

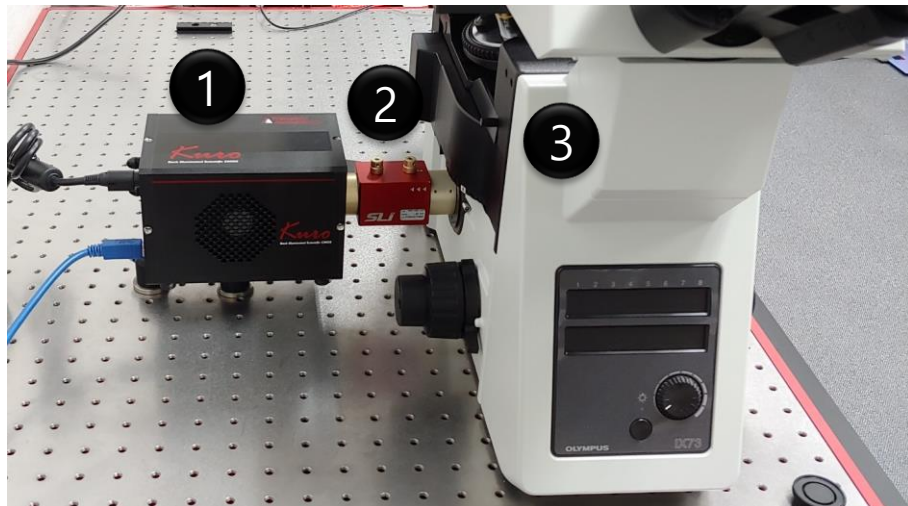
Application Guide

- Hyperspectral Imaging Solutions



FWS with Microscope Camera

a)



Flexible Wavelength Selector (FWS) is a new type of tunable filter for both illumination and imaging. In this application note, we show that FWS can be used with commercial microscope and research camera to build a spectral imaging setup.

The emission port of the microscope was modified with a commercially available part to contain an SM1 tab. Then with some additional parts from SLi, it was possible to mount FWS devices directly to the emission port of the microscope. Afterwards, the optional c-mount of FWS was used to mount directly to the CMOS camera.

b)

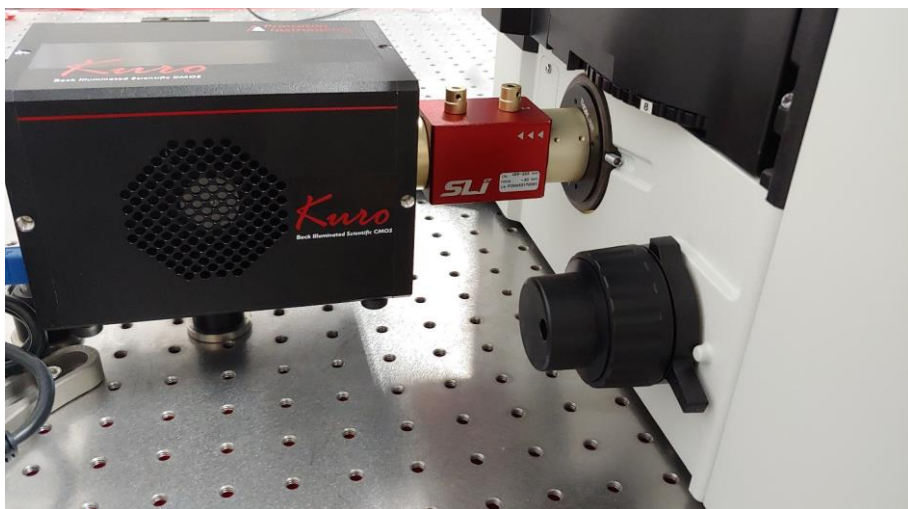


Figure 1a and b. Assembly of 1) CMOS camera, 2) Flexible Wavelength Selector (FWS) CenterLine and 3) microscope body (Olympus IX73)

FWS with Microscope Camera

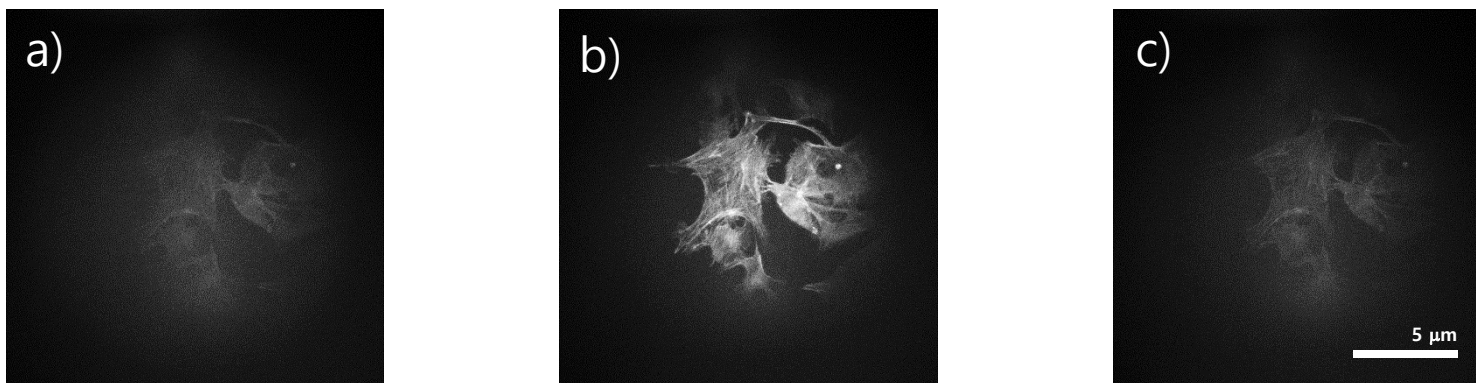


Figure 2. Wide-field spectral images BPAE cells stained with Alexa 488 Phalloidin. FWS CenterLine adjusted at around a) 500 nm, b) 520 nm and c) 550 nm. Scale bar: 5 μm.

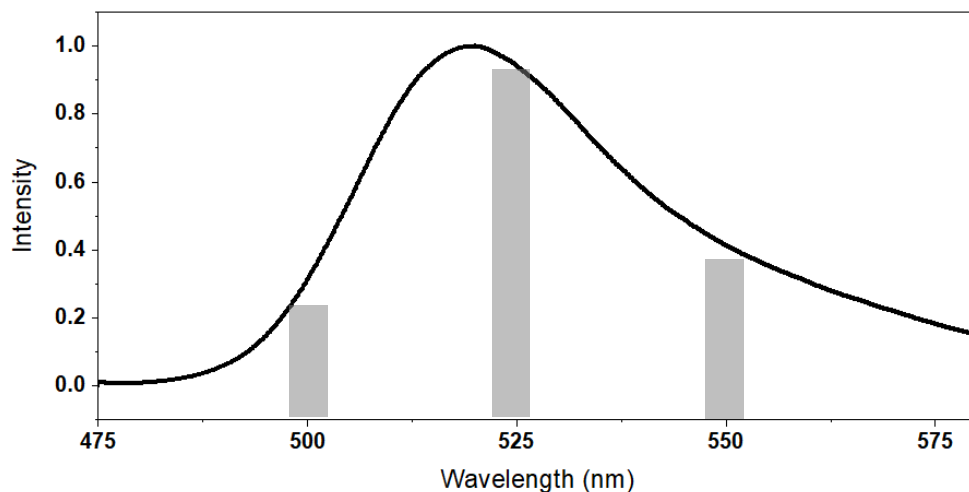


Figure 3. Emission spectrum of Alexa 488. The gray bars represent fluorescence quantitatively. The ratio of emission is 0.3:1:0.4 (from left to right).

From Fig. 1 and 2 it can be seen that the optimal image can be acquired when the emission range is set at 520 nm. By using Flexible Wavelength Selector (FWS), it is possible to find the most optimal wavelength range for fluorescence detection. Moreover, FWS can be used to convert ordinary commercial fluorescence microscope into a spectral imaging microscope.



Light Done Right!