Instructions for Automated TIL Scoring

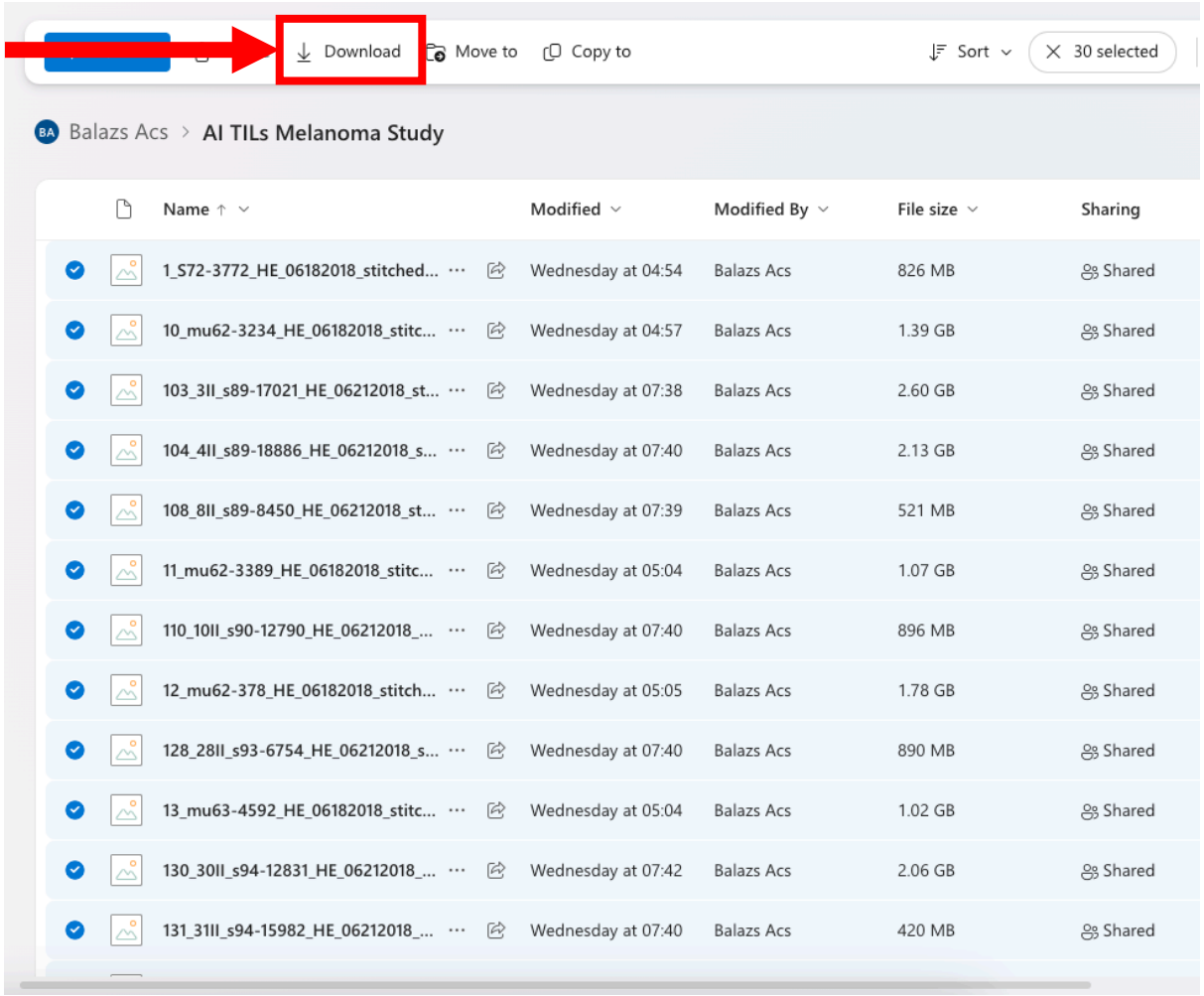
TILs Melanoma Study

Step 1: Download the H&E Images

1. Click here to find the images.
    - You may be prompted to enter your email for a verification code.

Step 1: Download the H&E Images

2. Select all the images and click “Download”
    - This will be a heavy download. Make sure your computer or drive has at least 100 GB.

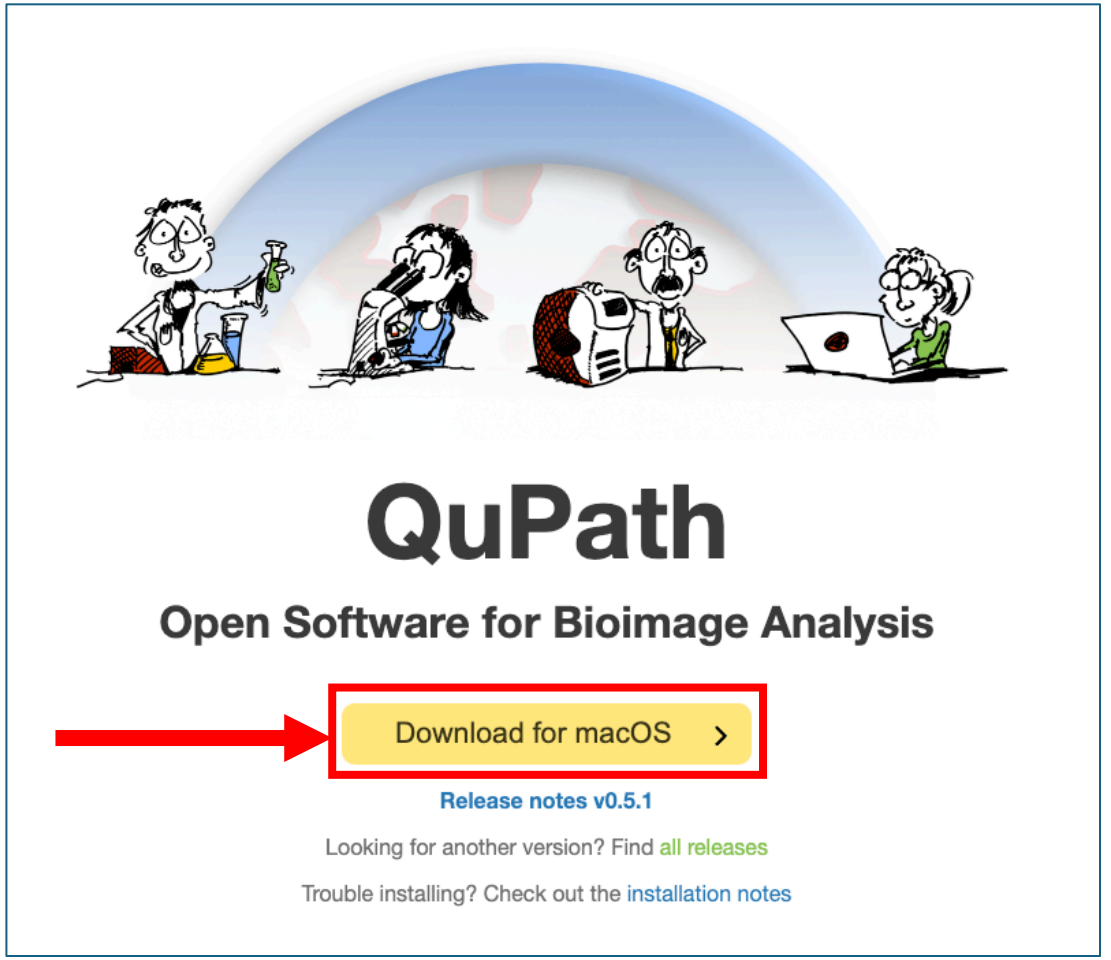


Step 1: Download the H&E Images

3. Once downloaded (and extracted as needed), keep the images in a safe location in your computer.
    - We highly recommend putting them in a location where they won’t be changed or removed. This will ensure fidelity of subsequent steps.

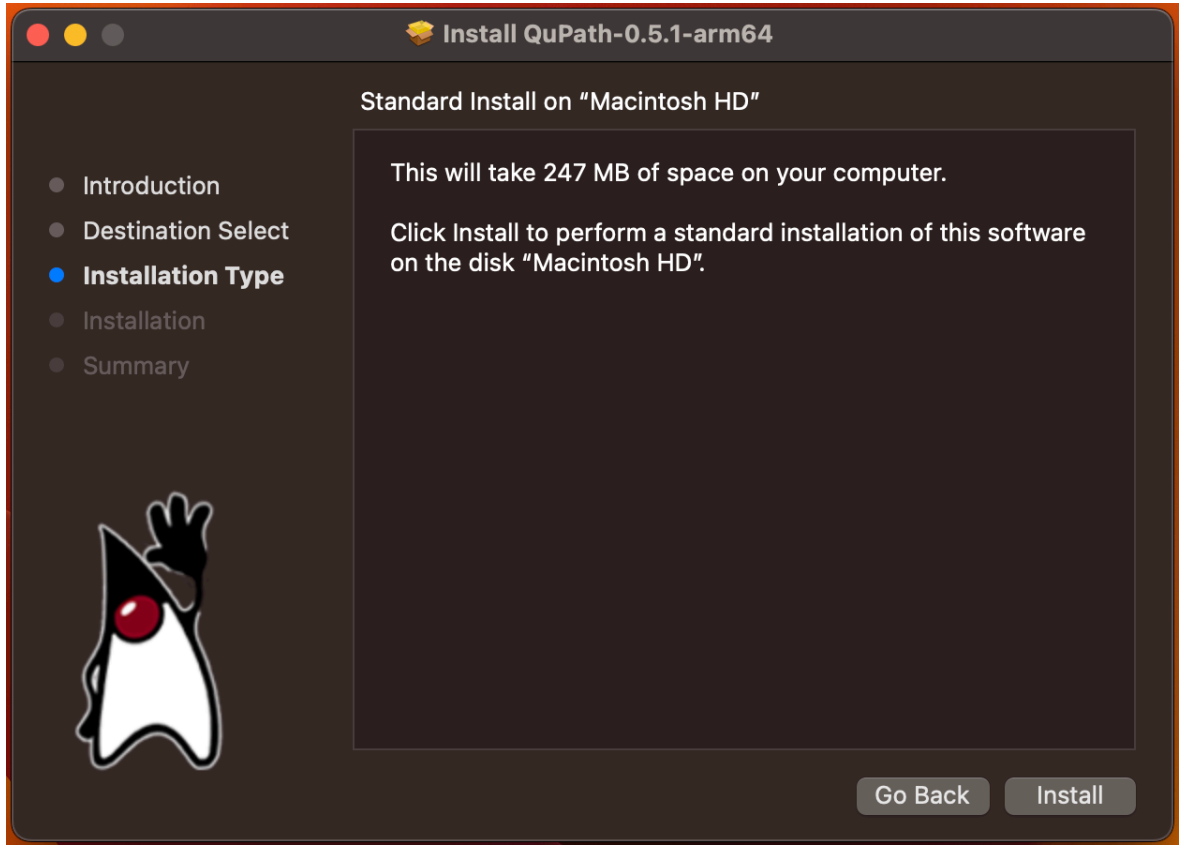
Step 2: Install QuPath

1. Download the latest version of QuPath here, according to your system (macOS, Windows, Linux).



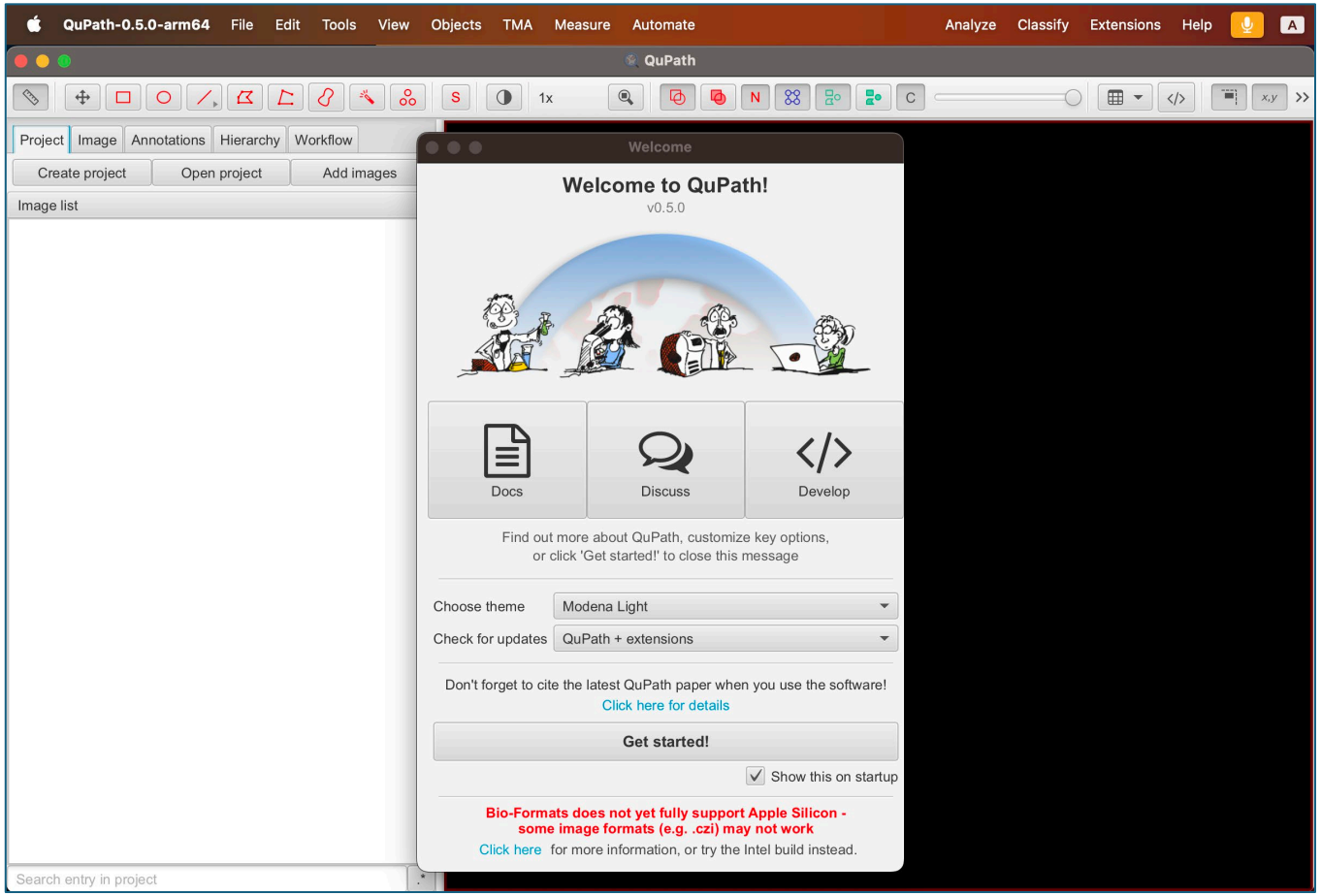
Step 2: Install QuPath

2. Open the downloaded package and follow the installation instructions (may vary depending on system).



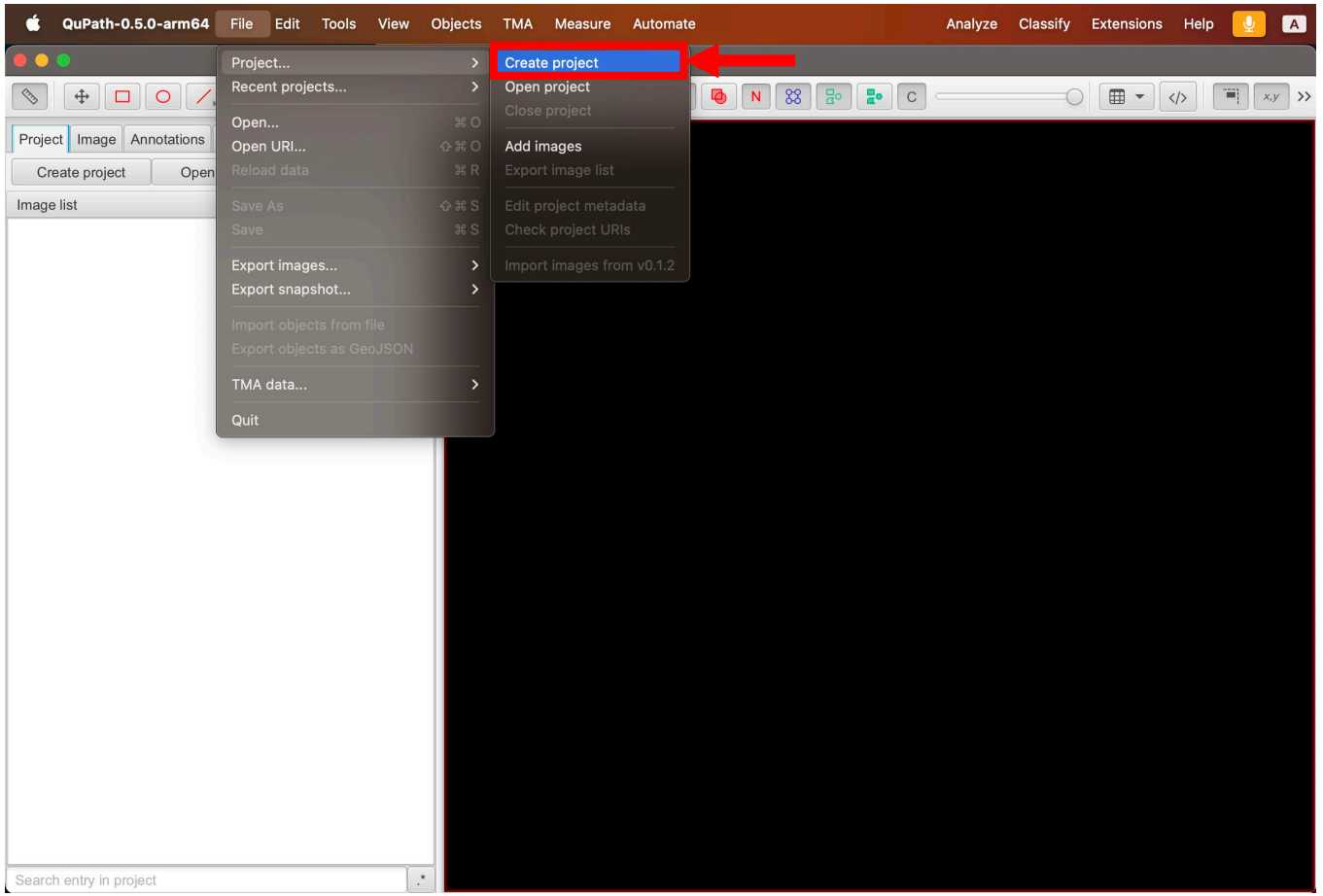
Step 3: Create a QuPath Project

1. Open QuPath



Step 3: Create a QuPath Project

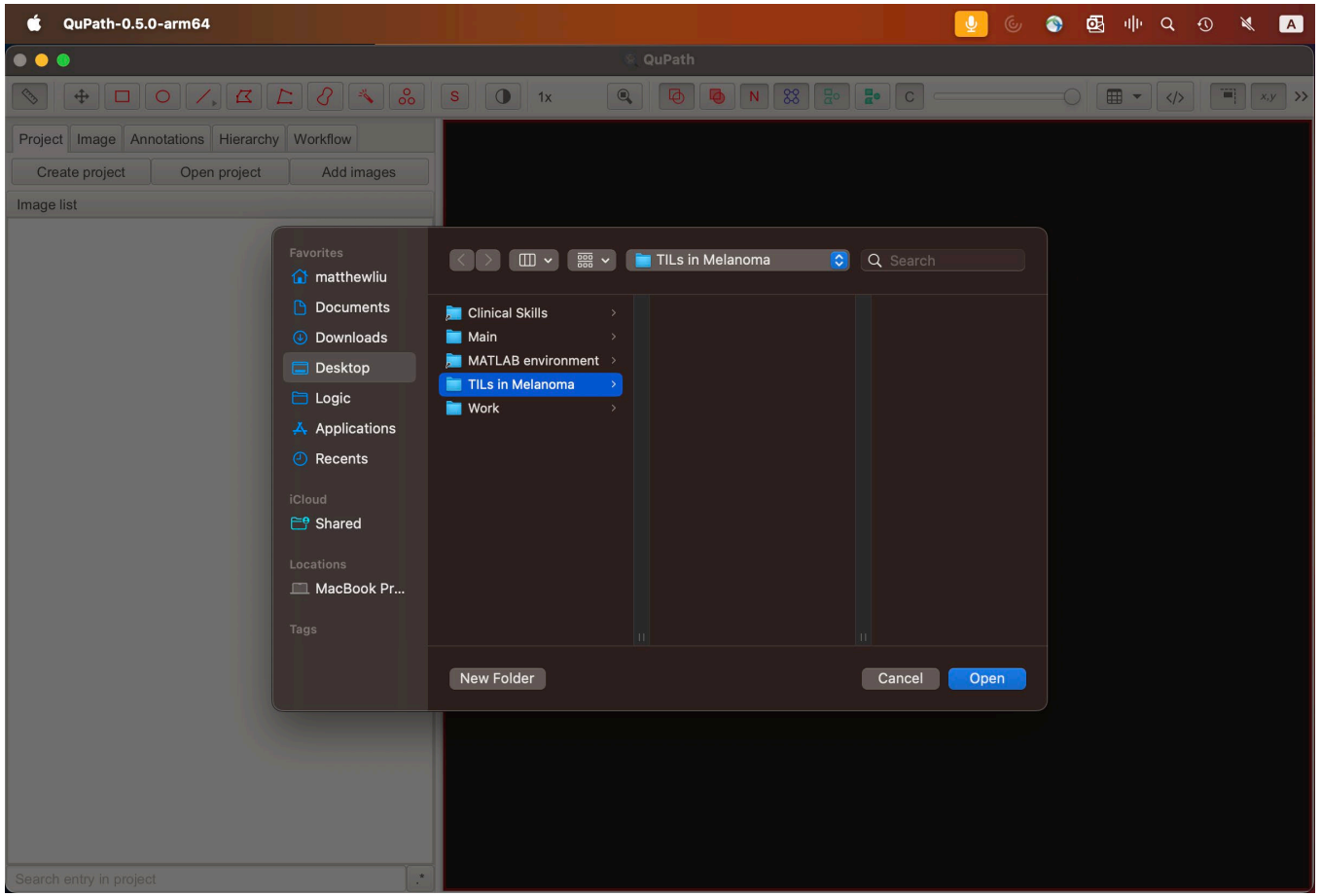
2. Create a new project by clicking on ”File” → “Project…” → “Create Project”



Step 3: Create a QuPath Project

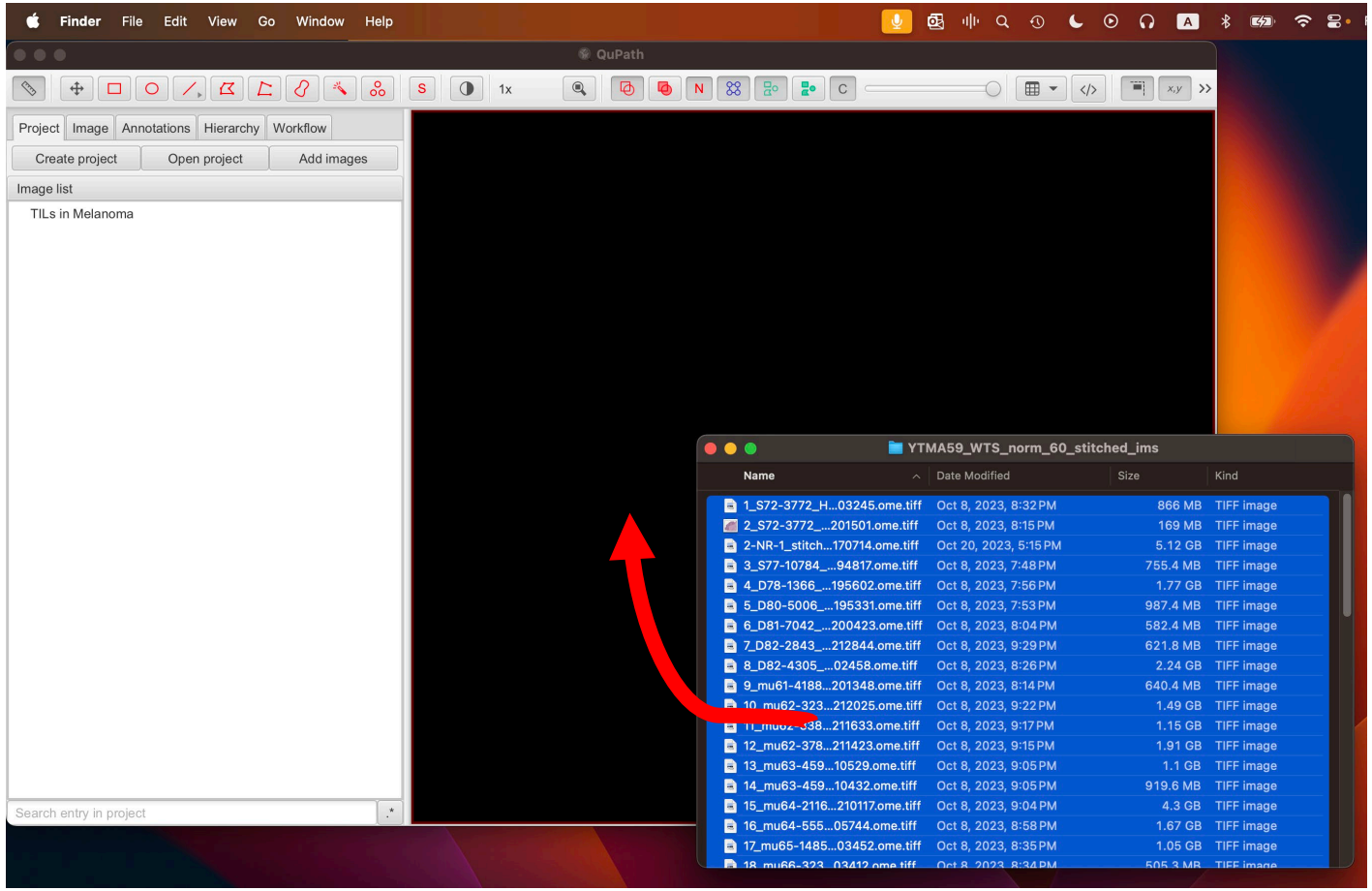
3. In the pop-up window, select an empty folder (create one if you haven't already) to finish creating your project.

(Note: Like for the images, it's best to have your project folder in a safe location.)



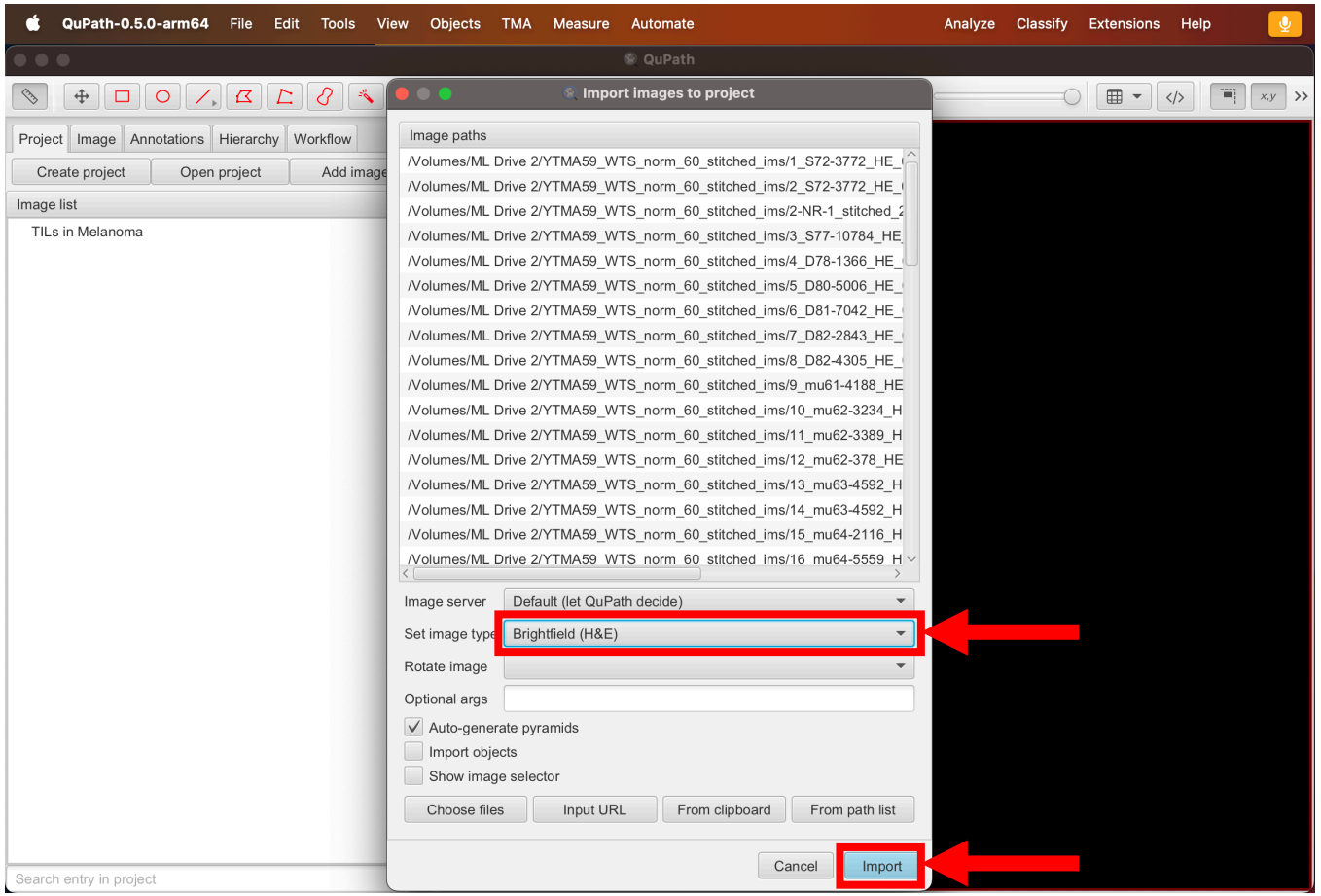
Step 4: Load the images

1. Take the images you downloaded and drag them onto your QuPath project.



Step 4: Load the images

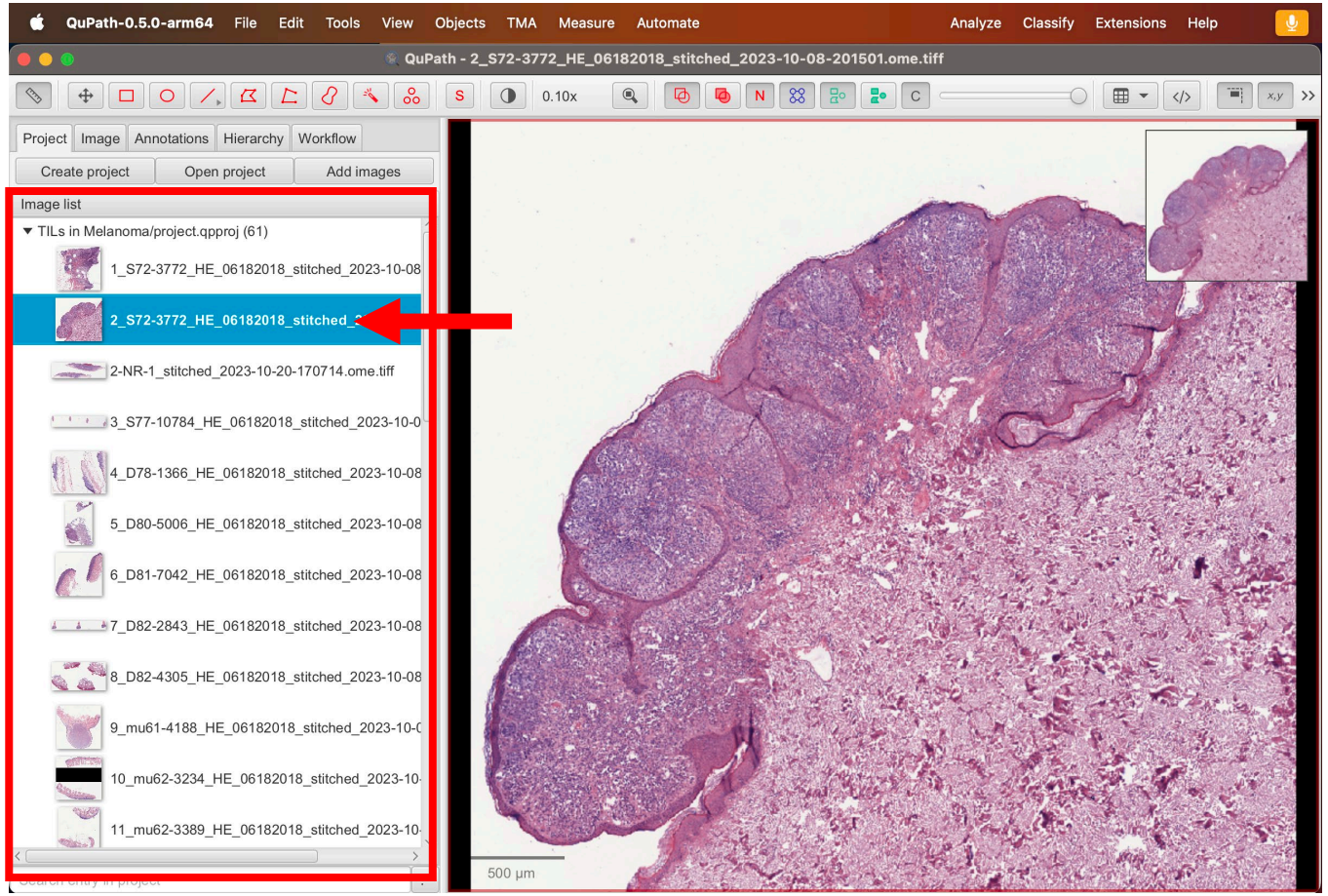
2. In the pop-up prompt, simply set the image type to “Brightfield (H&E)” and then click “Import”



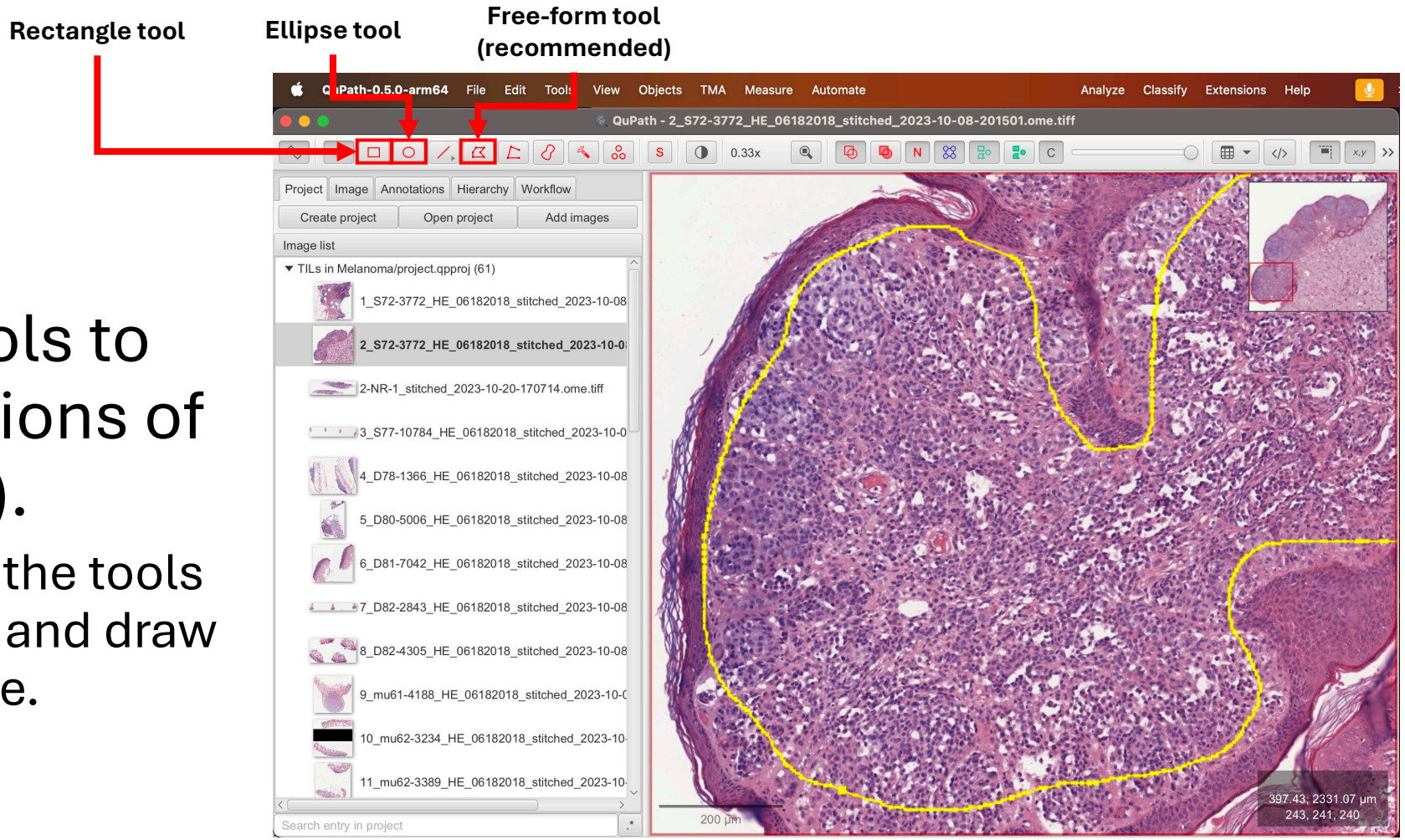
Step 5: Annotate the Images

1. Back on QuPath, select to open images.

- You can navigate by double-clicking on the images on the side pane.



Step 5: Annotate the Images

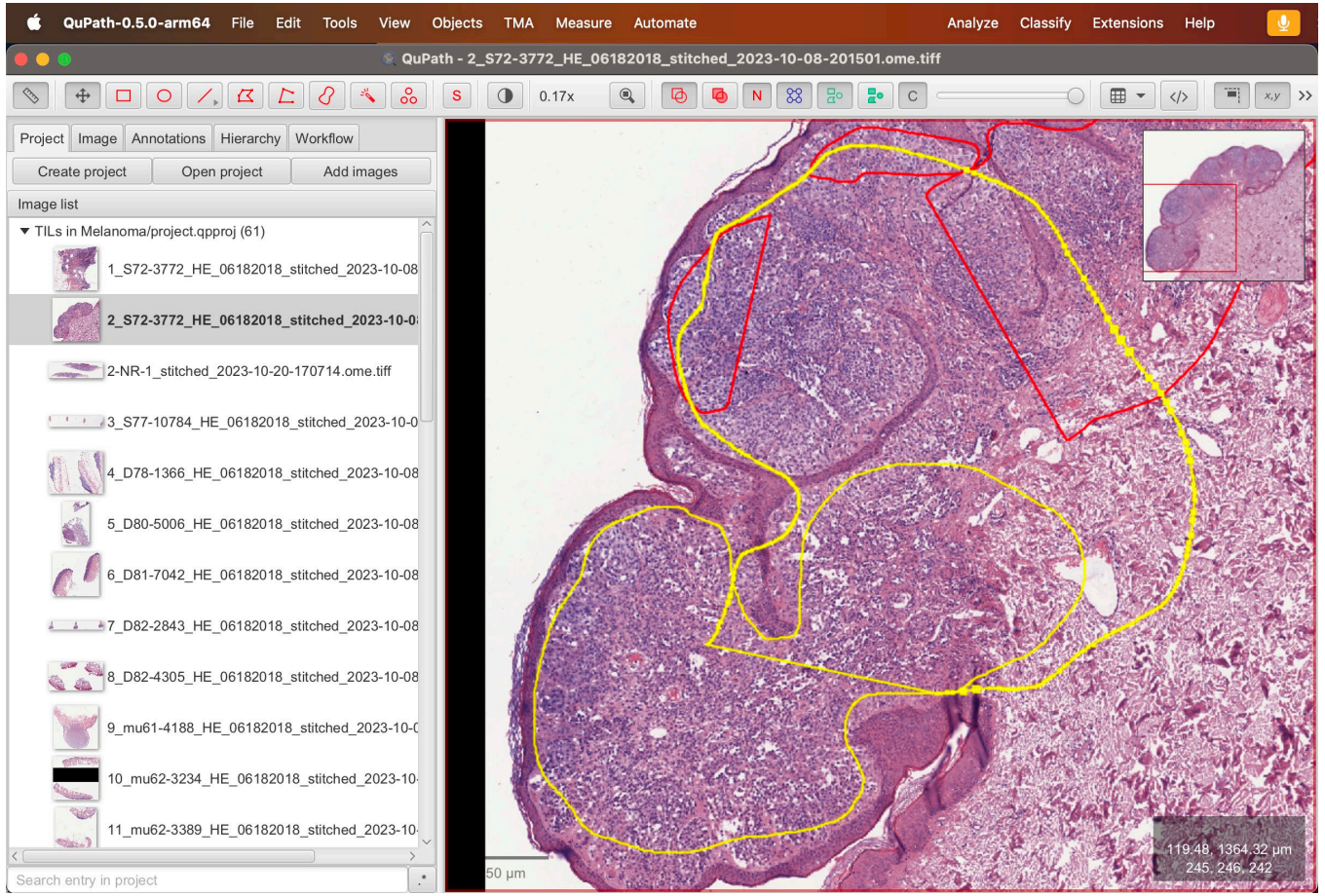


2. Use the annotation tools to make your regions of interest (ROIs).

- Select one of the tools shown above and draw over the image.

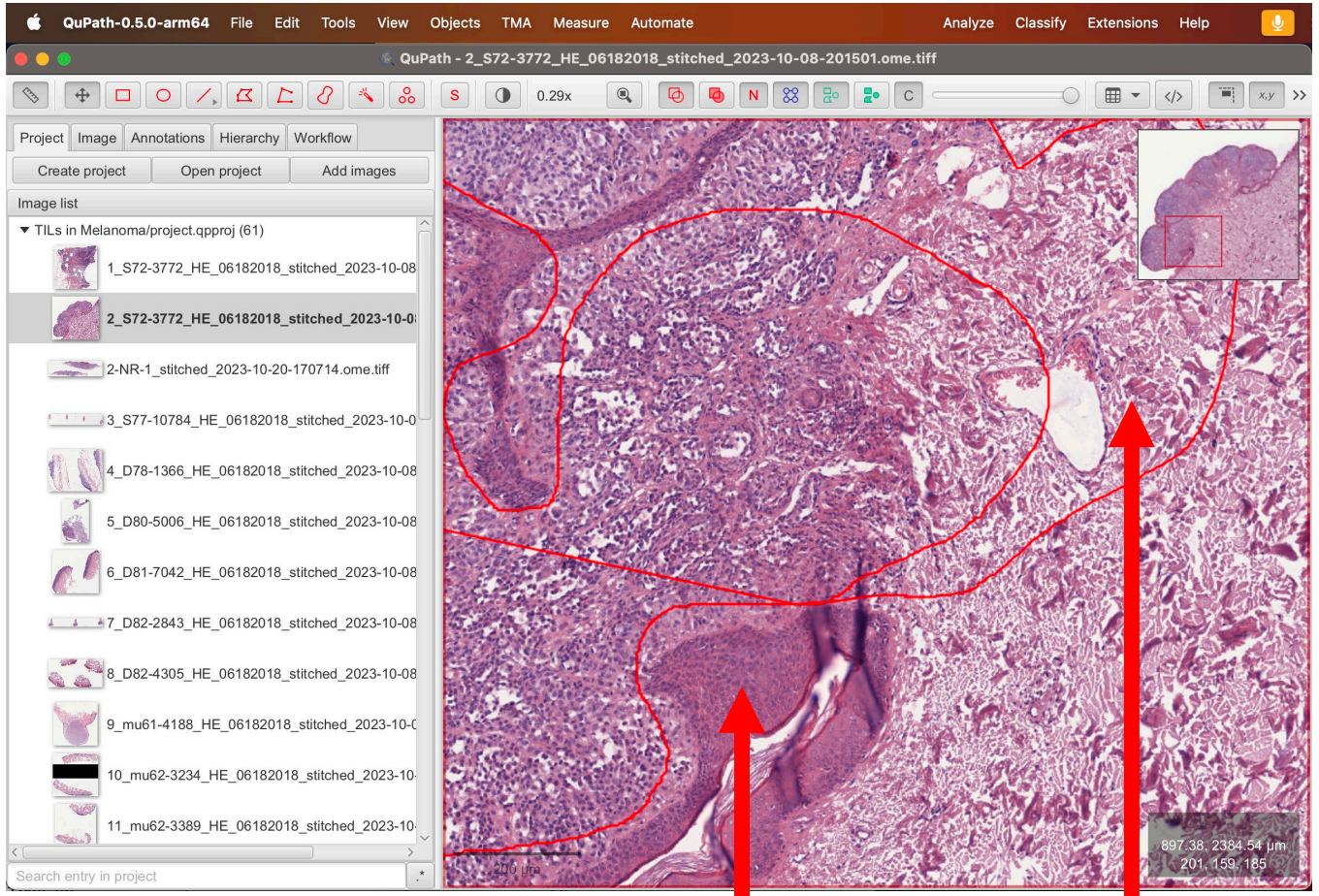
Step 5: Annotate the Images

Tip 1: *It's ok to make multiple annotations for a given image. (The script will ultimately merge them to make one consolidated ROI).*



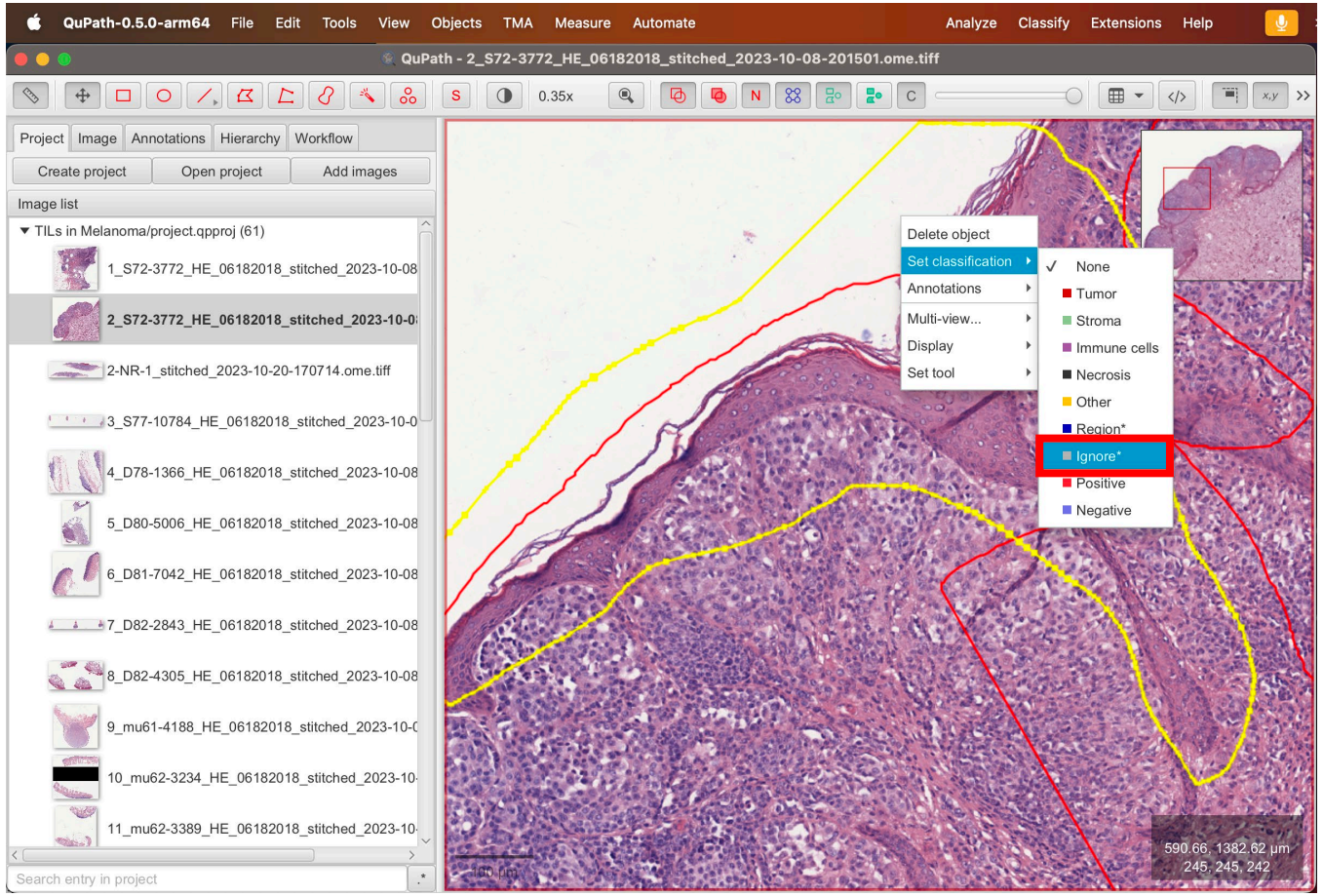
Step 5: Annotate the Images

Tip 2: *For the purposes of this study, try to avoid including squamous epithelium, tumor necrosis, ulceration. Stroma can be judiciously included if they are within 250 microns of the tumor.*



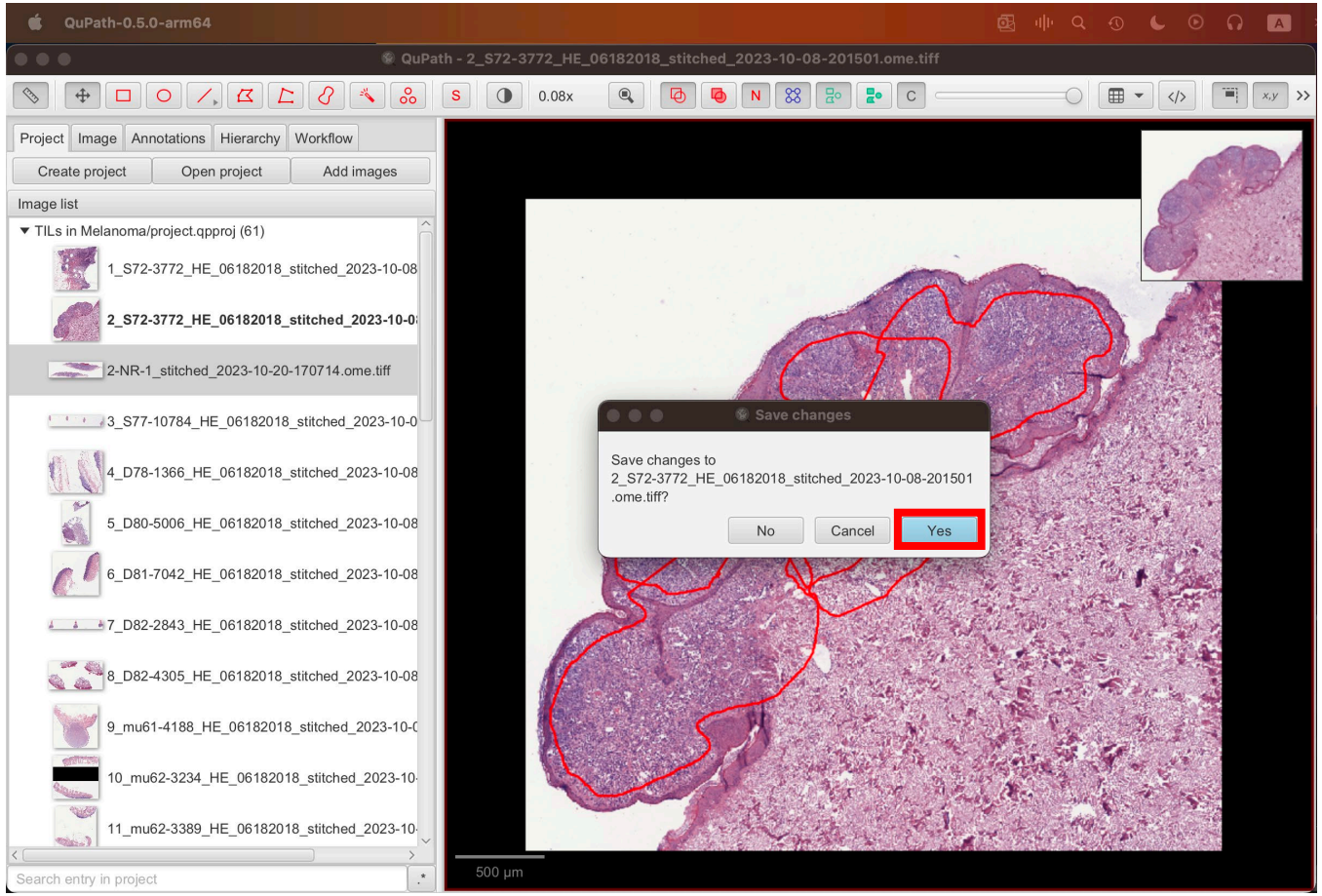
Step 5: Annotate the Images

Tip 3: *If desired, you can force certain areas to be ignored. This can be helpful if you overdrew an annotation – instead of redrawing it, you can overlay the undesired portion with another annotation. Right click on that annotation, go to "Set classification" → "Ignore*". This will designate this as a special annotation to exclude the area overlapping with your intended ROI annotation(s).*



Step 5: Annotate the Images

3. Save each image as you go through them and create ROIs.



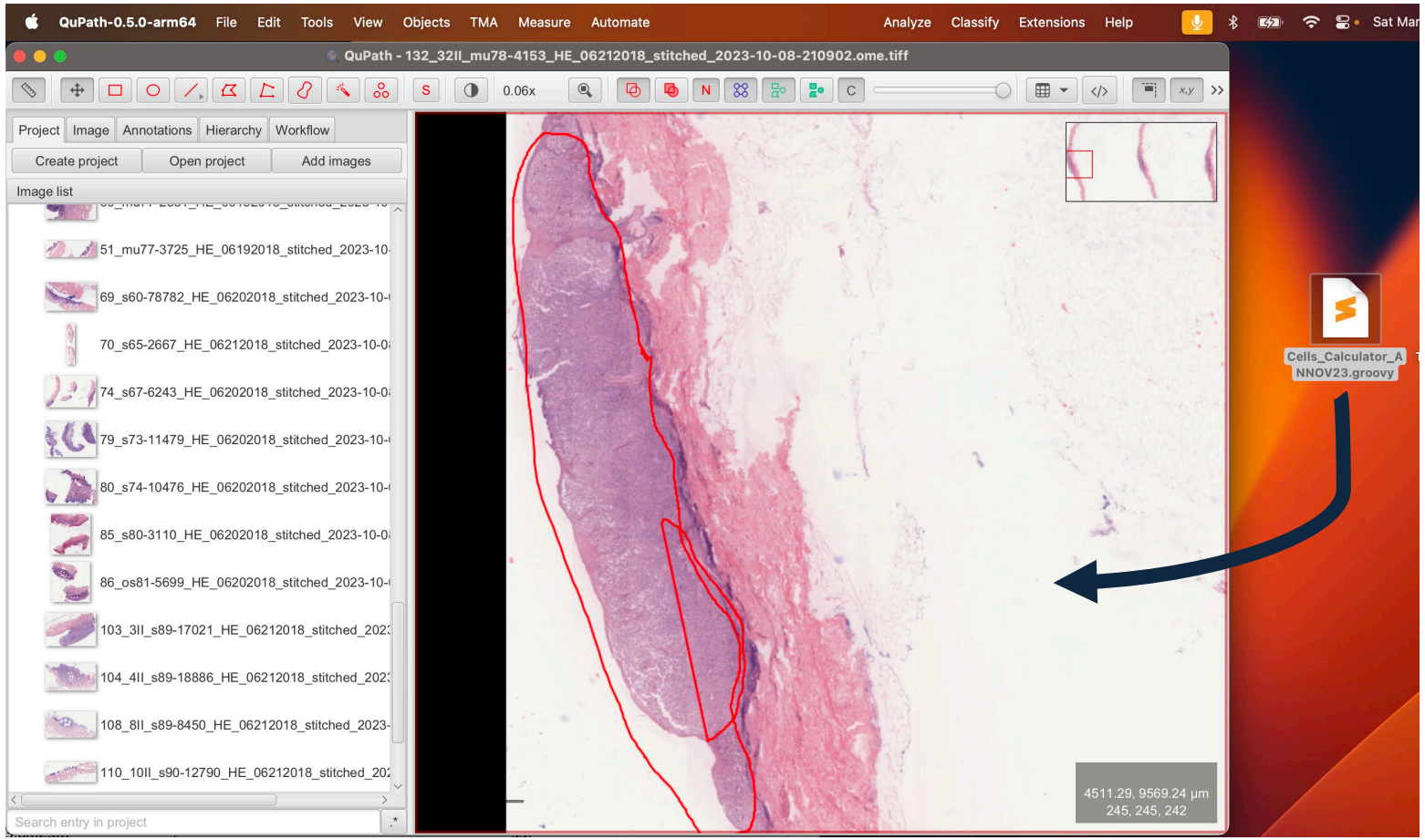
Step 6: Upload the Project

1. After completion, upload the fully annotated project here.
    - This should be the folder where you created your QuPath project. Please just upload this and *not* the associated images you also downloaded.

Step 7: Run the Script

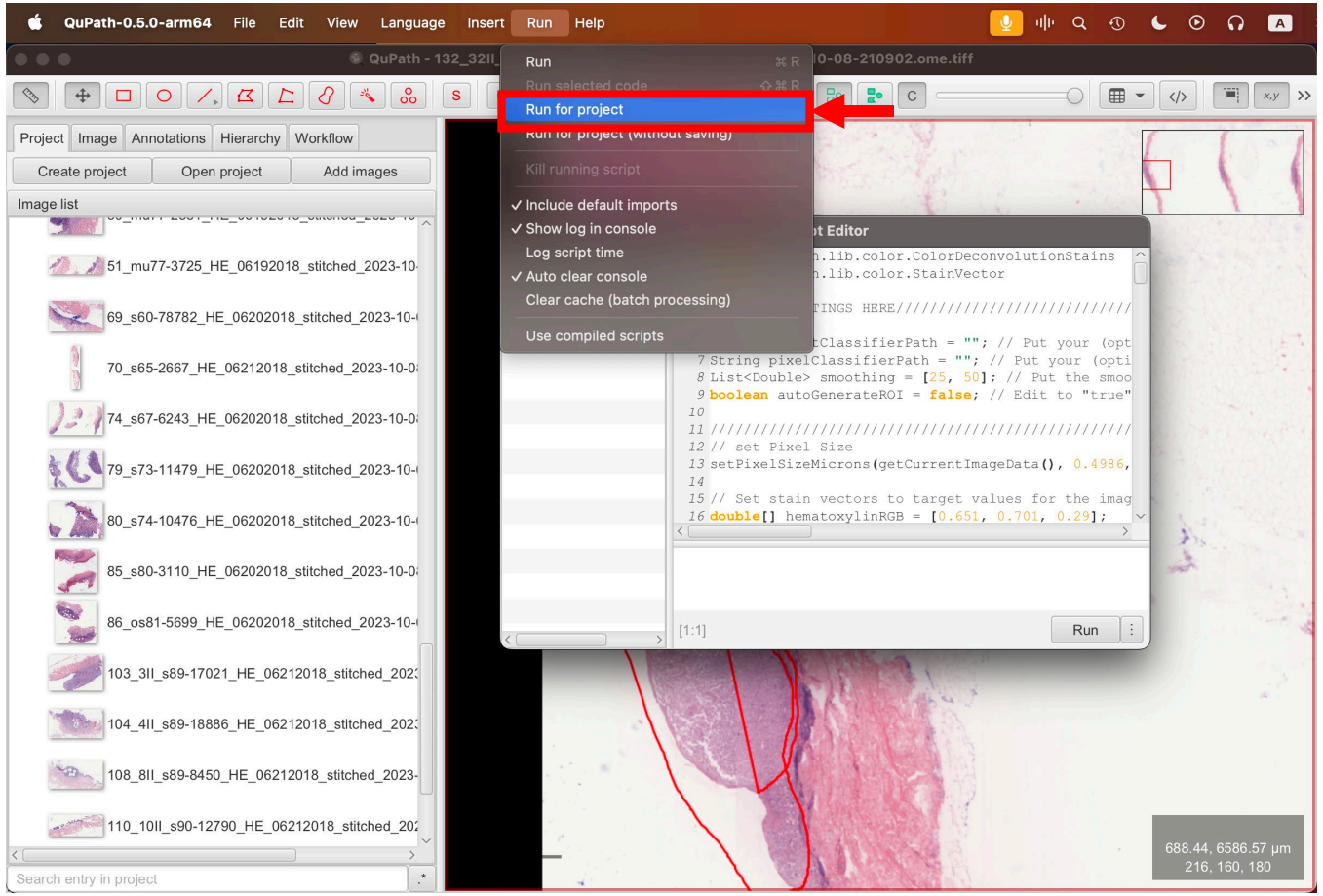
1. Going back to your project, drag the provided script onto the interface.

- The script window should pop up.



Step 7: Run the Script

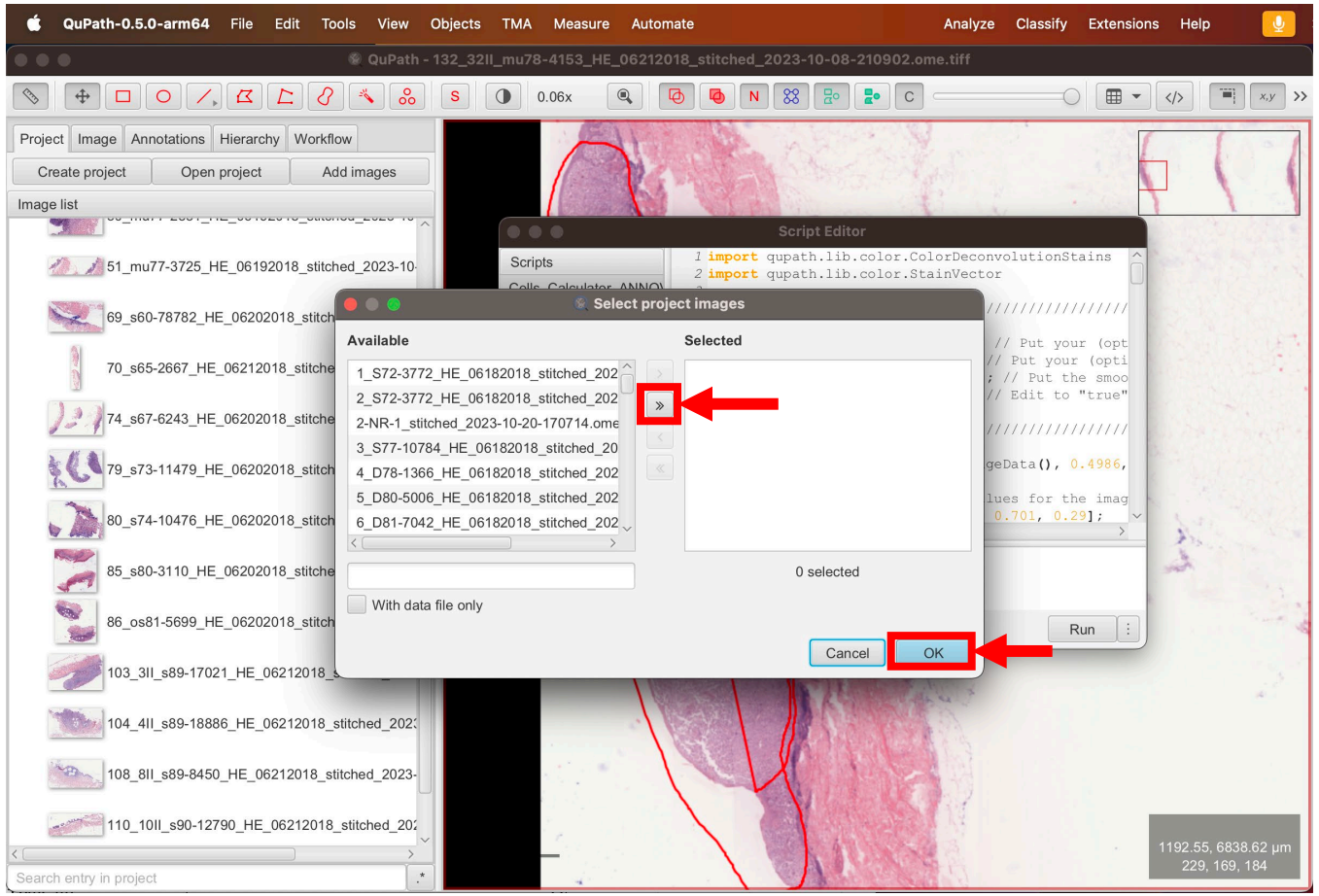
2. Click on the script window. Then select “Run” → “Run for Project”.



Step 7: Run the Script

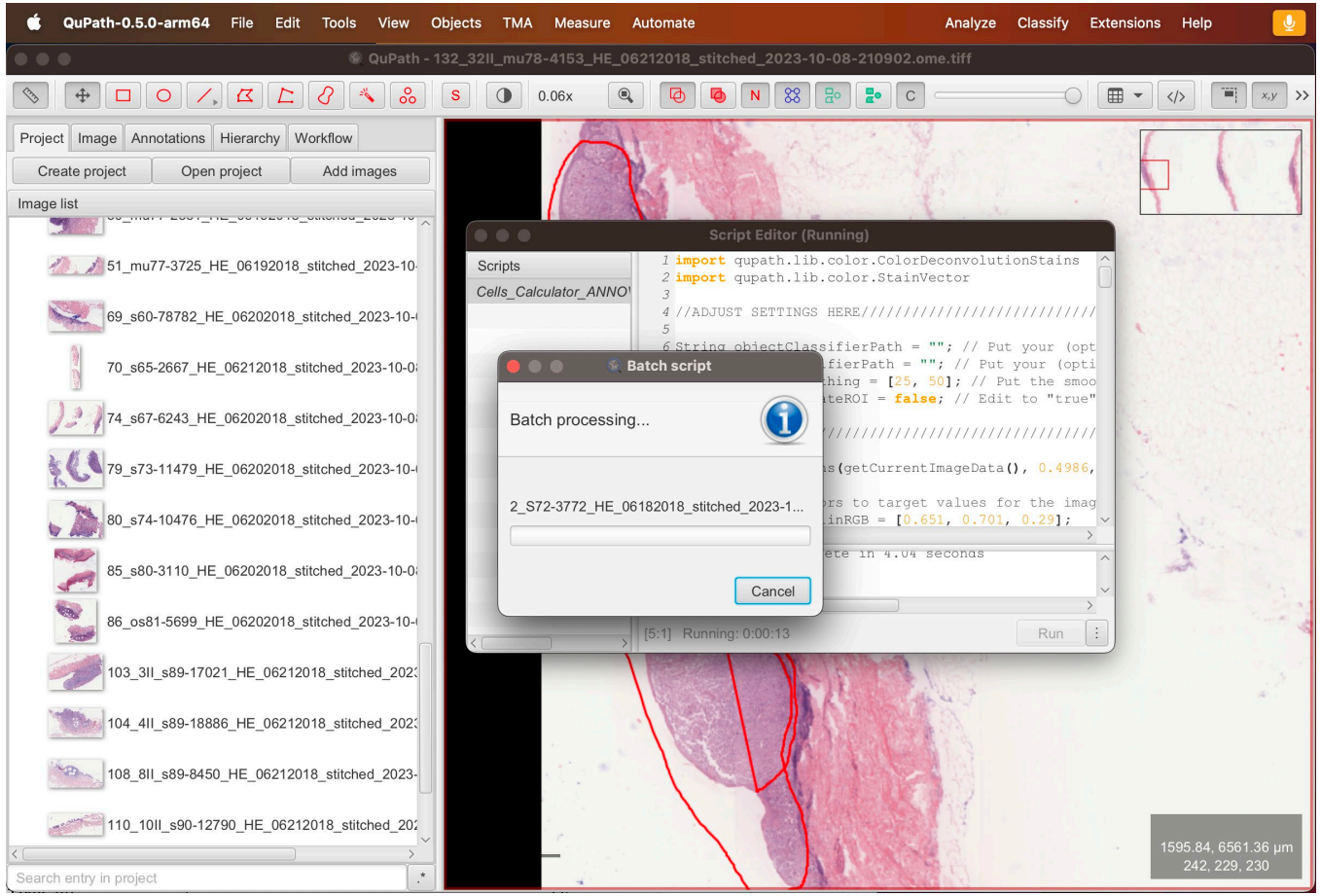
3. In the next pop up window, click on the “>>” button to include all images to be run. Then click “OK” to run the script.

Note: Please make sure at this point ALL your images have all changes saved.



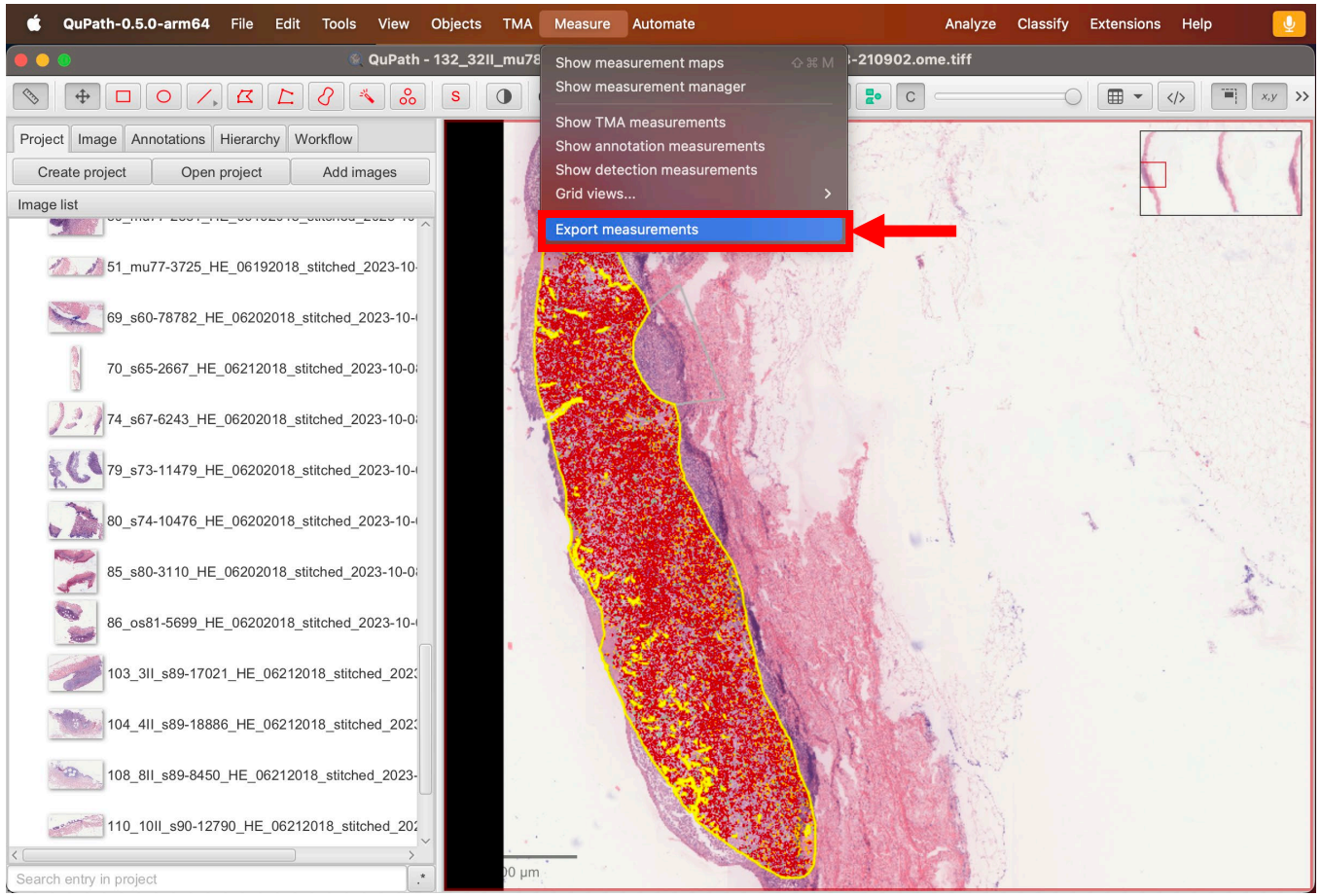
Step 7: Run the Script

4. Wait for the script to complete.
    - This may take some time…



Step 8: Export Measurements

1. Once the script has finished. Go back to your project and select “Measure” → “Export measurements”



Step 8: Export Measurements

2. In the pop-up window, follow the settings shown on the right.