



Nikon C2plus Confocal Laser Microscope

Magi Hung

Scientific Imaging Dep.
Lin Trading Co., Ltd.

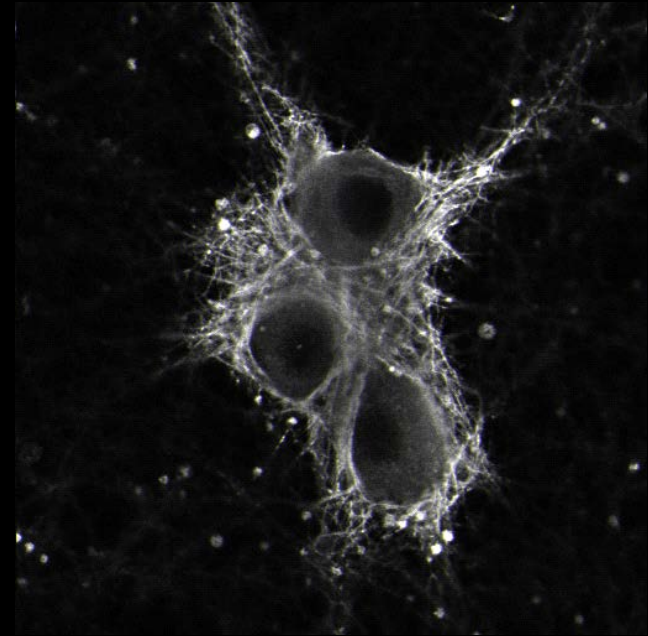
Advantages of Confocal

	Confocal microscopy	Fluorescence microscopy
Image quality	High SNR	Low SNR
Magnification	Variable by scan zoom	Changed by optics
Brightness	Variable by PMT gain	Change exposure time
Multi-color	Fast Multiple	Slow multiple
Manipulation	Point, Line, ROI	No

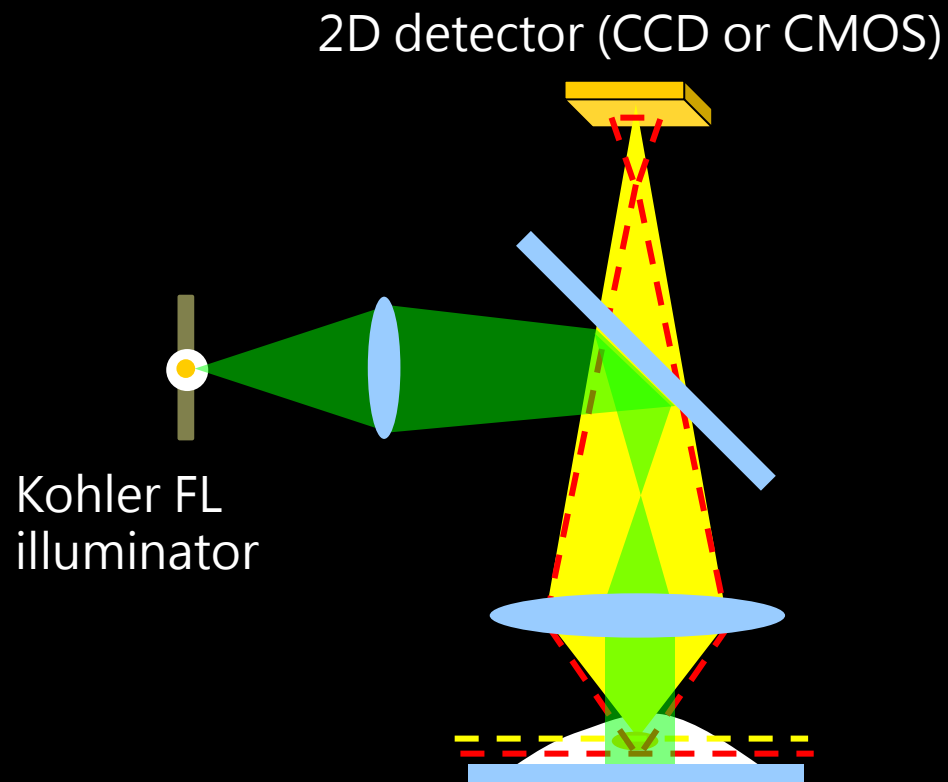
Advantages of Confocal



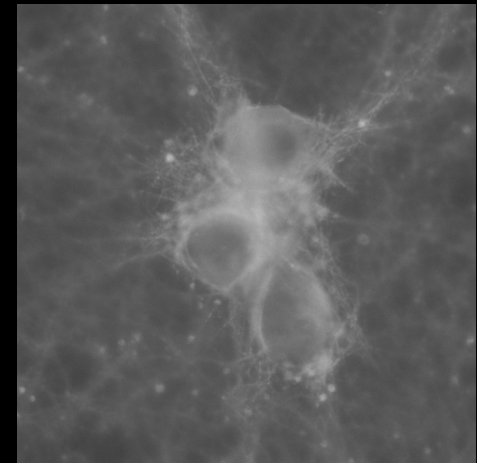
Wide field



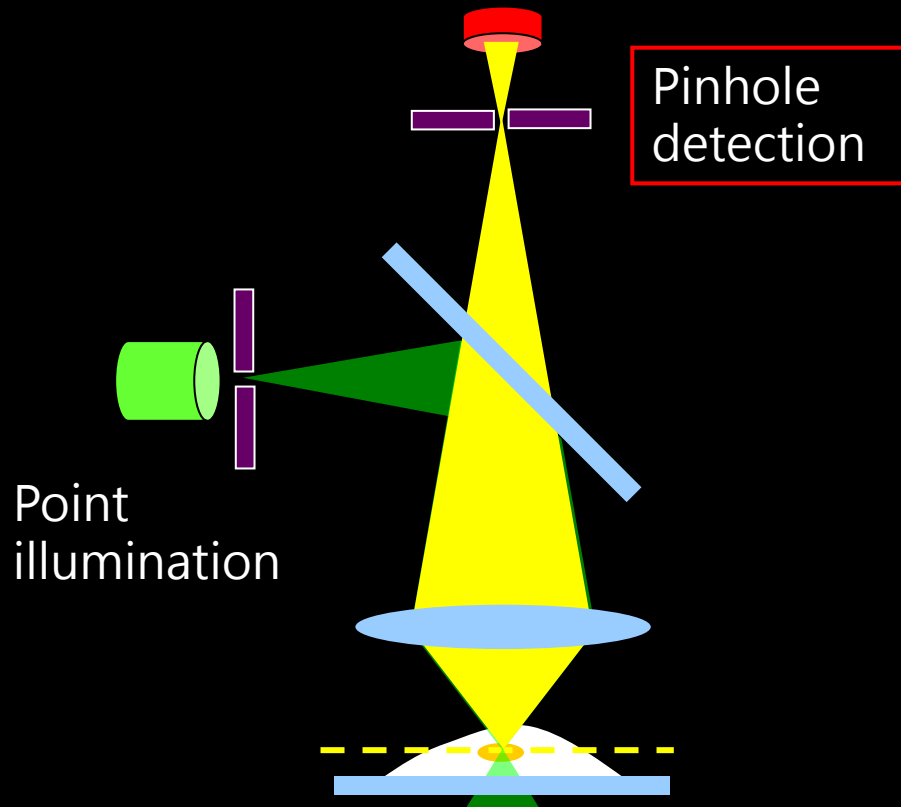
Confocal



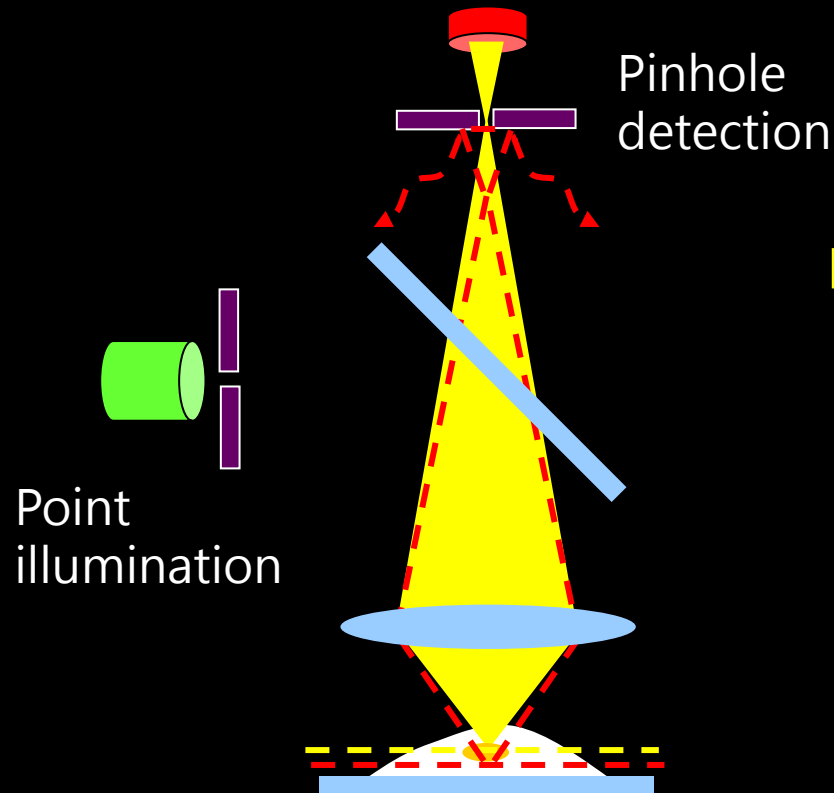
Wide field image



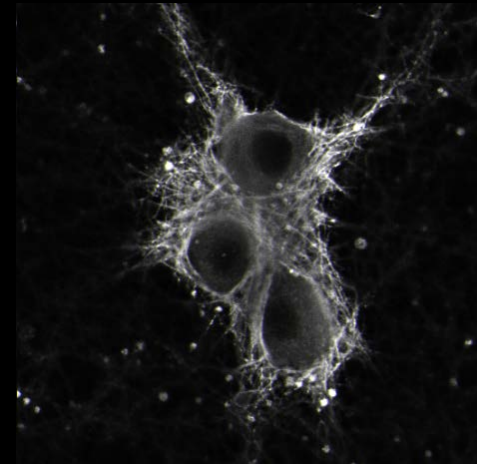
Confocal

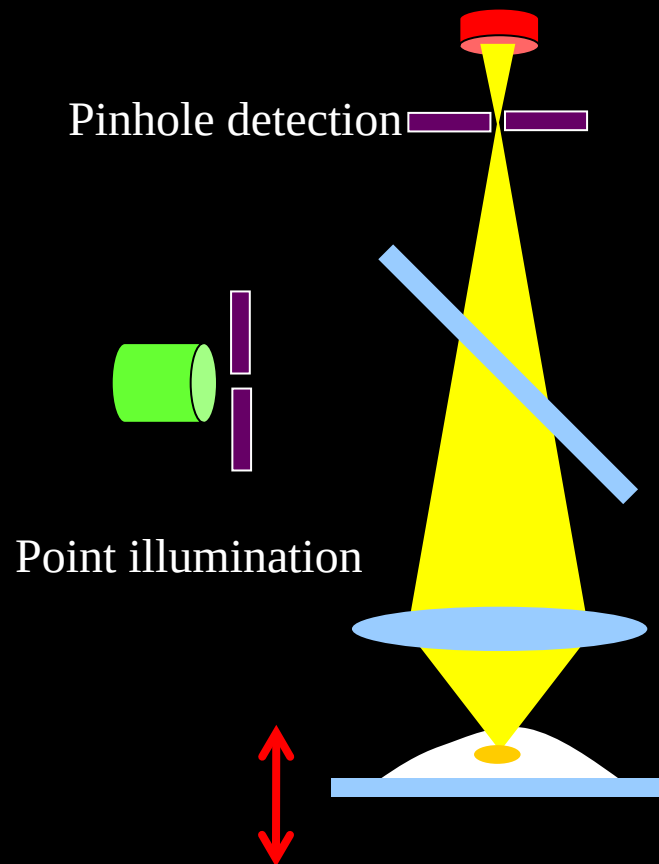


Optical section



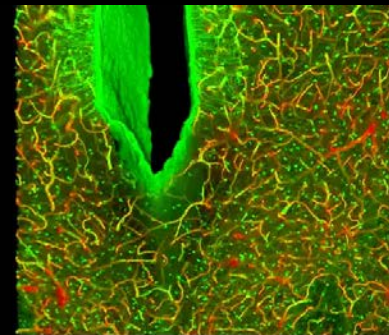
Eliminate out-of-focus light





3D reconstruction

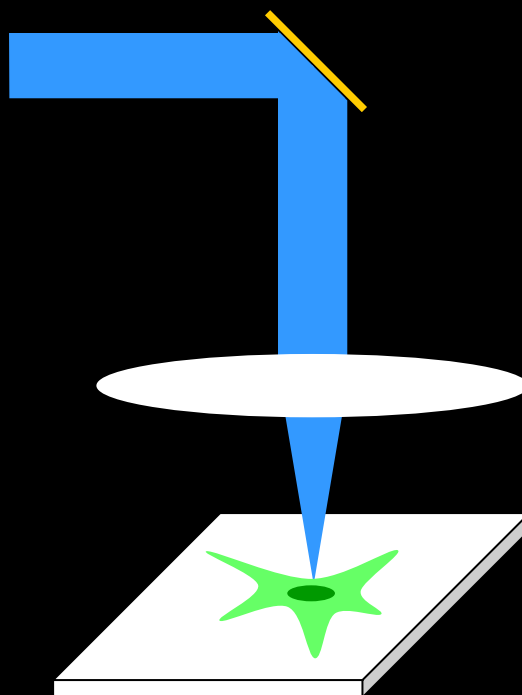
w/ multiple Z image



Size: 1273.00 µm x 1273.00 µm x 200.00 µm | Calibration: XY: 1.24 µm, Z: 2.00 µm | Resolution: 1024 x 1024 x 125

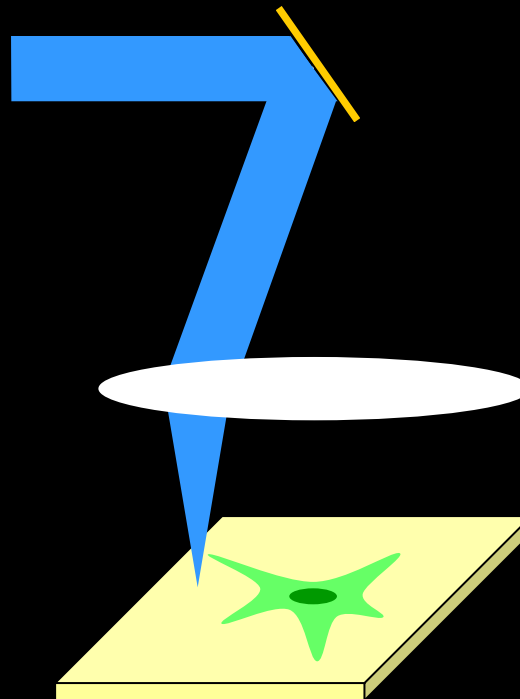
Zoom: 84.0%

Point illumination
w/ laser beam

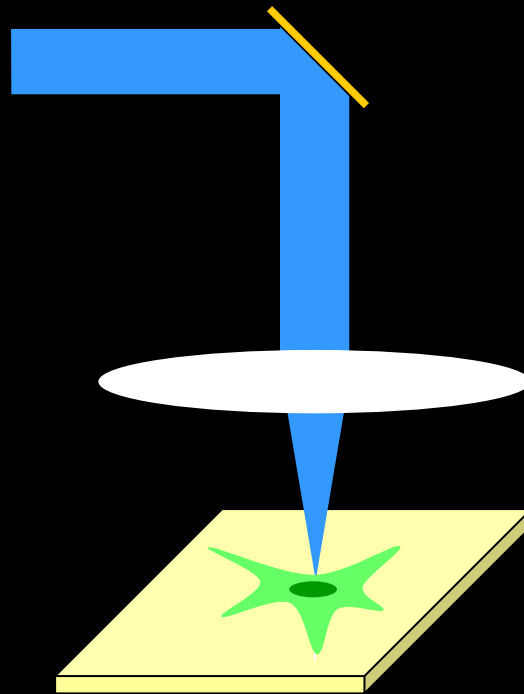


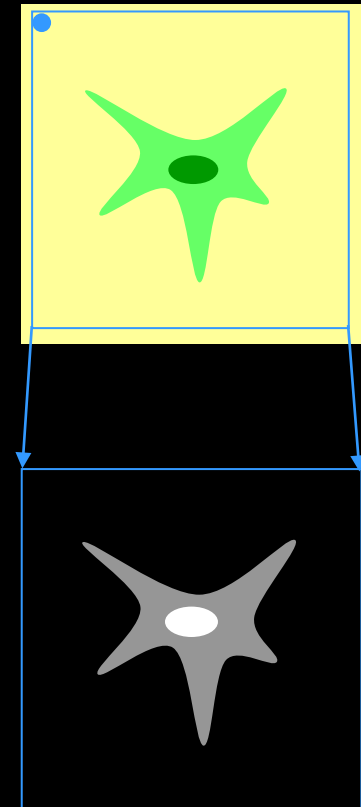
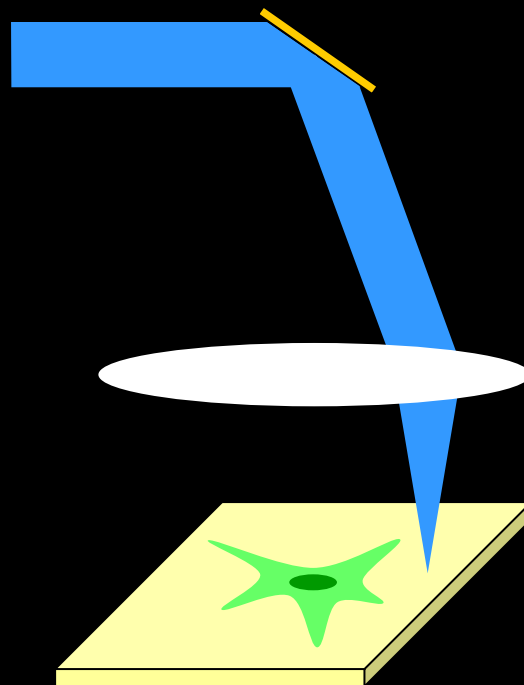
No light comes from periphery of the point

Large angle
(Low Zoom)



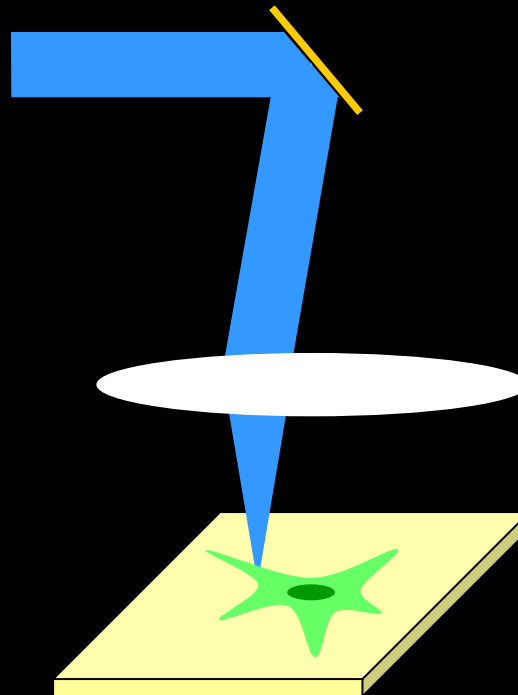
Variable scan zoom



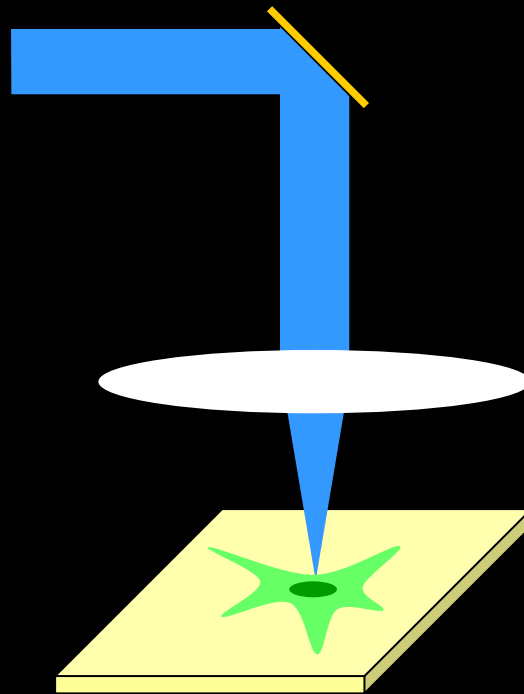


$$\text{ズーム倍率} = \frac{\text{表示の大きさ}}{\text{走査範囲}} \quad \longrightarrow \quad \text{ズーム倍率: 小}$$

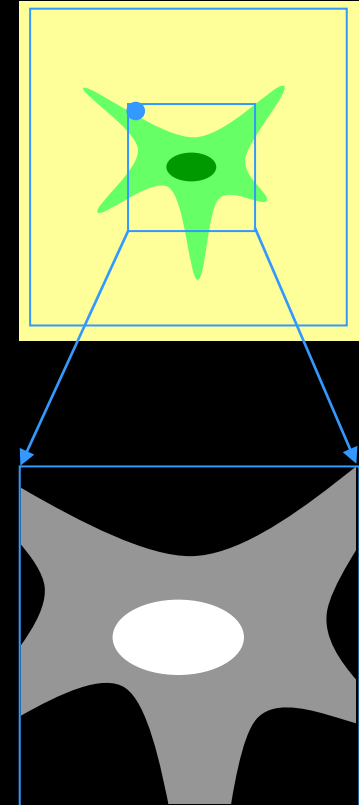
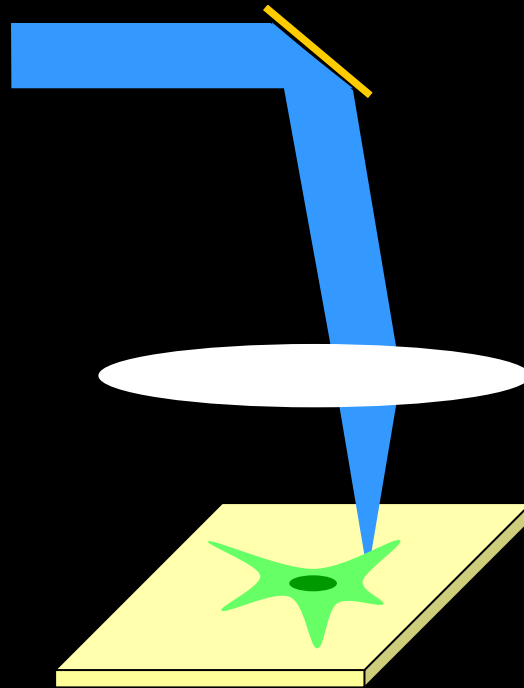
Small angle
(High Zoom)



Variable scan zoom



Variable scan zoom



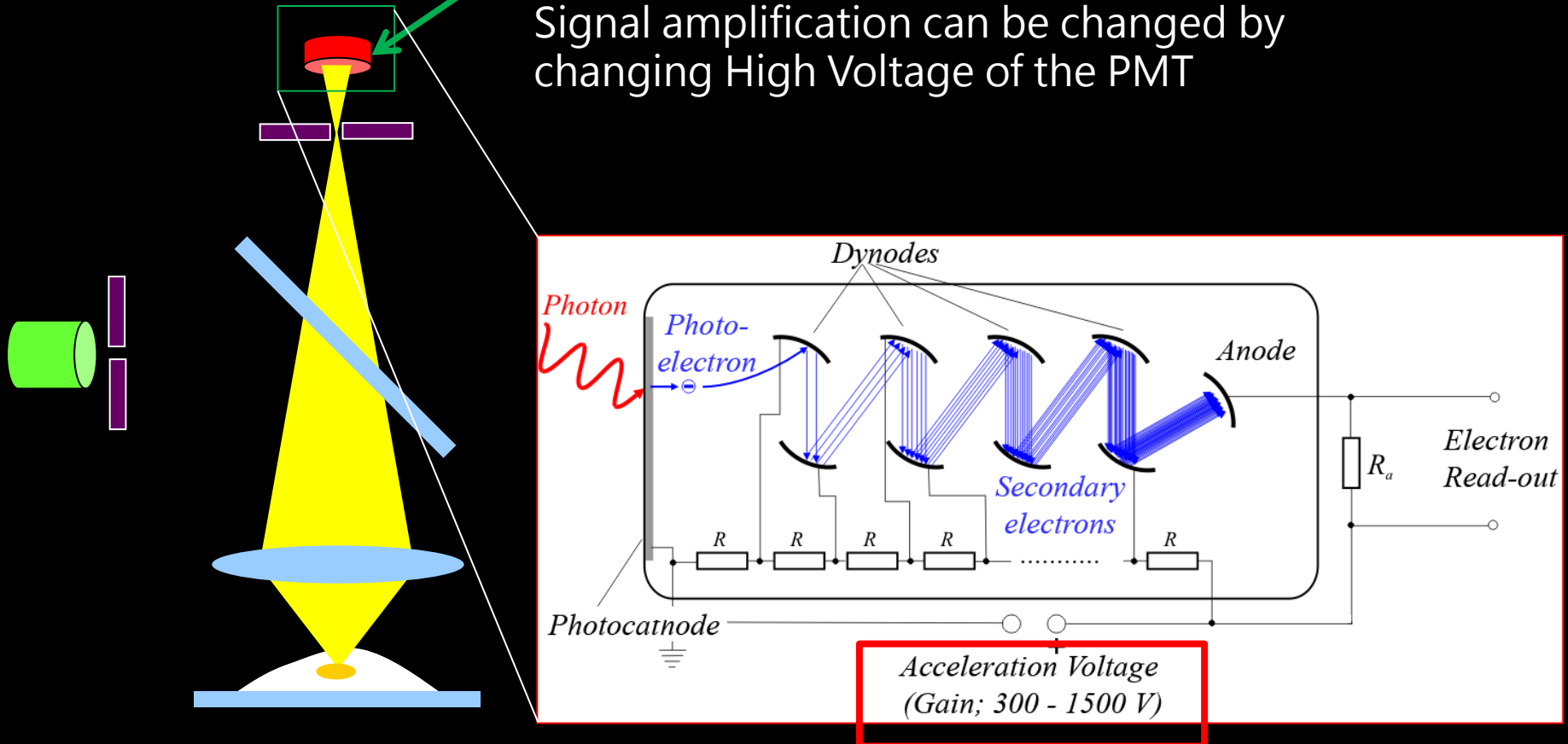
$$\text{ズーム倍率} = \frac{\text{表示の大きさ}}{\text{走査範囲}}$$



ズーム倍率: 大

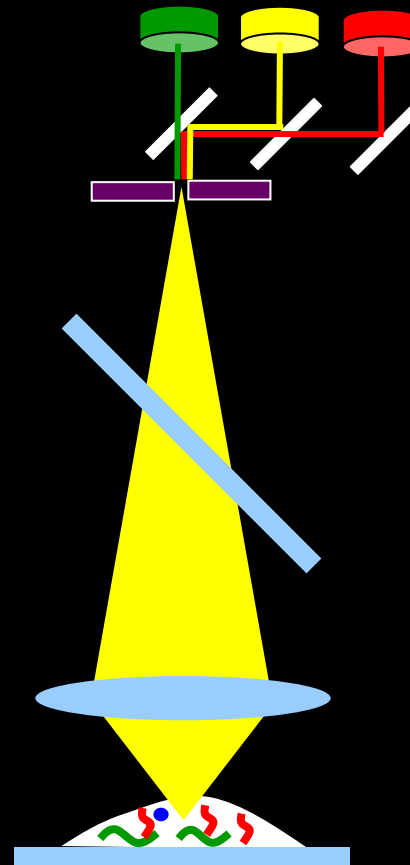
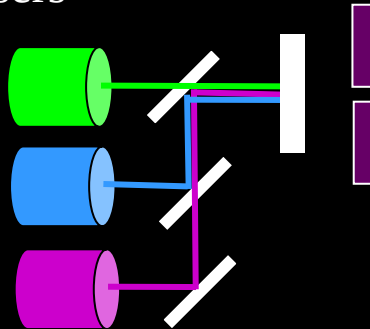
Photo Multiplier Tube (PMT):

Signal amplification can be changed by changing High Voltage of the PMT

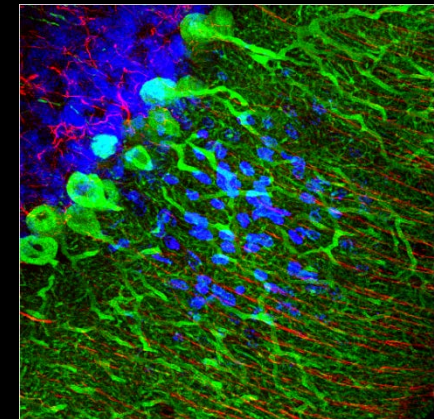


Can be Simultaneous or Sequential

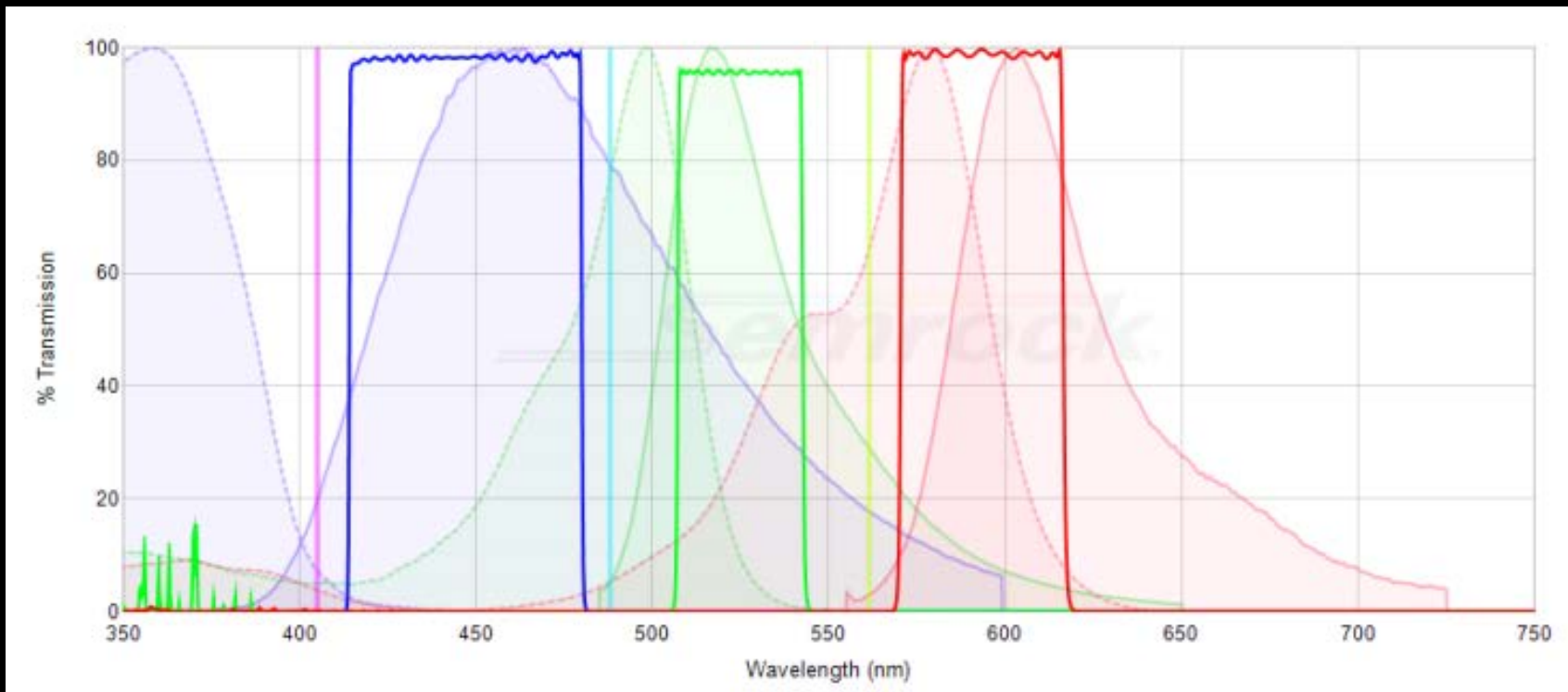
Various lasers



Detecting each wavelength

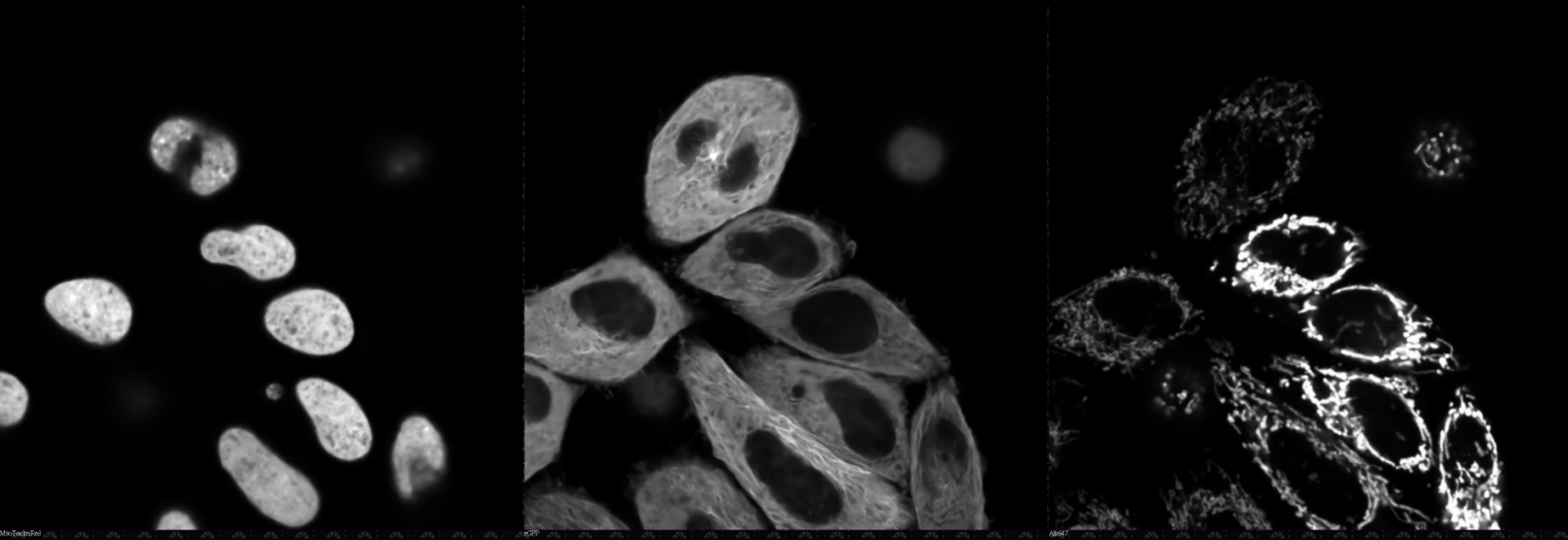


Fluorescence markers



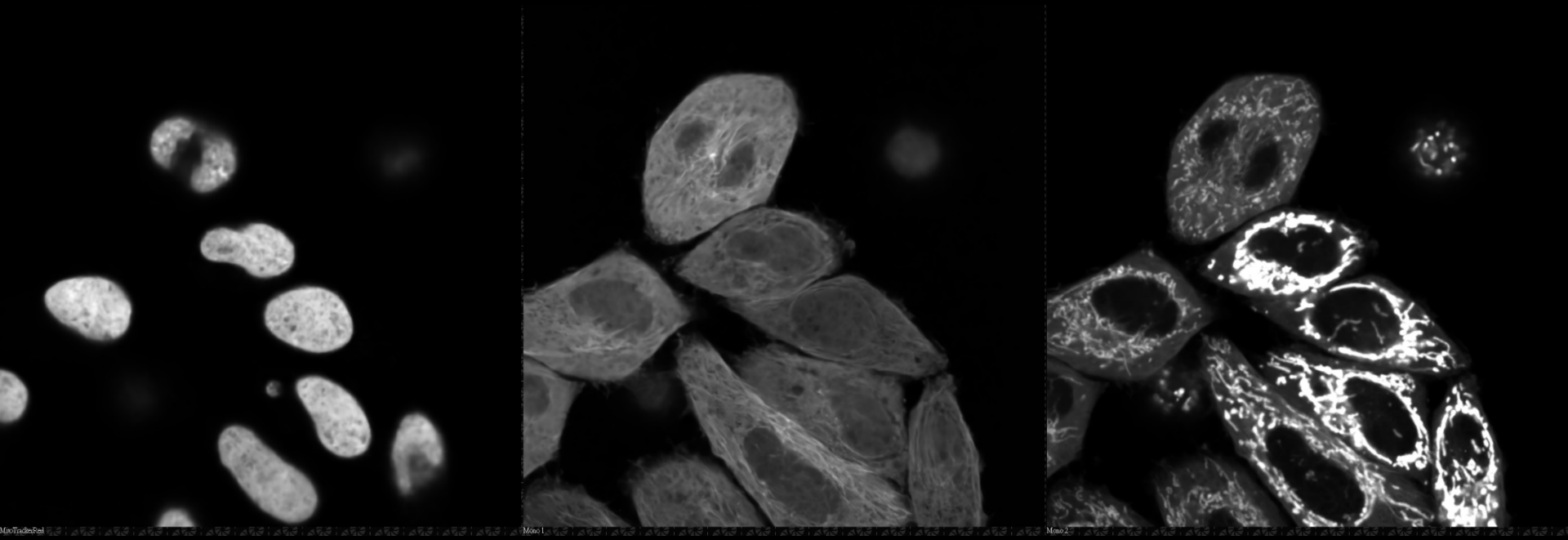
DAPI, FITC, Alexa568

Simultaneous or Sequential?

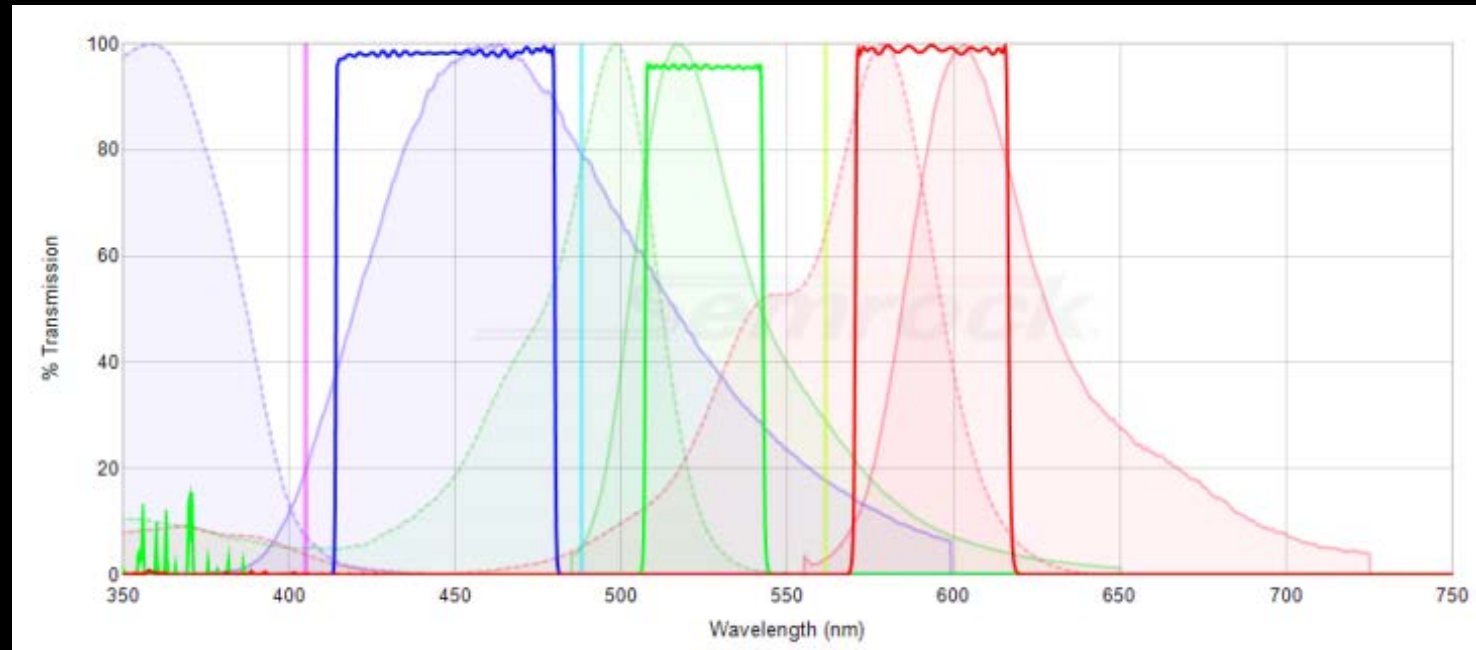


DAPI、FITC、Alexa568

Simultaneous or Sequential?



DAPI、FITC、Alexa568



Sequential

1. DAPI
2. FITC
3. Alexa568

Smart Sequential

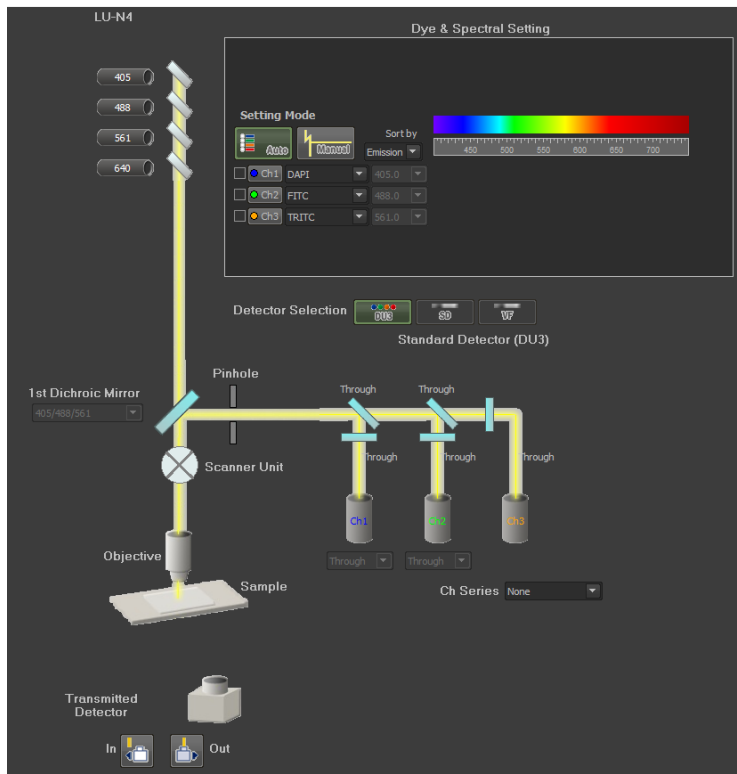
1. DAPI 、 Alexa568
2. FITC

Easy Operation

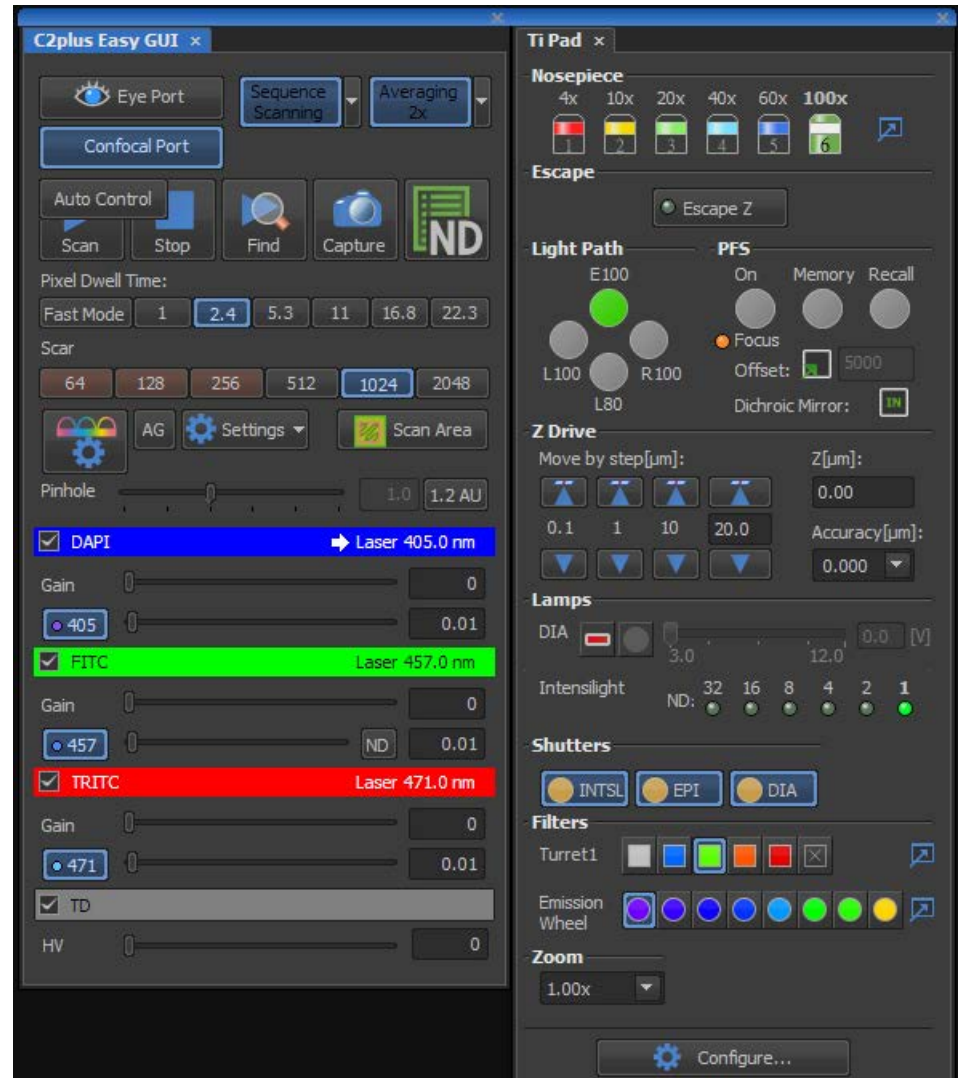
NIS Element C

GUI for operation

Optical configuration setting

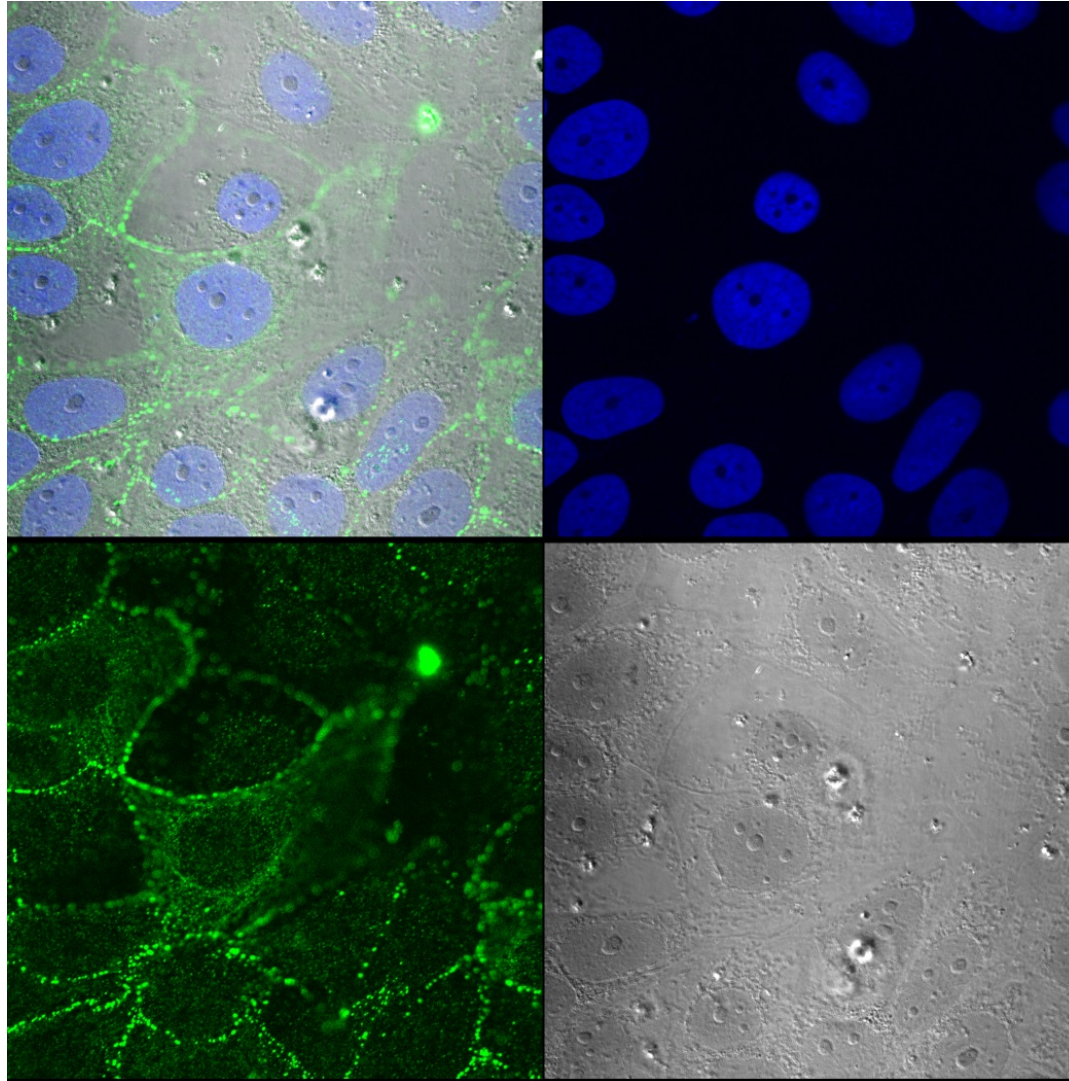


Acquisition setting



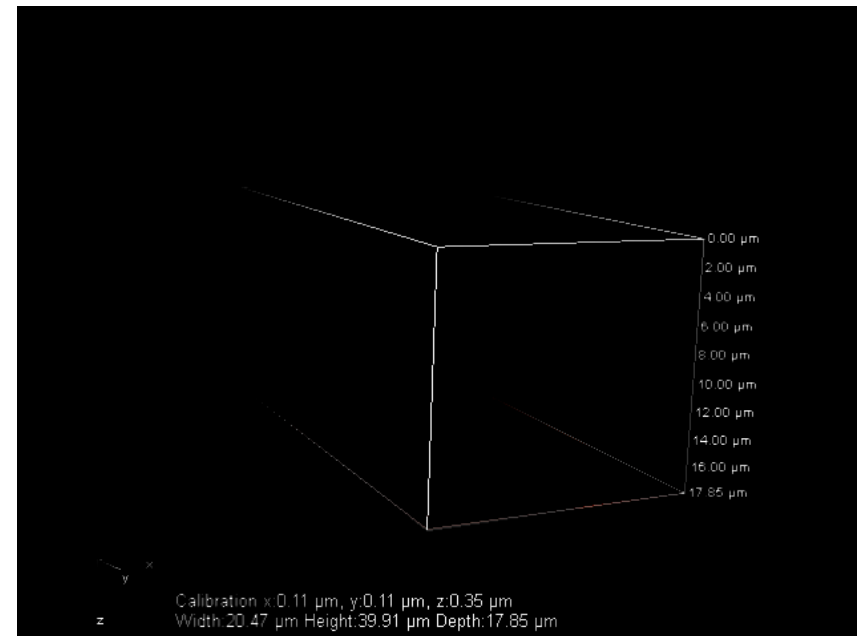
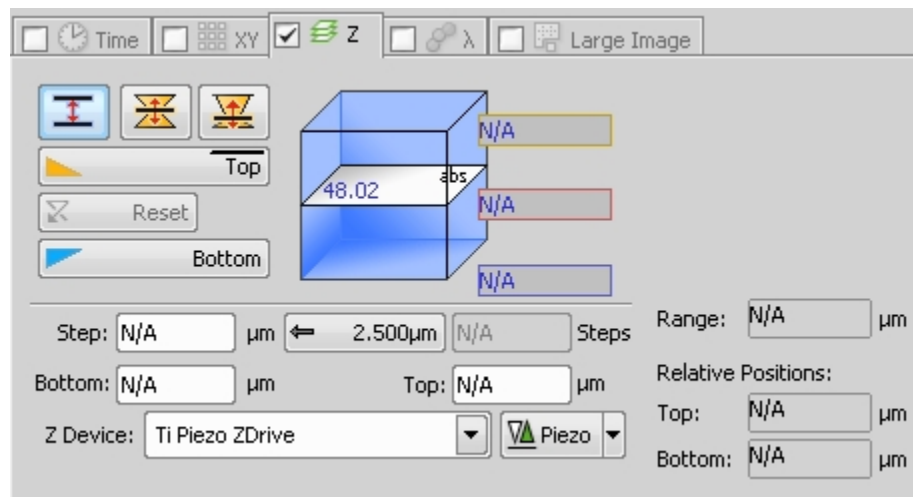
Software function

Multichannel (multi color)



Software function

Z-series



Software function

Time Lapse

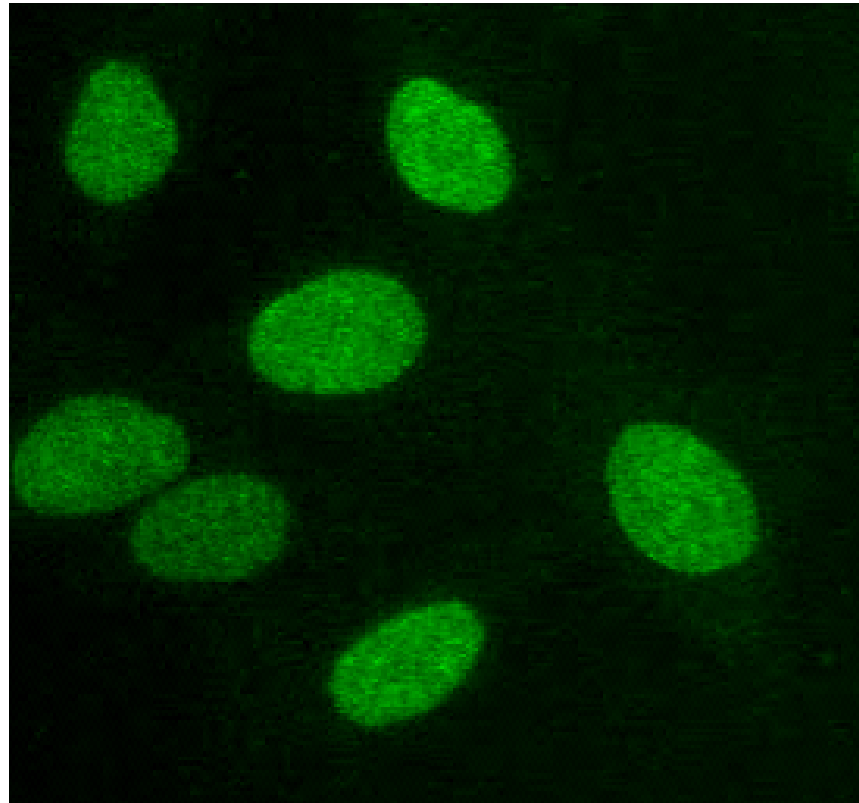


Image stitching

3 Pos: 0.000 um
Exposure Time: 120.000 ms

1000 µm

Sample thickness: 500um



turning **vision** into information
Thank you for your attention !