

Doing time lapse microscopy using the Nikon SMZ1500

Time lapse microscopy is a way to easily monitor developmental processes that occur over extended periods of time in a time efficient way. Time lapse is done on the Nikon SMZ1500 in the microscope room. If you are going to use it, you must sign up ahead of time in the log notebook next to the microscope. **Do not use the microscope or the time lapse program unless you have been trained to do so.**

1. On the desktop, open the program MetaMorph.
2. Press cancel for the Nikon E1000
3. Turn on the microscope lamp and color camera.
4. Place the plate that you are going to photograph in a 100mm x15mm Petri dish bag that has been cut without the lid and place underneath the scope. This will be taped to prevent the plate from drying out.
5. Focus the plate under the microscope.
6. Click the side button on the top of the microscope to photo to view it on the screen.
7. Under Edit, choose Preferences.
8. Choose the Save tab
9. Make sure that the box for saving images as a tiff file is checked.
10. The Main box should automatically appear. Choose SMZ1500 color.
11. Choose the magnification that you will be using. Make sure that the button you choose matches the magnification chosen on the side of the microscope.
12. Choose Acquire on the same list of magnifications.
13. A new box should open. Choose the tab Acquire; select acquire here.
14. Another box for playing with the color camera should appear.
15. Press the Start Focusing button
16. Another window will open with the picture in it. If the image is small choose zoom and click on the image until it is at 100%.
17. Refocus the image, if necessary, according to what you see on the computer screen, not what you see in the microscope. The 3D knob is useful to get good image contrast.
18. Click on Region. A square should be in the middle of a white box.
19. Make sure that the button for choosing the square is selected. This allows for a smaller file size than the using the entire chip.
20. Click on Center Quadrant.
21. Choose the tab that says Color Balancing.
22. This is where we measure the white reference area of the image. Below the area, choose the small button with a red square on it.
23. A green box will appear on the image. Move it to as light an area as possible.
24. Click Measure White Reference to balance the color.
25. Click back on the Acquire tab.
26. Choose Auto Expose
27. Make sure the image is what you want.
28. Choose Acquire at the top of the screen.
29. Choose Acquire time lapse
30. Choose the time interval and duration of the time lapse.
31. A button will appear saying where it will be saved. Click on it.
32. Choose save to disk and specify where it will be saved. Create a folder to save your images. *Make sure that you are not saving it under the same file name as a previous time lapse. This will cause your time lapse to stop if you are not there to monitor every image.*
33. Click Ok.

Once the program has ended, you can create a movie to playback the images.

