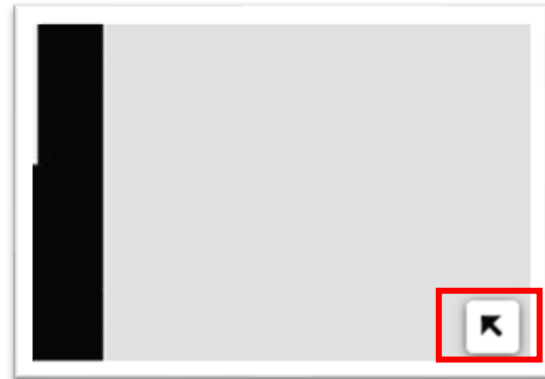


The map itself has the resolution of 10,000 pixels by 10,000 pixels that can be zoomed from level 2 to level 7 by either scrolling or clicking the + or – button in the top left corner of the viewer. The user is only able to pan within the black boundary.

ii. Mini-map

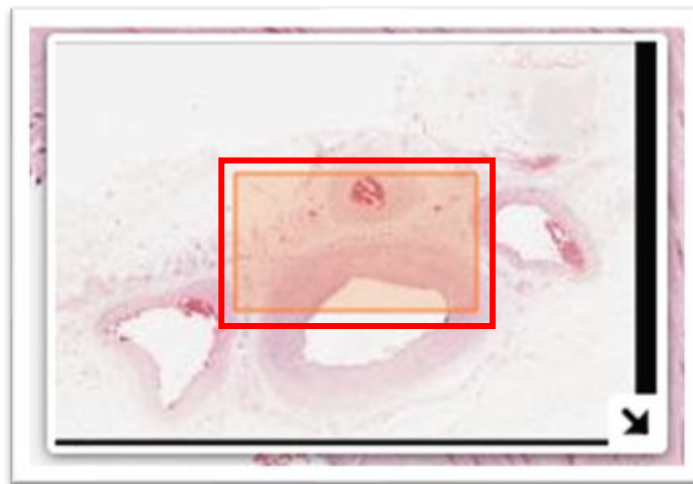


Open



Closed

The mini-map represents the map with a zoom-level of 2 and will always maintain its zoom-level regardless of how much the user pans in the map. In order to close the mini-map, simply click on the small arrow in its corner. To reopen the mini-map, simply click on the arrow again.

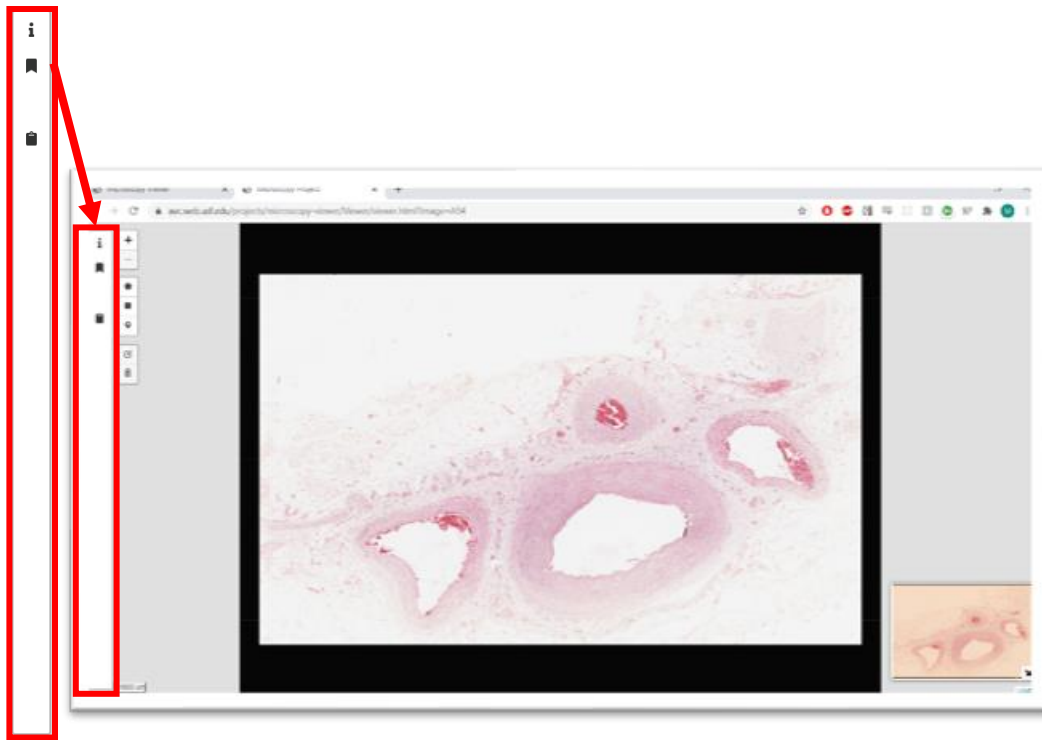


The small orange rectangle represents the current viewport that the user is currently viewing on the screen. The user can drag that rectangle to their desired location on the mini-map to navigate to it on the image.

b. Information

Together with the map is a sidebar which contains a total of the information available about the slide that is being viewed. Each slide has its own description that correlates with its category, although some images may be in multiple different categories as they apply to different systems. With the sidebar, the user can also receive annotations and marked-up notes created by others by going to the proper URL, which is generated by prior users through pressing the copy-link button. Besides that, all annotations and notes on the map will be stored in an annotation tab so the user can refer to them faster. These functions of the sidebar will be explained in further detail below.

i. Sidebar



This is the image of the sidebar, which is located on the left-most side of the viewer. At the top is the information icon for the description tab, which stores the necessary description about the current slide. Below it is the bookmark icon for the annotation tab, storing all annotations and notes currently having on the map. Finally, we have the copy link button at the bottom, where the user can store their notes and annotations, converting it into a shareable URL link.



Information icon



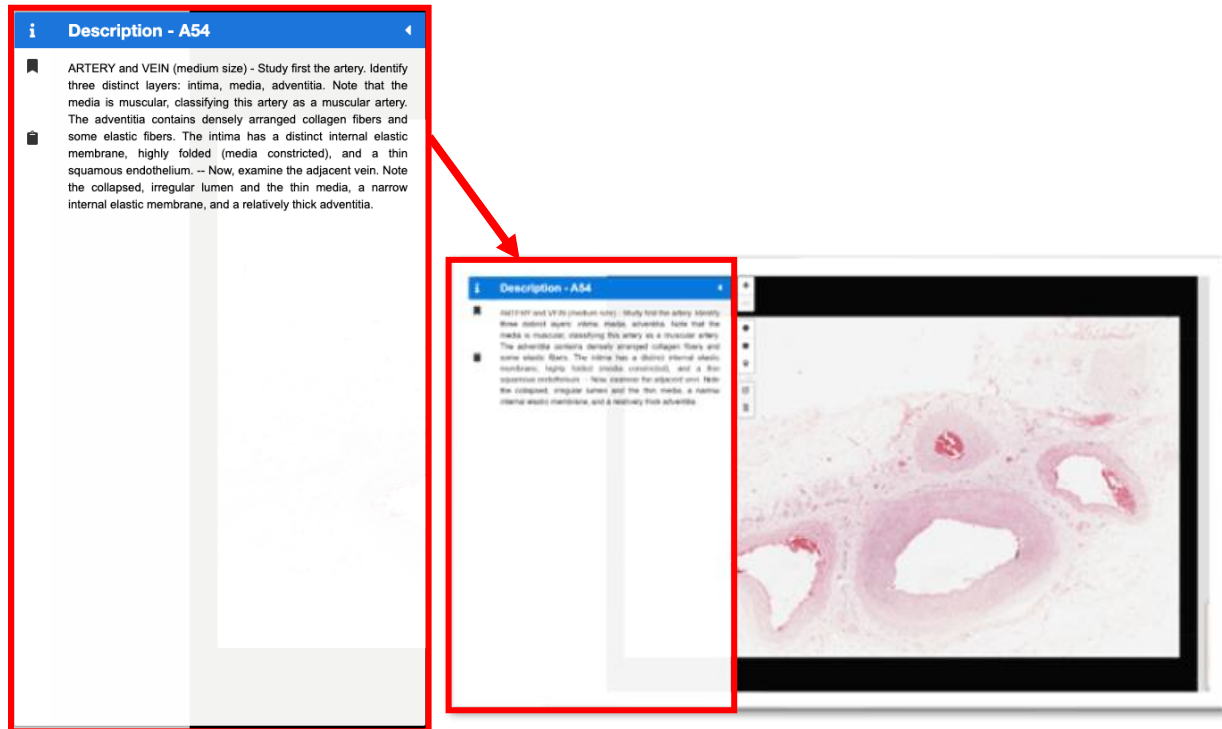
Bookmark Icon



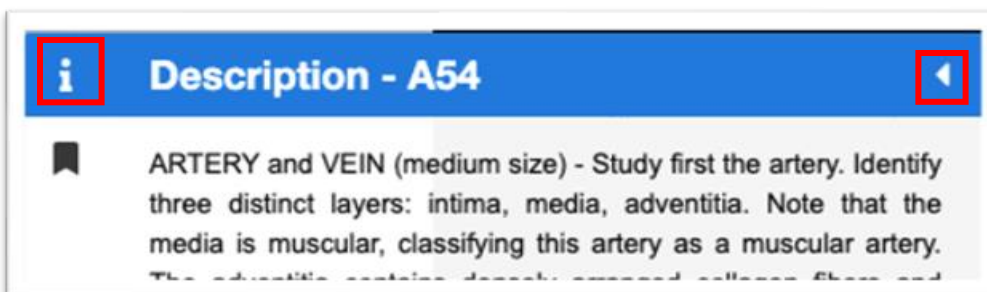
Copy Link Button

When clicking on either of the first two icons – the information icon or the bookmark icon, the sidebar will expand with the relevant details:

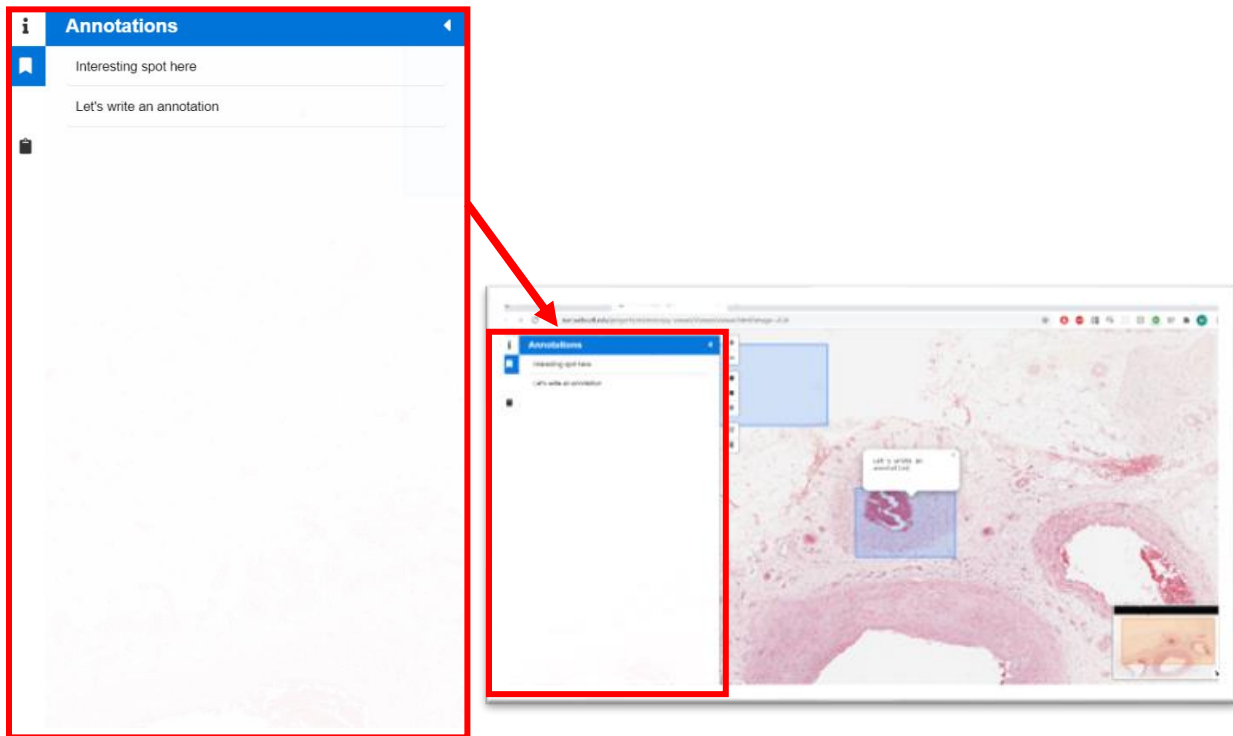
1. Information Icon - Description tab:



By clicking on the Information Icon, the user will open the Description Tab. In the Description Tab, the user will see a description pertaining to the current slide. In the header of the description will be the name of the slide with its ID. The user can collapse the description by clicking the Information Icon again or by clicking on the small arrow on the right of the header bar. At any point, the user can switch to the Annotation Tab by clicking on the Bookmark Icon while the Description tab is open.



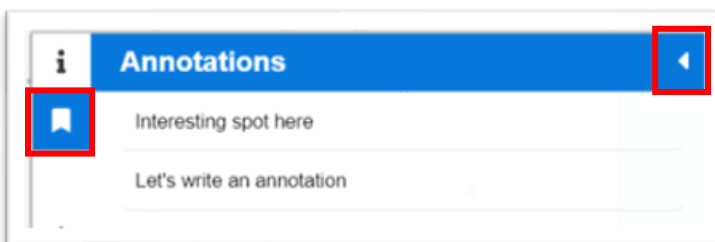
2. Bookmark Icon - Annotation tab:



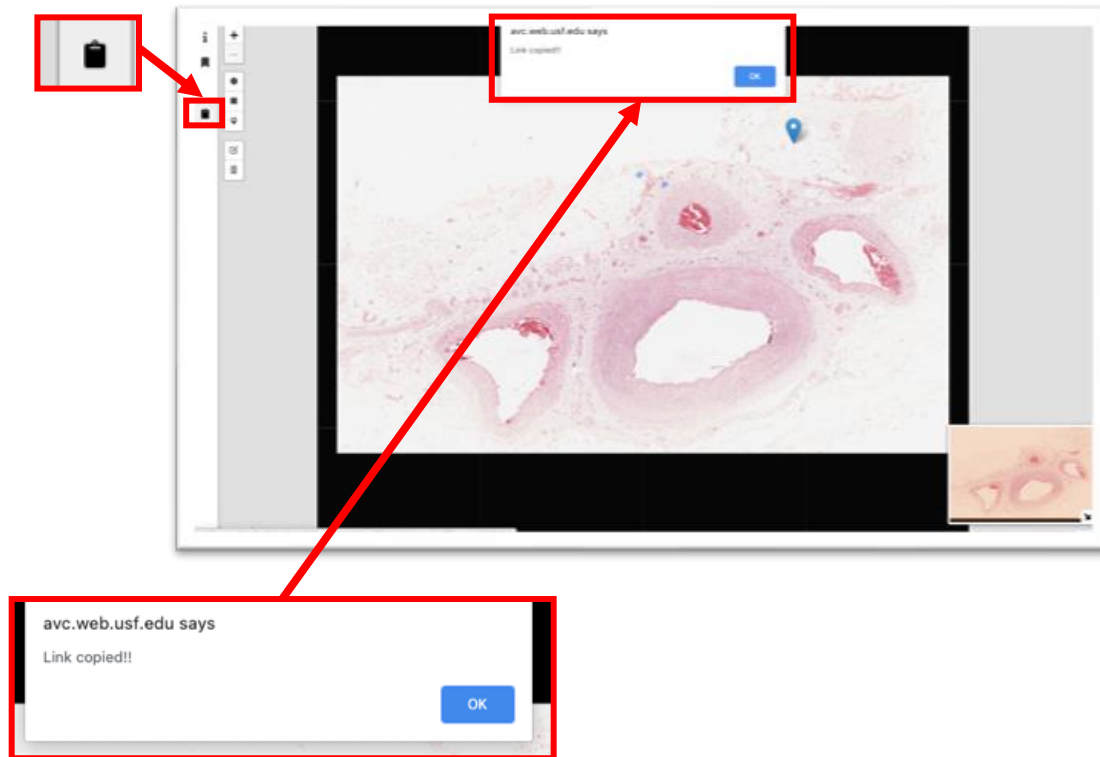
By clicking on the Bookmark Icon, the user will open the Annotation Tab. In the Annotation Tab, there will be a list of annotations and notes on the map. Each item will show the text that was written in its marker, so the user will know what that annotation is describing. When clicking on an item, the map will fly to that annotation and pan to the zoom level as when that specific annotation was first created. Creating annotations will be covered further down in information on the Toolbar.

NOTES: As the map is restrained to be within the black boundary, if the annotation is created at the edge of the boundary, the panning animation will not function.

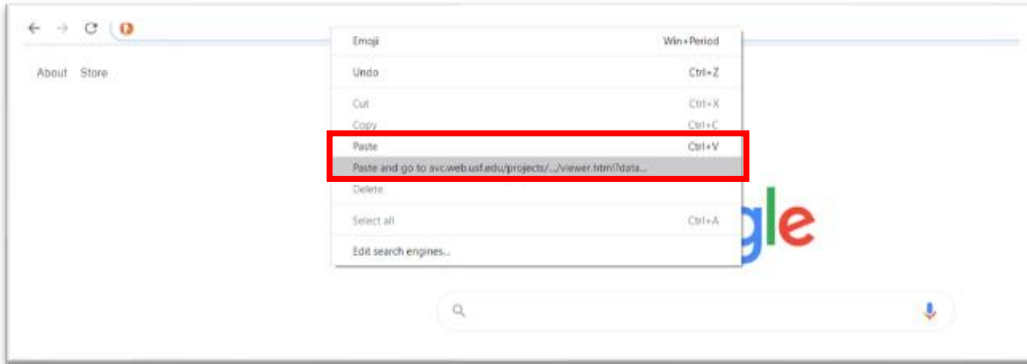
Just like the Description Tab, the user can collapse the Annotation Tab by clicking on the Bookmark Icon or on the small arrow to the right corner of the tab. At any point, the user can switch to the Description Tab by clicking on the Information Icon while the Annotation tab is open.



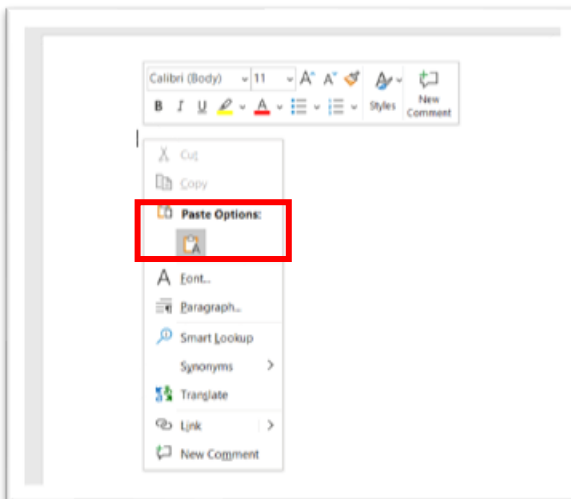
3. Copy Link button:



The user can share their annotations created by using the Copy Link Button. When pressing the Copy Link button, the website will show an alert confirming that all the annotations and mark-ups have been saved to the user's clipboard.

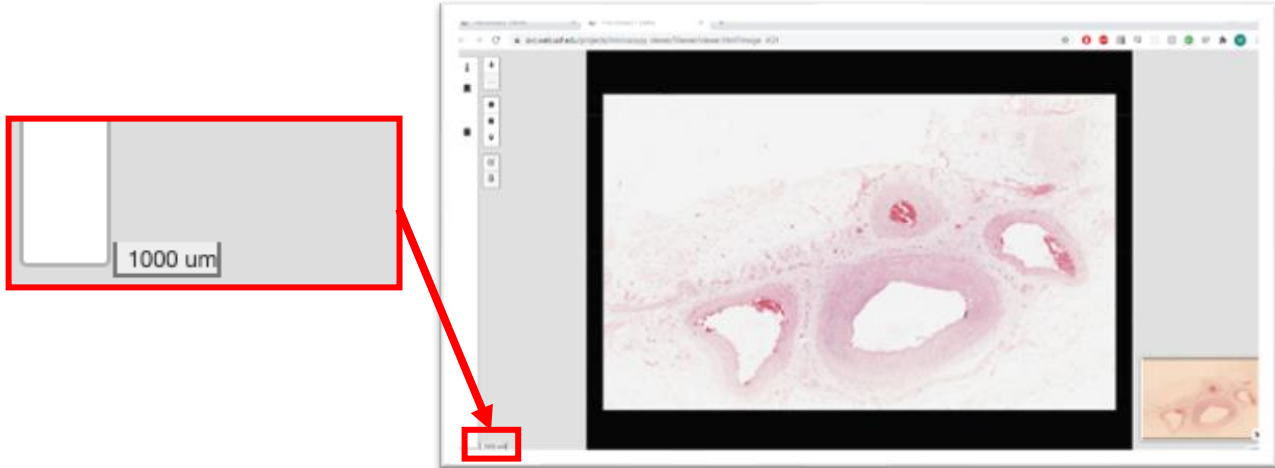


If the user wants to share or open the saved link, they simply right-click and paste (or CTRL-V) the link into the URL bar, or they can send it to other users by right-click pasting (or CTRL-V) into a Word Document or other form of text.



NOTE: Just copying the URL of the slide does not work in the same way as the Copy Link Button. The Copy Link Button saves all annotations that the user has created.

ii. Scaling bar

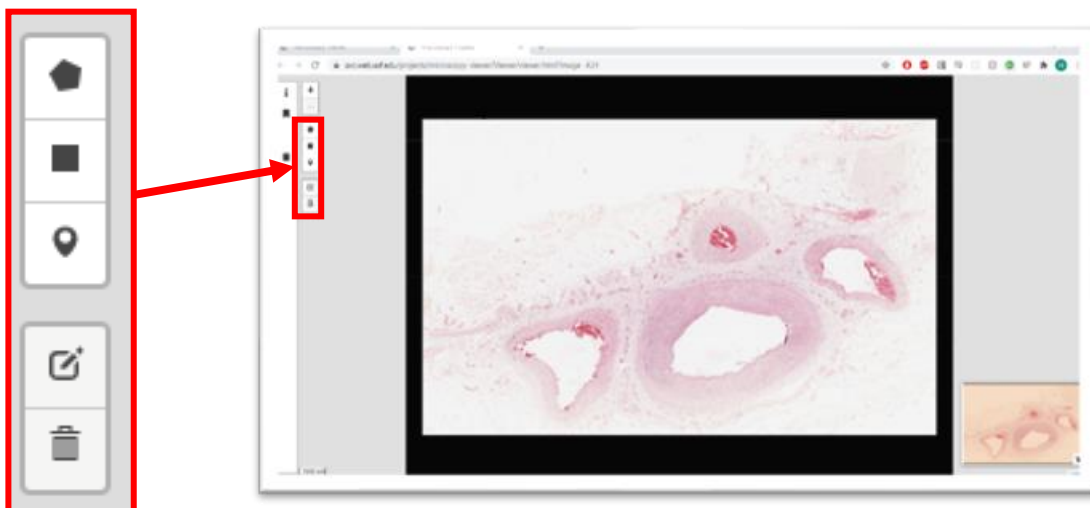


This is the scaling bar, which will show the actual size of the cell. It will also change depending on the zoom level, and the horizontal bar matches the number with 1:1 scale.

c. Tools

There are also many drawing tools and shapes that the user can use to mark-up or note down needed position on the map. There are three types of drawing annotation tools: Polygon Tool, Rectangle Tool, and Marker Tool. Each of them will come with a small popup so the user can insert their necessary notes or texts for studying. The viewer also has an edit button and a delete button so the user can easily modify their annotations and notes.

i. Toolbar



This is the toolbar, where the top three icons are the Polygon Tool, Rectangle Tool, and Marker Tool respectively. The user can click on these icons and draw a shape that can denote a specific

location on the map. Once the user draws a rectangle, an enclosed shape, or leaves a marker, a pop-up will appear for them to input text. This pop-up makes the text written become an annotation visible under the Annotation Tab for later reference.



Polygon Tool



Rectangle Tool



Marker Tool

There are two icons at the bottom of the toolbar; the first one is the edit button for the annotation shapes created, and the last button is to delete annotation drawings. When clicking either one of these two icons, there will be a small tooltip instructing the user on how to use said button.



Edit Button



Delete Button

1. Drawing tools:

There are three drawing tools as described above. There are slight differences to each so that the user may have a variety of ways to annotate the slide.

a. **Polygon Tool**

The Polygon Tool allows the user to create a freeform shape around a point of interest and to add an annotation to the user-created shape once finished.

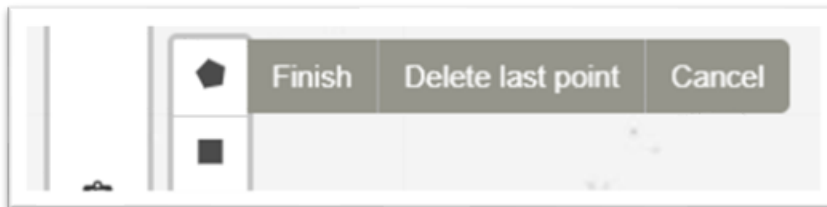


The user begins by clicking on the Polygon Tool button which opens the options for the Polygon Tool as well as shows a hint to the user to get started. To begin the shape, the user must simply click anywhere on the screen where they would like their shape to start.

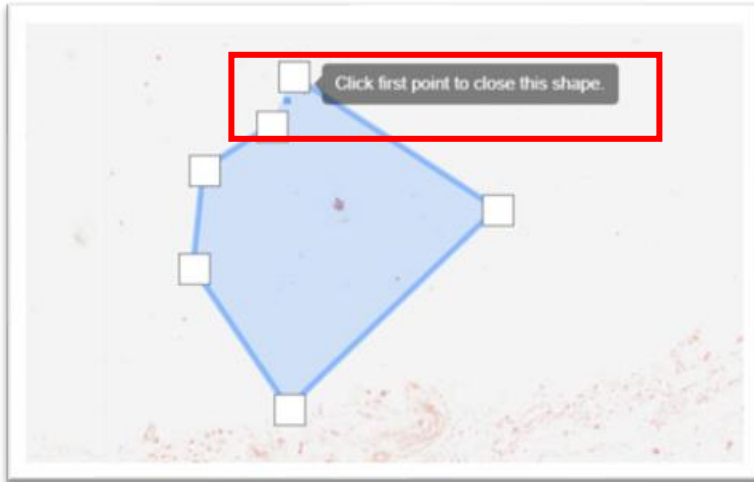


Once begun, as the user creates their shape, previously created edges will be denoted with solid lines while potential edges will be denoted by dashed lines.

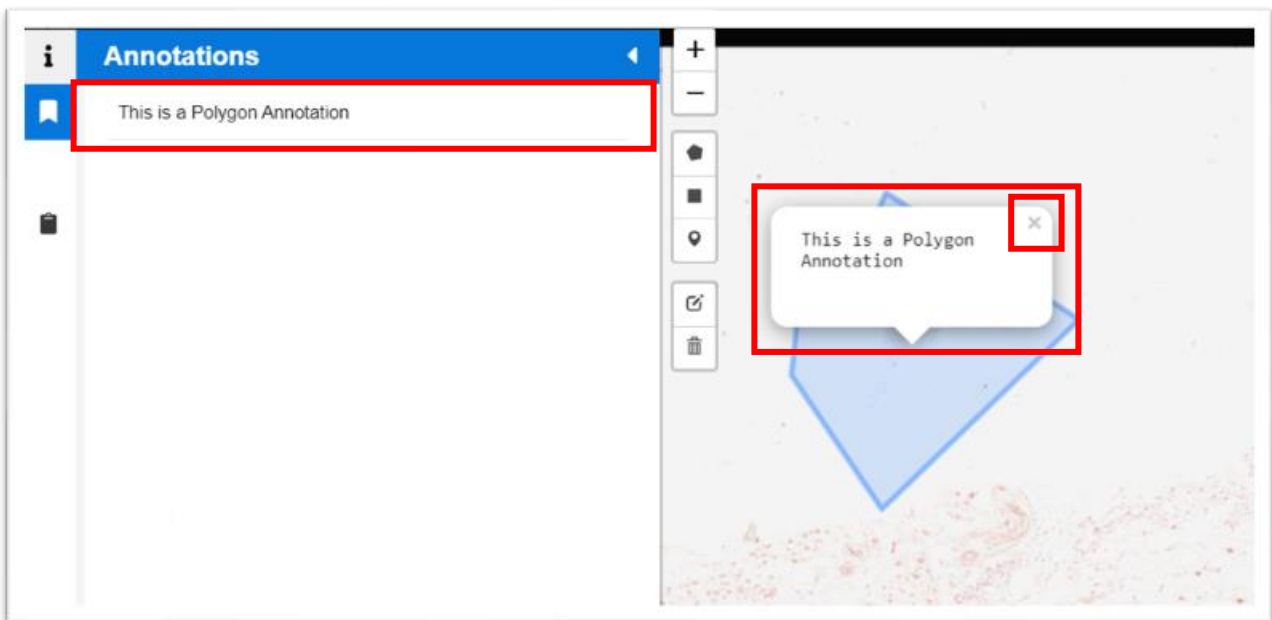
At any point during creation, the user can click on the Polygon Tool options: Finish, to finish their shape, which will add the last edge of their polygon and connect their current point to their first point; Delete last point, which will start the user at their previously selected point; or Cancel, which will cancel the creation of the polygon annotation altogether.



Note: The user can create any size or type of polygon with this tool, but the minimum number of points to create a polygon is three, which will create a triangle shaped annotation.



Once the user has three or more points placed, the hint will denote to the user to click on the first point drawn to close the shape, or alternatively the user may choose to click the Finish button in the Polygon Tool's options to close their shape.



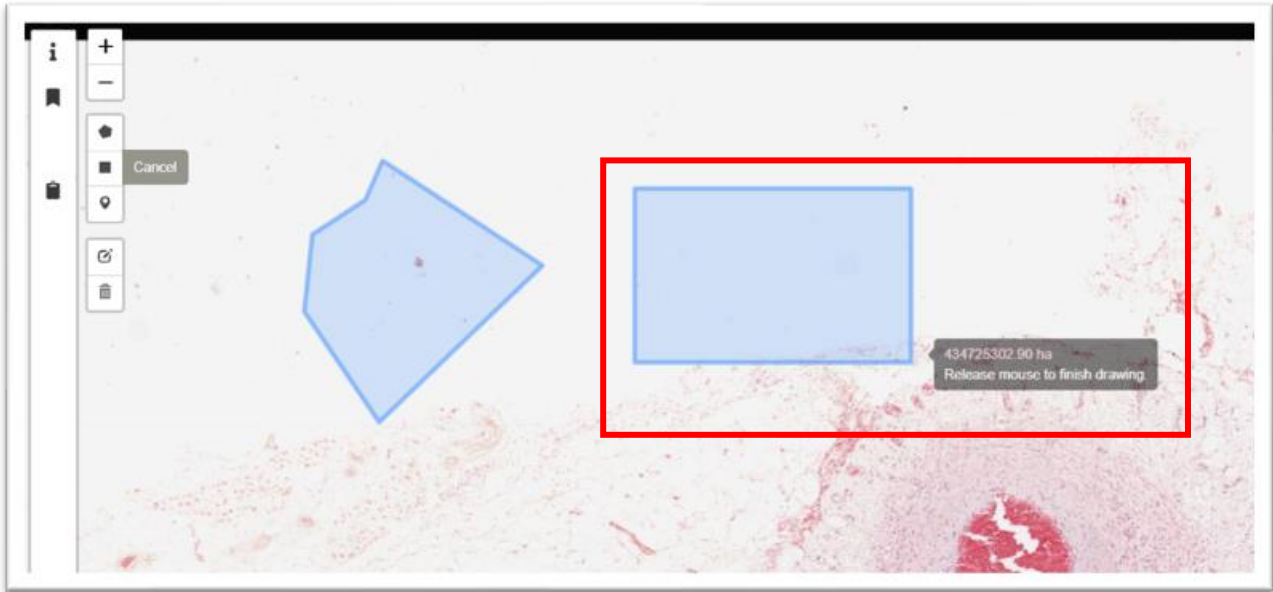
When the user's polygon is enclosed around their point of interest, a pop-up will appear which grants the user the ability to create an annotation on this shape, if they so choose. This text can be edited at any time by clicking on this pop-up. The new annotation will be found immediately under the Annotation Tab. If the user does not want to create an annotation, they just need to click the x in the top right corner of the pop-up.

b. Rectangle Tool

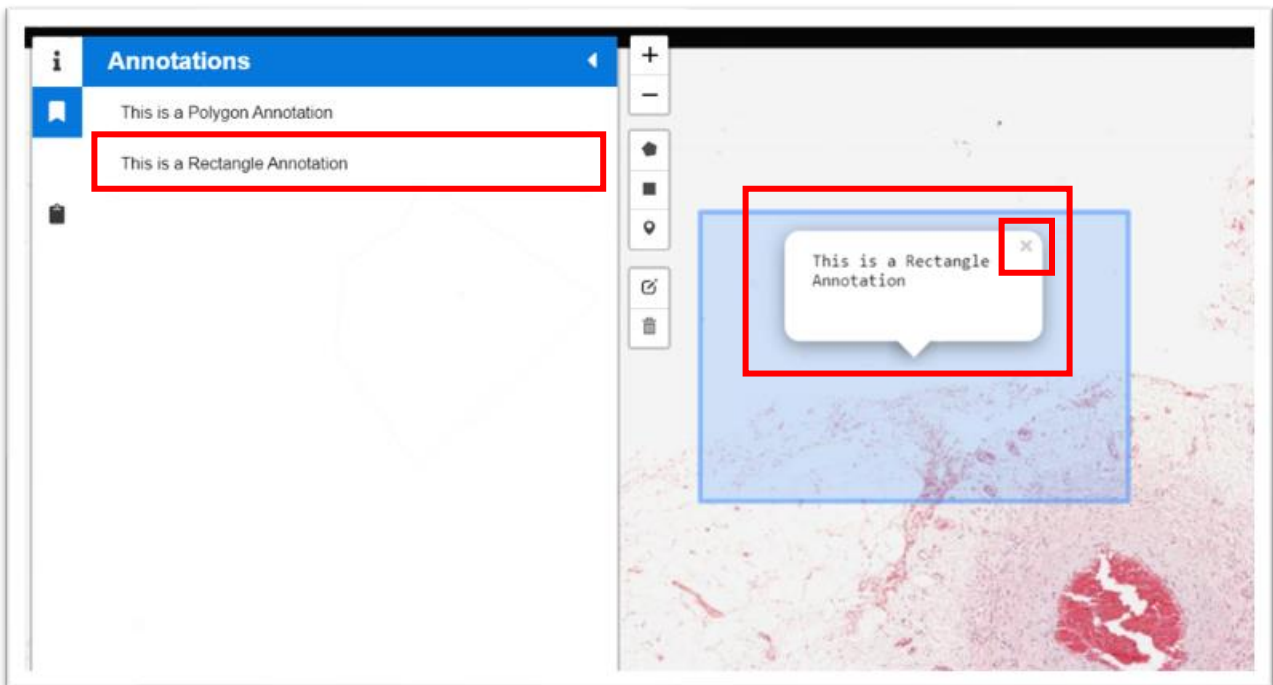
The Rectangle Tool allows the user to create a rectangular shape around a point of interest and to add an annotation to the user-created rectangle once finished.



Once the user clicks the Rectangle Tool, they will be able to click anywhere on the slide to begin the creation of their rectangle annotation. As the hint denotes, the user must simply click and drag the cursor to create a rectangle around a point of interest. Once finished, the user releases their mouse after dragging. If the user no longer wants to create a rectangle, they can choose to click the Cancel button in the Rectangle Tool options that has been opened.



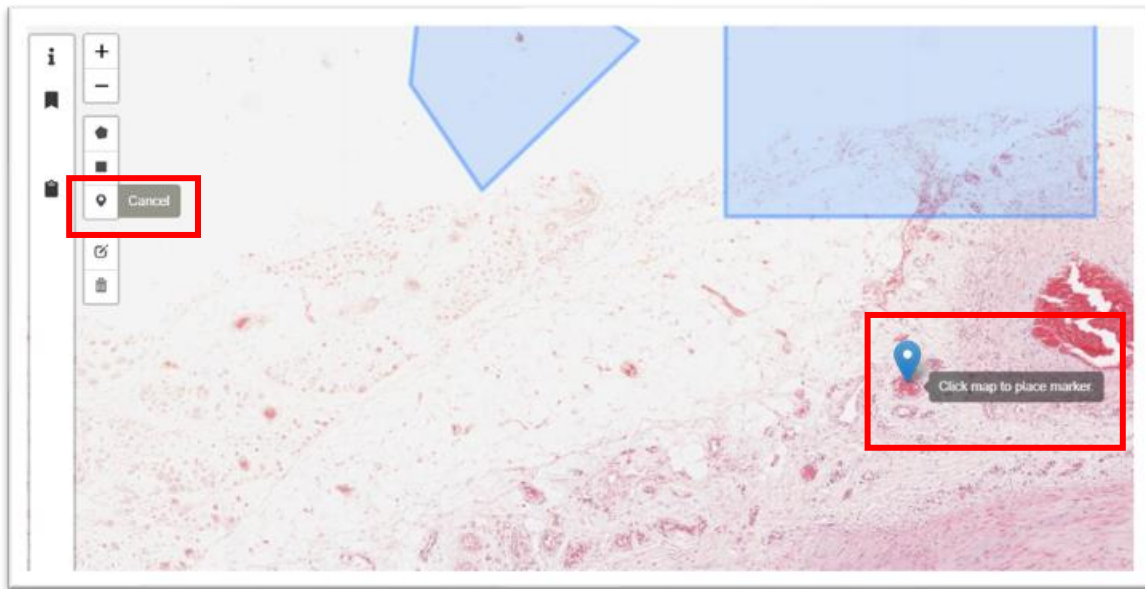
To finish creating a rectangle shape on the slide, the user must simply release their mouse after dragging to their chosen size of rectangle.



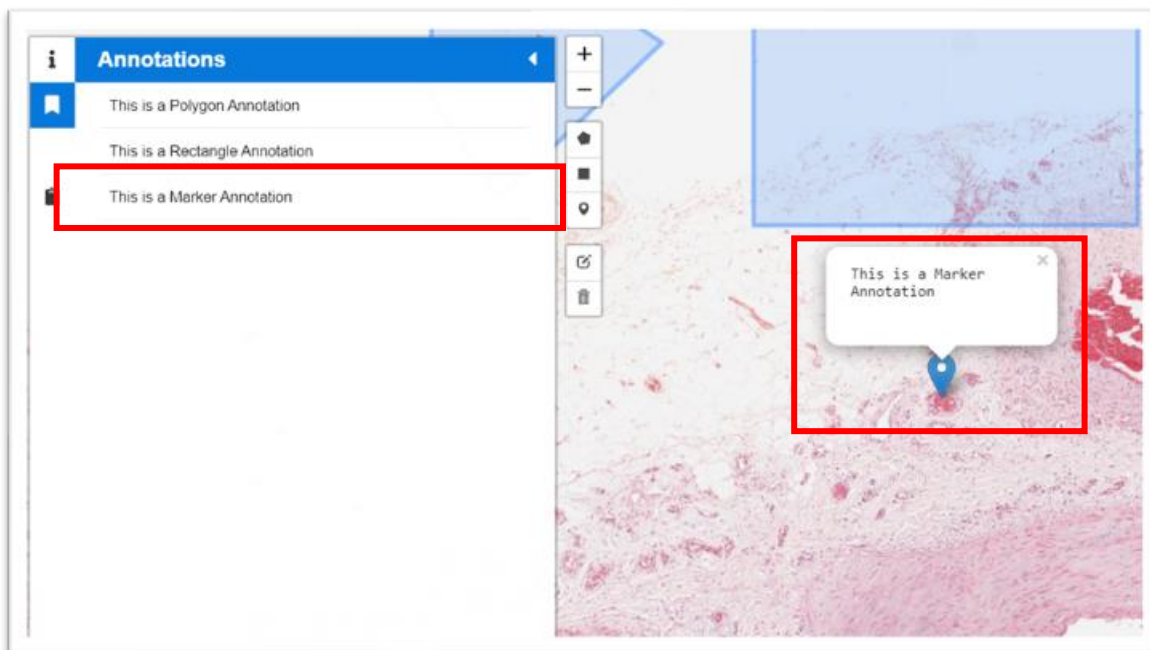
Like the Polygon Tool, once the user has created their rectangle, a pop-up will appear which will allow them to write an annotation for this shape. It will appear immediately alongside other annotations under the Annotation Tab. If the user does not want to write an annotation, they can click on the x in the top right corner of the pop-up.

c. Marker Tool

The Marker Tool allows the user to create a marker to any point of interest on the slide and to write an annotation after creation of the marker.



To begin, the user simply clicks on the Marker Tool and then anywhere on the slide to create a marker at a point of interest. If the user no longer wants to create a marker, they can click the Cancel button in the Marker Tool Options.



Like the Polygon Tool and Rectangle Tool, once the user has created their marker, a pop-up will appear which will allow them to write an annotation for this marker. It will

appear immediately alongside other annotations under the Annotation Tab. If the user does not want to write an annotation, they can click on the x in the top right corner of the pop-up.

2. Edit and Delete tools:

a. **Edit Tool**

The Edit Tool allows the user to make modifications to any shape they have currently created on the slide.



As seen above, the Edit Tool allows the user to modify any shape currently on the slide. This means the user can move points in a polygon annotation to change its shape, placement and size, move points in a rectangle annotation to change its size and placement, and move any markers that have been placed.

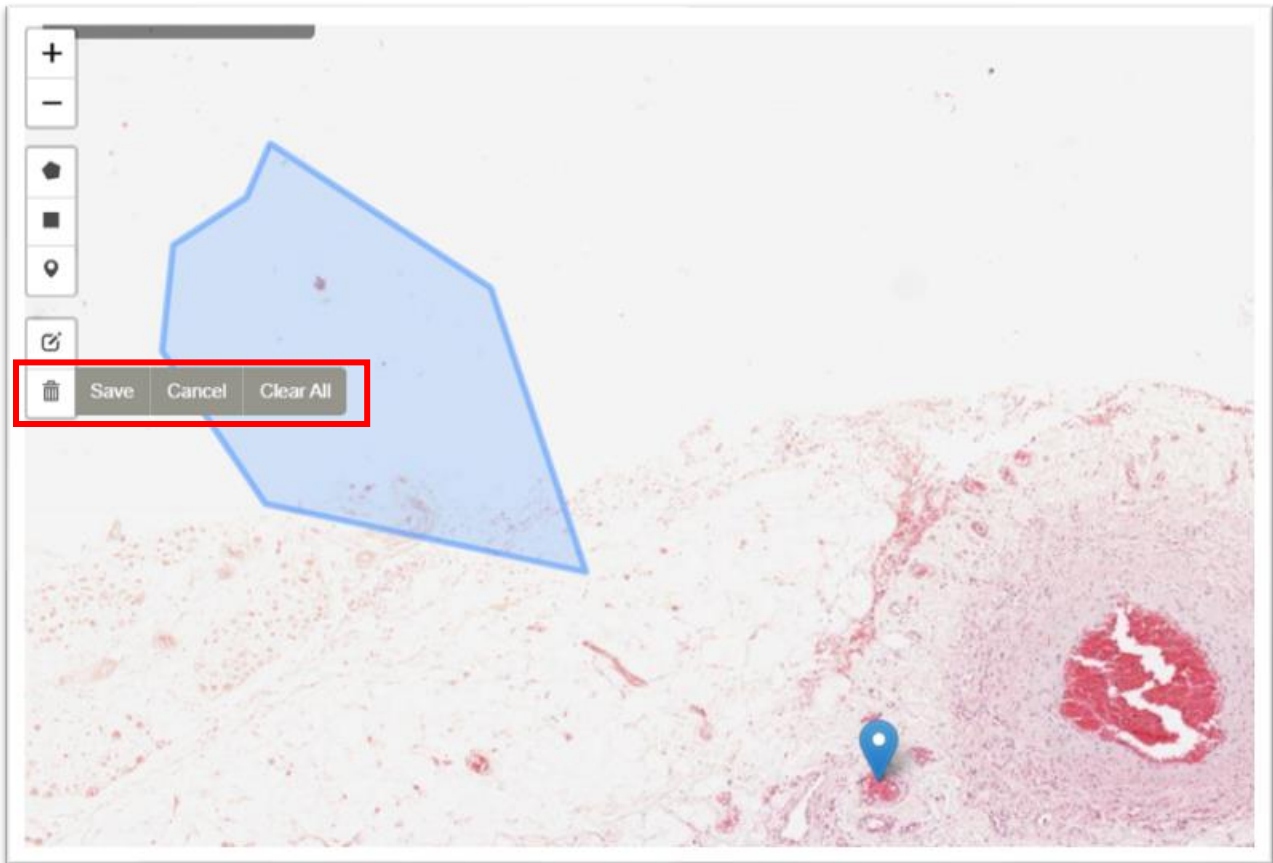
Once finished and happy with their changes, the user need only to click the Save button in the Edit Tool Options pop-up. If at any point the user wants to undo changes, they can click the Cancel button in the Edit Tool Options pop-up.

b. Delete Tool

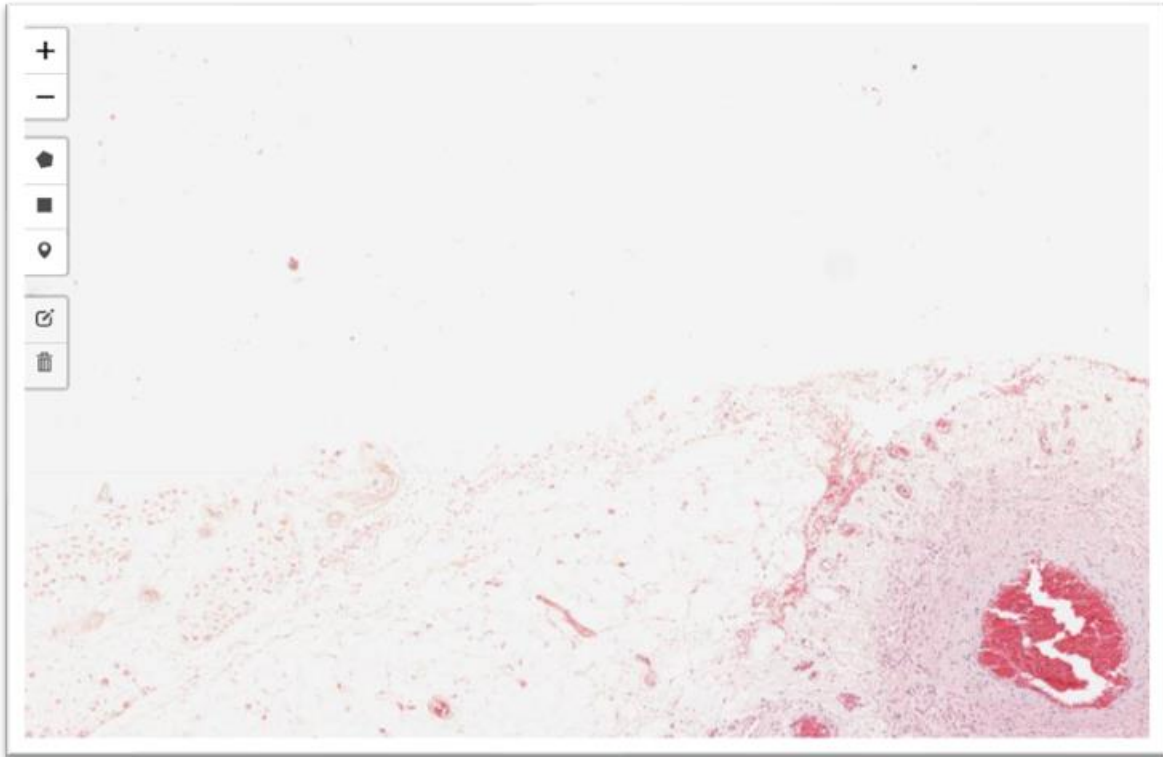
The Delete Tool allows the user to delete any and all shapes they have currently created on the slide.



To delete a shape or shape annotation, the user simply clicks the Delete Tool and then a feature, as denoted by the hint text.



After clicking on a chosen shape or shape annotation to delete, the user must either click: Save in the Delete Tool options pop-up, to save their deletion; Cancel, to undo their deletions; or Clear All; to get rid of all shapes and shape annotations currently on the entire slide. As seen above, we have deleted the rectangle annotation.



If we click Clear All, the Delete Tool Options pop-up will close and all of our annotations will be deleted, thus cleaning the entire slide.