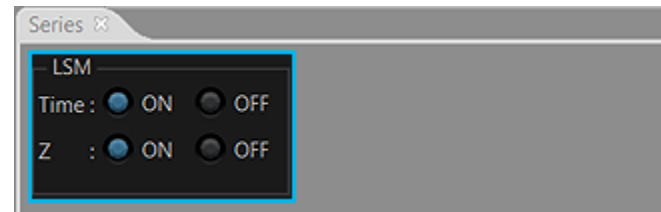
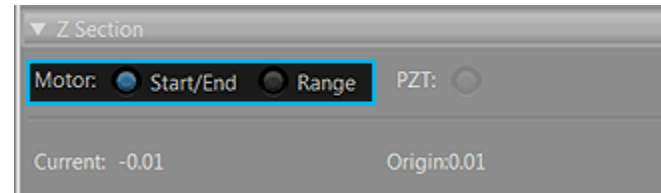


## Setting Z series (Specifying start/end positions)

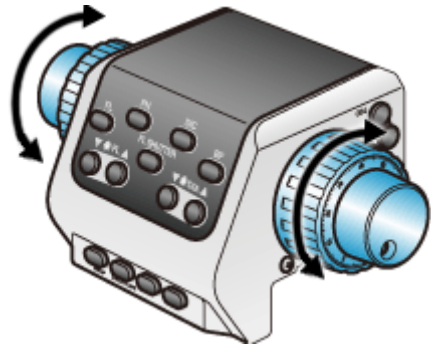
- 1 Select "ON" in [Z] on [Series] Tool Window.



- 2 Select "Start/End" in [Motor] on [Z Section].




As described below, set Z series with changing the Z position by rotating the focusing knob of U-MCZ.



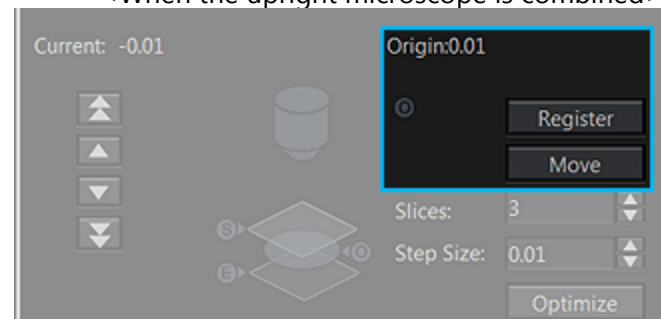
- 3

Press the **Register** button in [Origin] at the Z position which is the reference position to acquire the images.

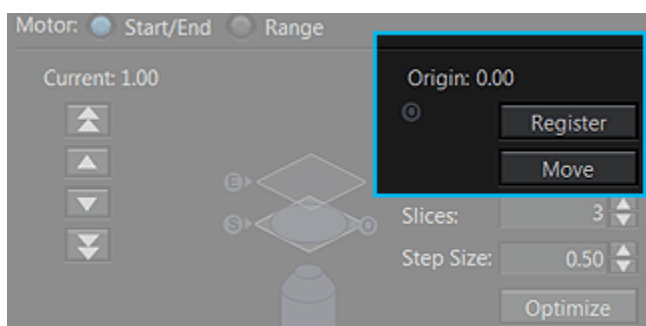
 The distance from the Z position registered in [Origin] to the current Z position is displayed in [Current].

If you register the top surface of the specimen in [Origin], the depth from the top surface to the observation position is always displayed in [Current], which is very useful.

<When the upright microscope is combined>



<When the inverted microscope is combined>



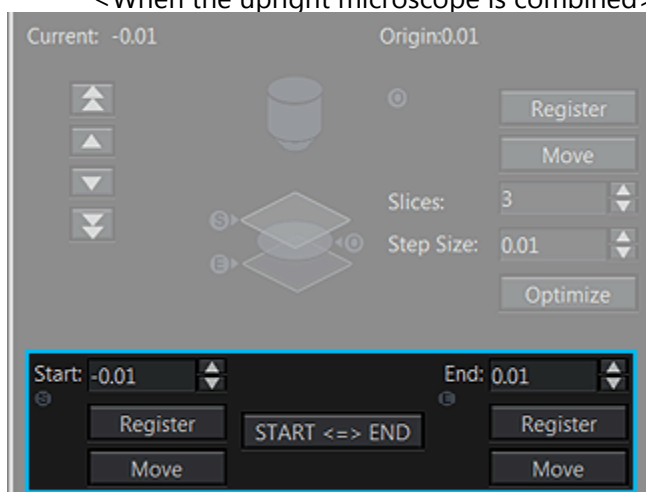
4

Press the **Register** button in [Start] at the Z position to start acquiring the image.

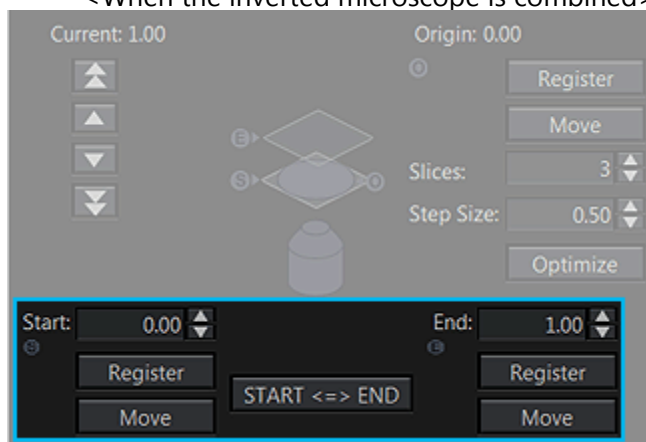
Then, go on to press the **Register** button in [End] at the Z position to end acquiring the image.

Press the **START <=> END** button to reverse the start position and the end position.

<When the upright microscope is combined>



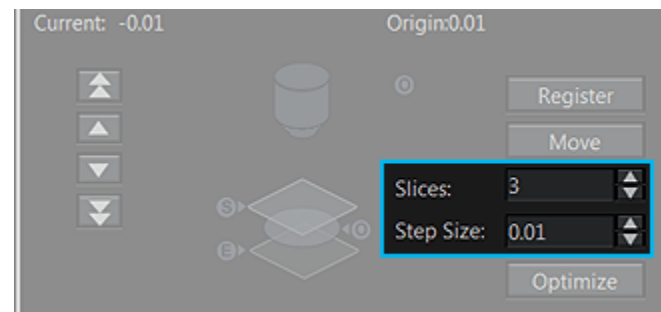
<When the inverted microscope is combined>



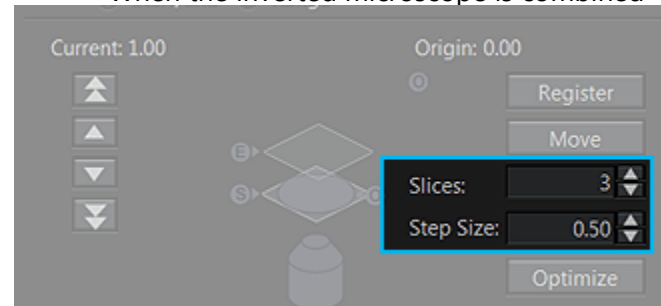
5

Set either [Slices] or [Step Size]. Setting one will set the other automatically.

<When the upright microscope is combined>

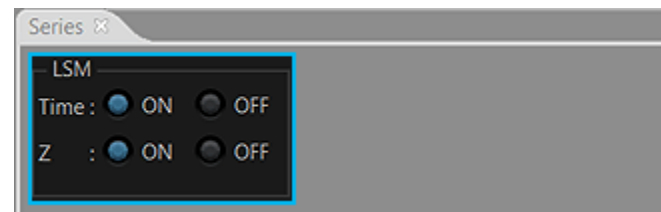


<When the inverted microscope is combined>



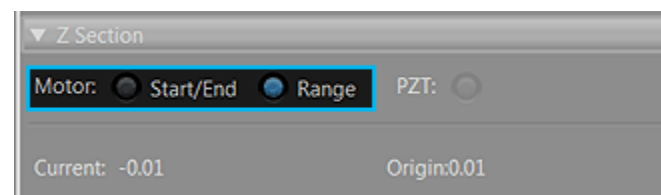
## Setting Z series (Specifying the center position and the range)

- 1 Select "ON" in [Z] on [Series] Tool Window.

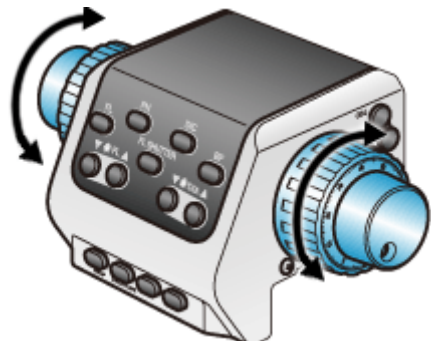


- 2 Select "Range" in [Motor] on [Z Section].

"Range" is suitable when you set the acquisition area in the Z direction assuming the displacement of the focus position during acquiring T series images.



As described below, set Z series with changing the Z position by rotating the focusing knob of U-MCZ.



**3**

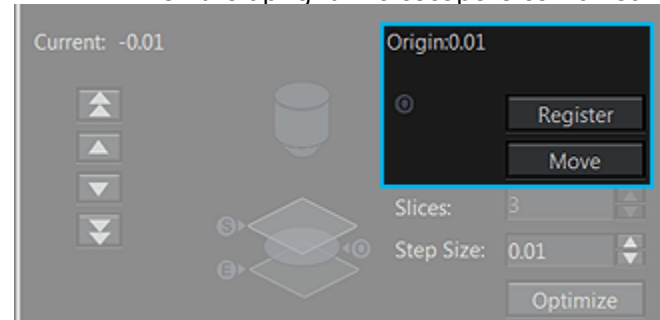
Press the **Register** button in [Origin] at the Z position which is the reference position to acquire the images.



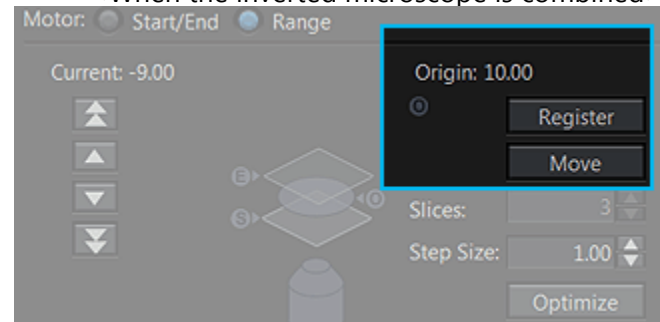
The distance from the Z position registered in [Origin] to the current Z position is displayed in [Current].

If you register the top surface of the specimen in [Origin], the depth from the top surface to the observation position is always displayed in [Current], which is very useful.

<When the upright microscope is combined>



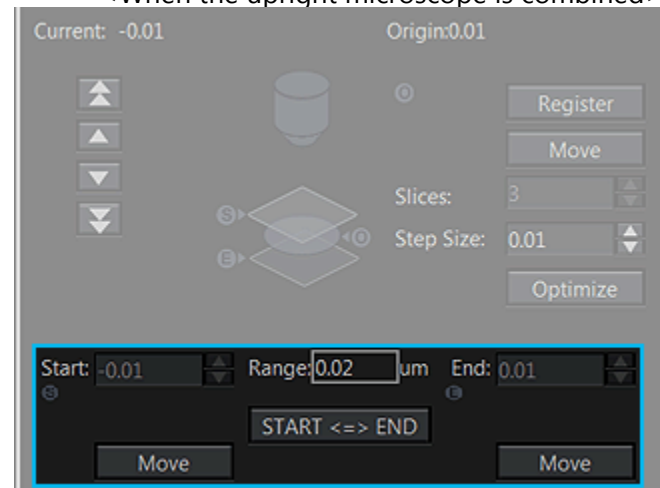
<When the inverted microscope is combined>

**4**

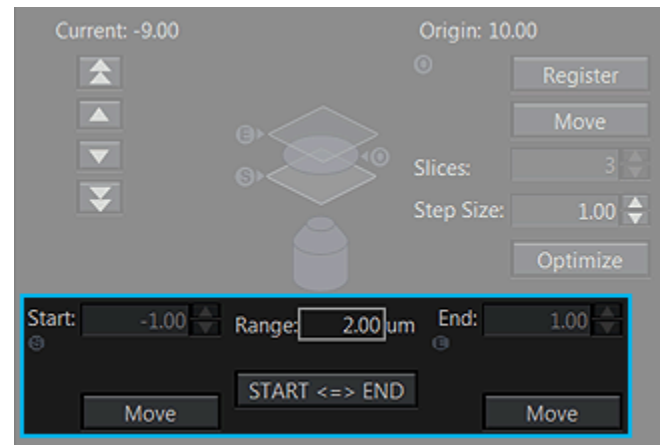
Set the range to acquire the image in [Range]. The start position and the end position to acquire the image are set automatically.

Press the **START <=> END** button to reverse the start position and the end position.

<When the upright microscope is combined>

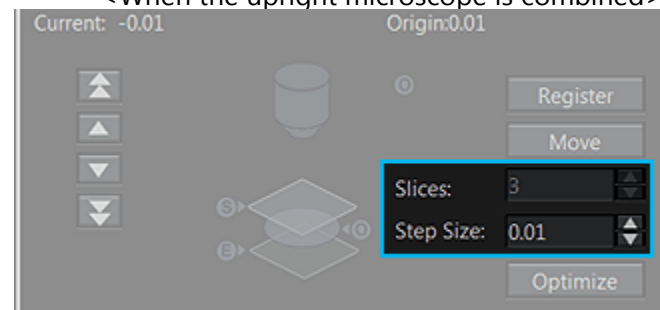


<When the inverted microscope is combined>

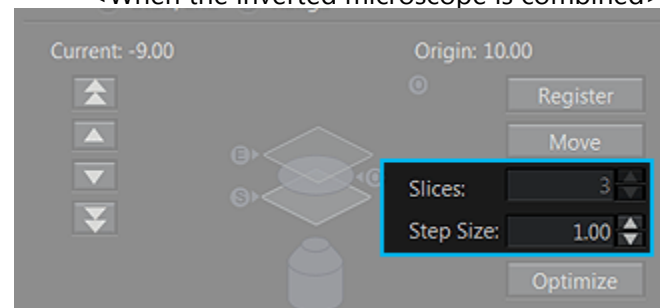


- 5** Set either [Slices] or [Step Size]. Setting one will set the other automatically.

<When the upright microscope is combined>

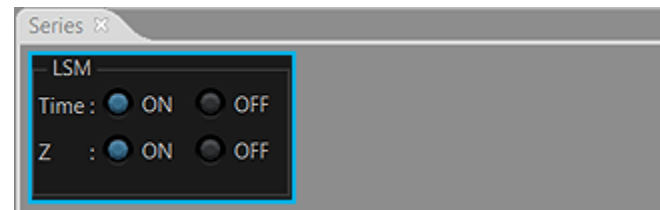


<When the inverted microscope is combined>




## Setting T series

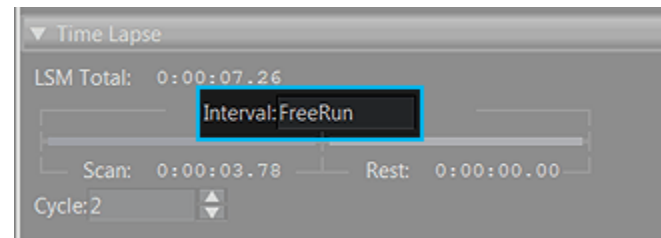
- 1** Select "ON" in [Time] on [Series] Tool Window.



- 2**

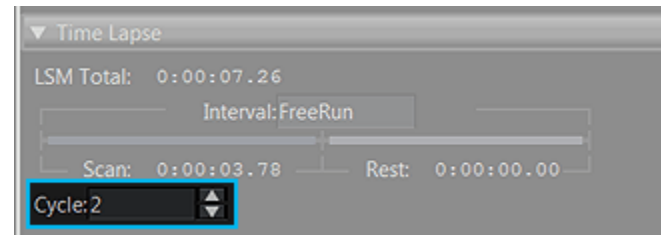
Set the interval to acquire the image in [Interval] on [Time Lapse].

 If you attempt to set the time shorter than the time displayed in [Scan] (time taken for acquiring 1 cycle image) in [Interval], "FreeRun" appears. In this case, the interval to acquire the image is the time displayed in [Scan].



- 3 Set the number of image acquisitions in [Cycle].

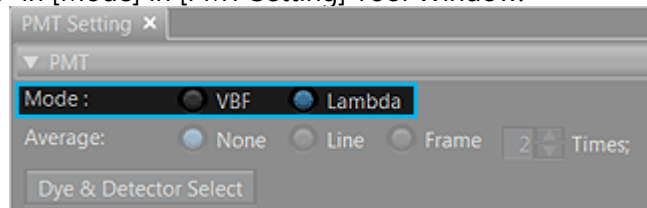
The time from the start of the T series image acquisition to the end of the T series image acquisition is calculated and displayed in [LSM Total]. Set [Cycle] so that [LSM Total] becomes an appropriate time.



## Setting Lambda series (acquiring by a single channel)

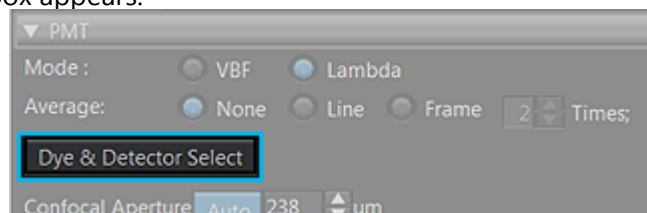
### Changing to Lambda mode

- 1 Select "Lambda" in [Mode] in [PMT Setting] Tool Window.



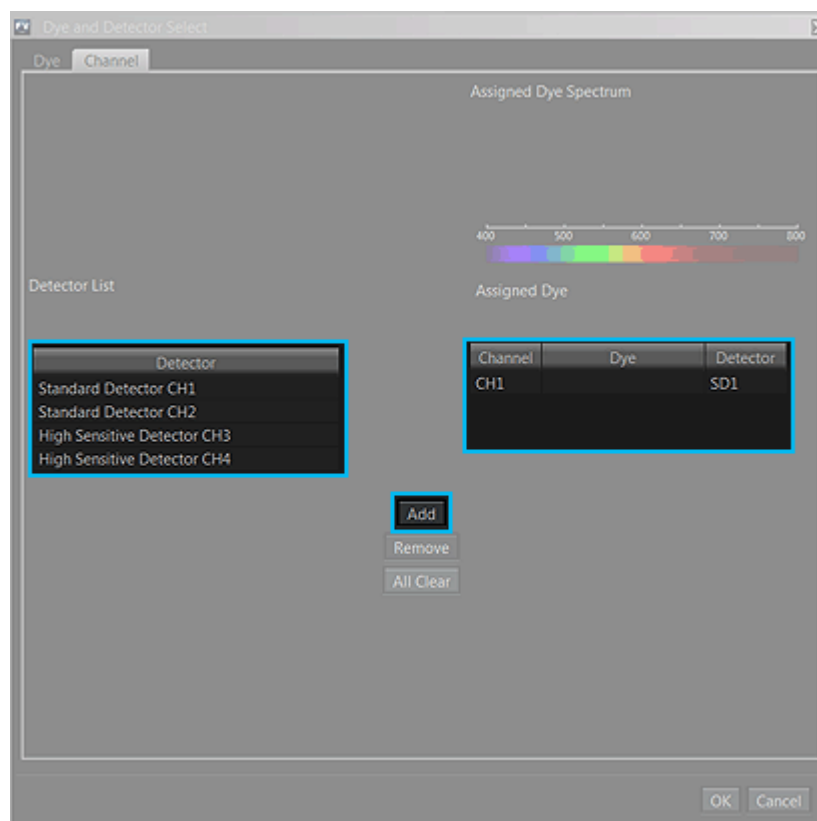
### Selecting one channel to be used

- 2 Press the **Dye & Detector Select** button. The [Dye & Detector Select] dialog box appears.



- 3

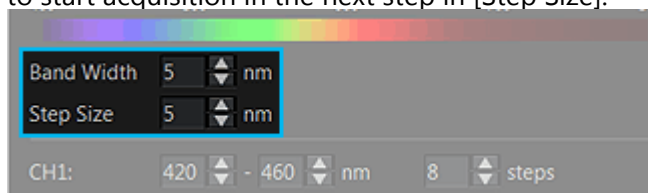
Select the detector to be assigned to the observation channel in [Detector List] in the [Dye & Detector Select] dialog box, and press the **Add** button. The observation channel number and the abbreviation (physical channel name) of the assigned detector are displayed in the observation channel list.



- 4 Press the **OK** button to close the [Dye & Detector Select] dialog box.

### Setting the width of the wavelength for which the photometry is performed and the interval between wavelengths to start acquisition

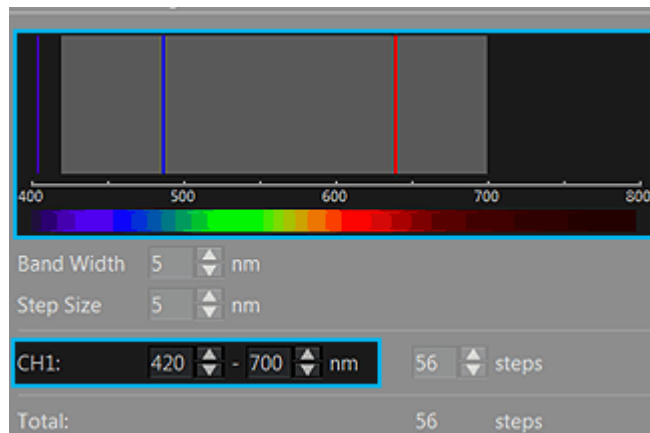
- 5 In [PMT Setting] Tool Window, set the width of the wavelength for which the photometry is performed per each step in [Band Width], and set the interval between the wavelength to start acquisition and the wavelength to start acquisition in the next step in [Step Size].



### Setting the wavelength to start photometry and the wavelength to end photometry

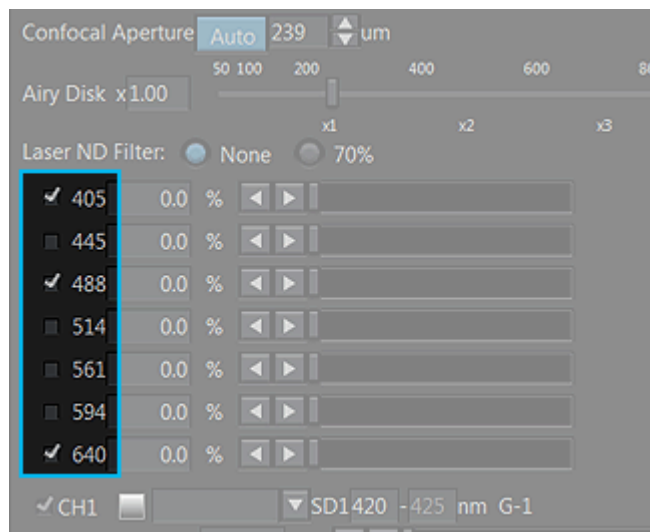
- 6

Set them by dragging the mouse on the profile display area or set the value directly to [CH1].



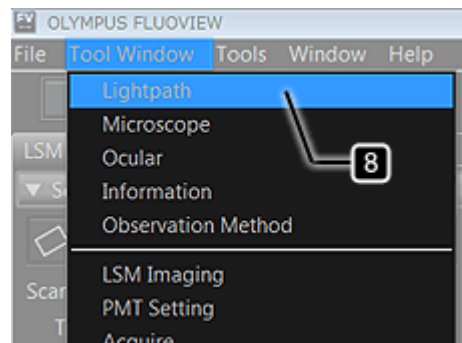
### Selecting the excitation laser to be used

- 7 Tick the checkbox of the wavelength of the excitation laser to be used.



### Selecting DM and SDM so that the intended fluorescence wavelength reaches the detector

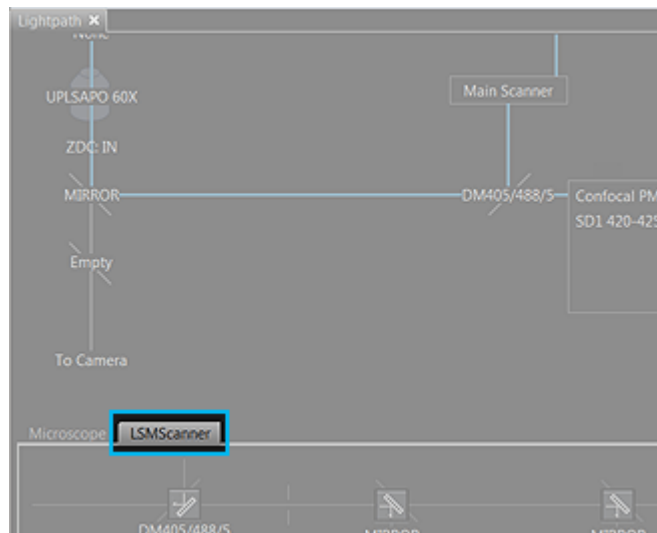
- 8 Select [Lightpath] in [Tool Window] menu. [Lightpath] Tool Window appears.



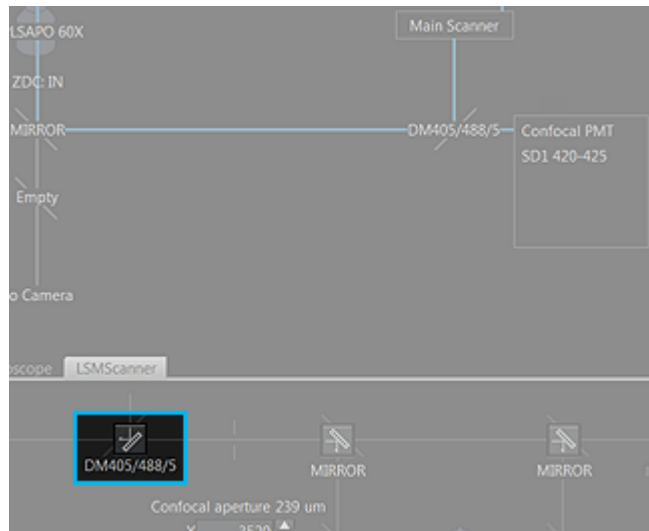
9

Select [LSMScanner] tab in [Lightpath] Tool Window.

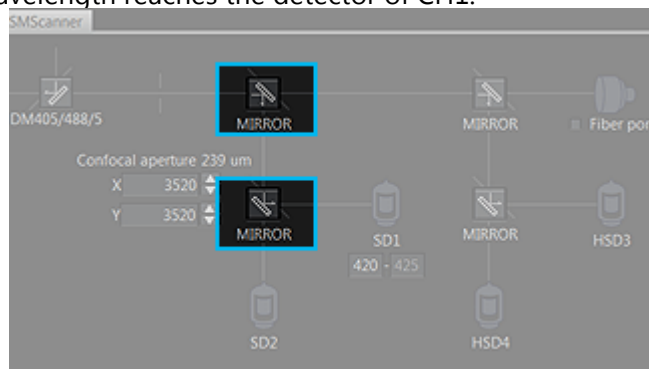




- 10** Press the DM button to display the dichroic mirror (DM) list. Select "DM" which reflects the wavelength of the excitation laser selected in **7**.



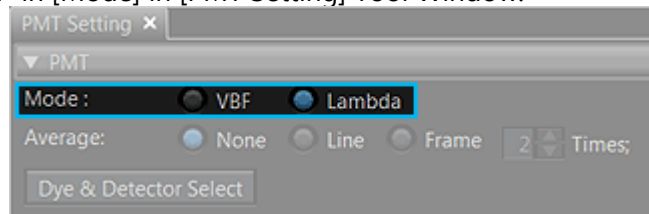
- 11** Press the SDM button to display the photometry dichroic mirror (SDM) list. Select "SDM", "Mirror" or "Glass" so that the intended fluorescence wavelength reaches the detector of CH1.



## Setting Lambda series (acquiring by multiple channels)

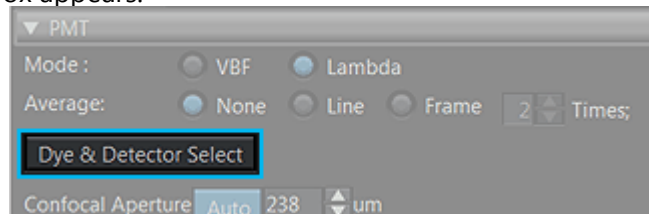
## Changing to Lambda mode

- 1 Select "Lambda" in [Mode] in [PMT Setting] Tool Window.

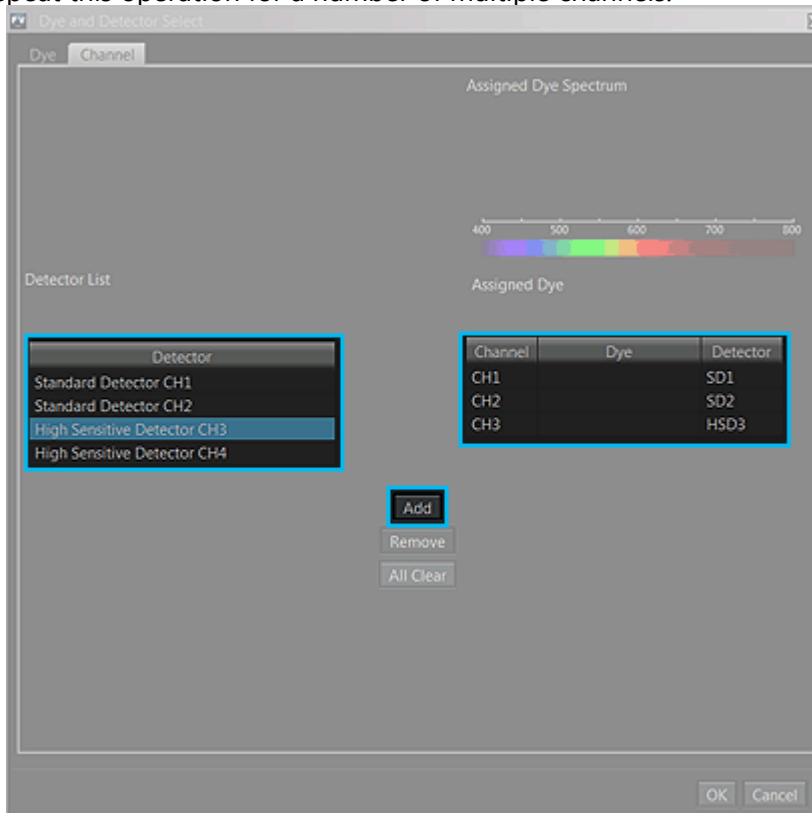



## Selecting multiple channels to be used

- 2 Press the **Dye & Detector Select** button. The [Dye & Detector Select] dialog box appears.



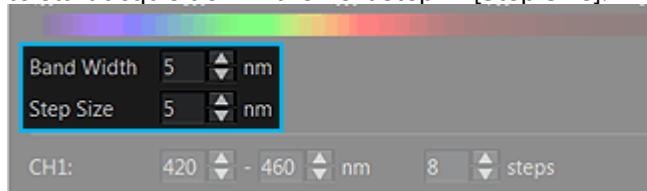
- 3 Select the detector to be assigned to the observation channel in [Detector List] in the [Dye & Detector Select] dialog box, and press the **Add** button. The observation channel number and the abbreviation (physical channel name) of the assigned detector are displayed in the observation channel list. Repeat this operation for a number of multiple channels.



- 4 Press the  button to close the [Dye & Detector Select] dialog box.

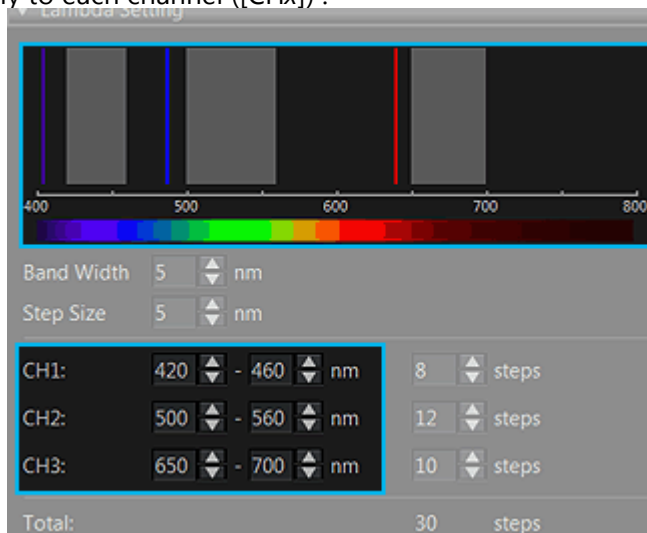
### Setting the width of the wavelength for which the photometry is performed and the interval between wavelengths to start acquisition

- 5 In [PMT Setting] Tool Window, set the width of the wavelength for which the photometry is performed per each step in [Band Width], and set the interval between the wavelength to start acquisition and the wavelength to start acquisition in the next step in [Step Size].



### Setting the wavelength to start photometry and the wavelength to end photometry by each channel

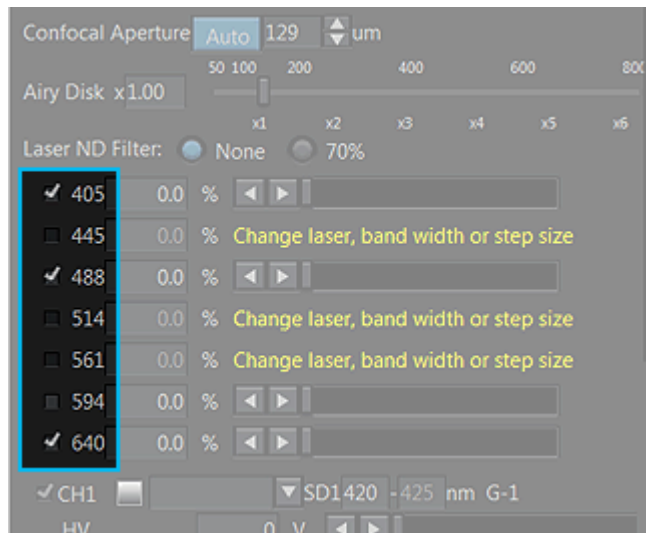
- 6 Set them by dragging the mouse on the profile display area or set the value directly to each channel ([CHx]).



### Selecting the excitation laser to be used

- 7

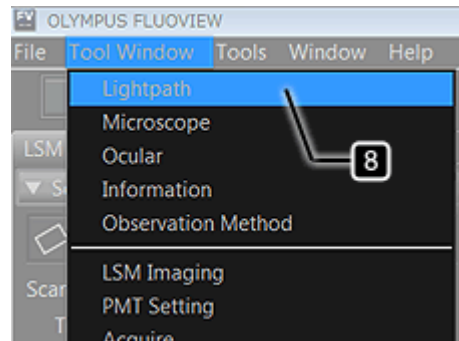
Tick the checkbox of the wavelength of the excitation laser to be used.



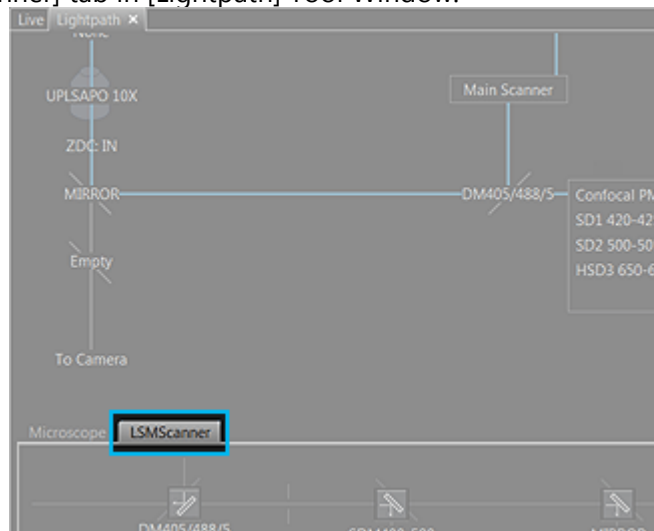
**!** You cannot select the laser which includes  $\pm 5\text{nm}$  of the excitation wavelength in the photometry wavelength range of each channel.

### Selecting DM and SDM so that the intended fluorescence wavelength reaches the detector

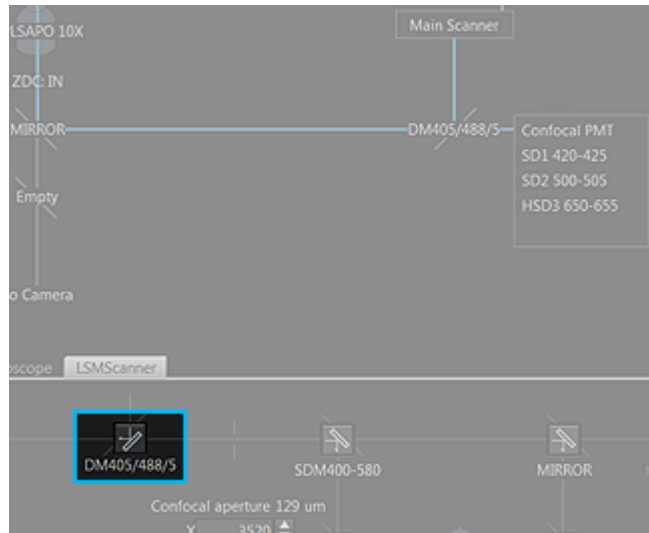
- 8** Select [Lightpath] in [Tool Window] menu. [Lightpath] Tool Window appears.



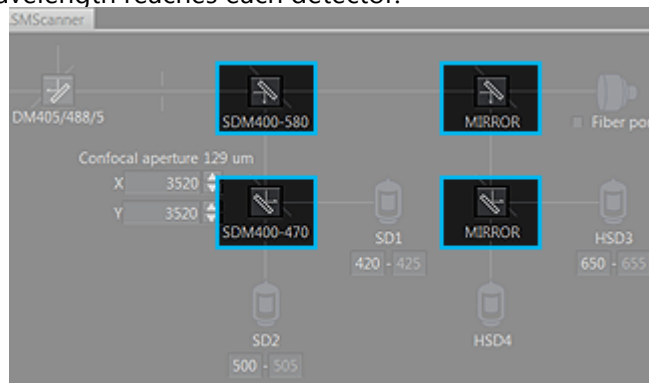
- 9** Select [LSMScanner] tab in [Lightpath] Tool Window.



- 10** Press the DM button to display the dichroic mirror (DM) list. Select "DM" which reflects the wavelength of the excitation laser selected in **7**.

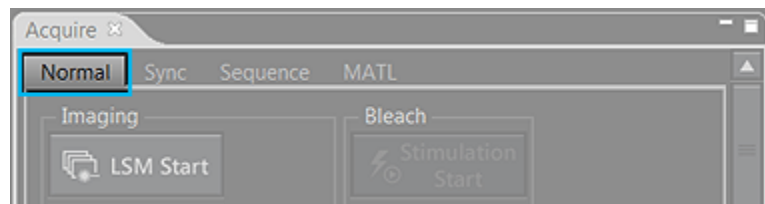


- 11** Press the SDM button to display the photometry dichroic mirror (SDM) list. Select "SDM", "Mirror" or "Glass" so that the intended fluorescence wavelength reaches each detector.



## Starting acquisition

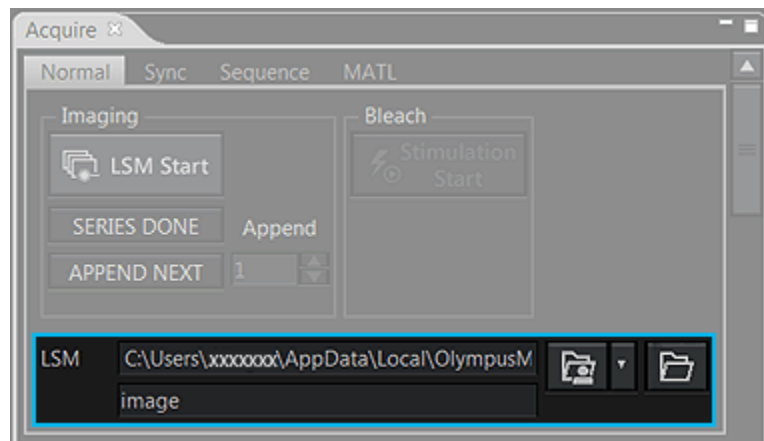
- 1** Select [Normal] tab in [Acquire] Tool Window.



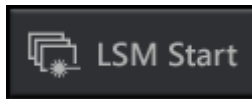
- 2** Press the  button to display the dialog box, and select the folder to save the images.

 In order to organize files easily after acquiring the images, it is recommended to create a new folder before acquiring the images and specify that folder as the save destination of the images.

 The acquired images are saved automatically.



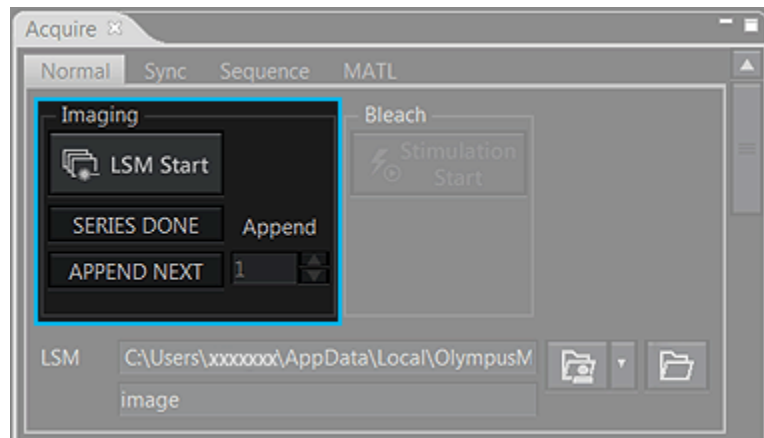
3



Press the **LSM Start** button to start acquiring the image.



When the image acquisition starts, the [Image] window opens and the image in process of acquisition is displayed.



4

After the image is acquired, pressing the **APPEND NEXT** button allows you to perform the image acquisition repetitively under the same condition. Press the **SERIES DONE** button to complete the image acquisition.