



# Super-resolution Microscopy

ELYRA 7 with SIM<sup>2</sup> Quick Guide



# Start up the system 開機







### 1 > 2 > 3 > 4

- 1. Main switch
- 2. Components
- 3. Elyra on-line computer
- 4. Off-line computer

# 進入軟體 ZEN balck





On 7 % Open

Plan-Apochromat

FSet77 HE

Lens 1,6x

# Load acquisition parameters 以標準63x SIM為例



#### 1

#### Load acquisition parameters



#### 2

#### Turn on the laser lines you need

Laser	Laser Lines [nm]	Power
📤 HR Diode 405-50	<mark>405</mark>	On
🔺 HR Diode 488-100	488	On
HR Diode 642-150	<mark>642</mark>	On
🔺 HR DPSS 561-100	561	On
4	.000	

### 3 Optional

For live cell long term acquisition check the heating and CO2 Atmosphere and set the parameters.

👻 🖆 Incubation		
<ul> <li>Temperature (*C)</li> <li>H Insert P</li> <li>H Unit XL</li> <li>H Dev Humid</li> </ul>	27.4       27.2       27.9	19.9 20.4 20.1
• Atmosphere (%) CO <sub>2</sub>	10.0	



Heating insert and Co2 cover

# Image Acquisition Z stack



#### Choose one channel each time

1

Adjust the laser intensity and exposure time



3

2

Δ



Z-Stack Slices	
Bleaching Tile Scan Positions	6 63.00 MB
Regions	Start Experiment

Set up z stack parameters · press optimal z interval



### 5

Make sure you can see the grids interact your sample on the screen. The better contrast of the grid the better resolution you may reach



# Image Acquisition Time lapse





3

AF	0	<b>e</b> 1	<b></b>	0
Find Focus	Set Exposure	Live	Continuous	Snap
Continuous s			tinuous scan	

#### 2

- Choose one channel each time
- · Adjust the laser intensity and exposure time



#### 4



## 5 Optional · Focus strategy



# Auto Save /optional

- Check the setting before press start experiment (acquisition
- Check the connection between the offline computer file folder is working
- Password : zeiss



#### Select the directory



ZEISS

# **SIM Image Processing** Default setting is good for most of the cases





### Processing $\rightarrow$ SIM







1



 ZEN 2011
 File View Acquisition Maintain Mac New Acquisition Document
 Open...
 Save...
 Save As...
 Export...
 Send to ZEN 2012 - blue edition New File Browser...

3

2

#### 選擇目的資料夾



• 命名檔案名稱

• 選擇\*.czi格式

	· · · · · · · · · · · · · · · · · · ·
File name:2023_02_0	9_14_07_39 Save
Save as type: Carl Zeiss Ir	nage (*.czi;*.zisraw) Cancel
Oart Zeiss Ir L SM 5 (* len	

# Maximum intensity projection 把多張Z section疊成一張,製造全景深影像







10

Export

Format

Data

# Image export 輸出成圖片檔或者影片檔

- 建議使用Full resolution 或者Contents of image window
- single plane:單張,目前所顯示的單層/單張影像。

Tagged Image File

Raw data - series

Raw data - single plane

• series:一系列圖,適用於Z stack, time series和movie檔。

Contents of image window - single plane

Contents of image window - single plane

Full resolution image windovy - single plane

Contents of image window - series

Full resolution image window - series

Ŧ



- Content of image window :存下室窗內的影像畫面,包含尺規。
- Full resolution : 包含尺規依照拍照時的畫素存檔 (建議使用!)





# 使用ZEN blue批次輸出圖檔 Image Export \*czi檔→圖檔(\*tif, \*.jpg)



1. 轉檔教學影片<u>https://drive.google.com/file/d/1B8MJXjVi1yHP85s8CGMxJPTaGNuM3NG4/view?usp=sharing</u>

2. 下載 ZEISS ZEN blue lite, 註冊帳號, 註冊認證信可能被移至垃圾信件

<u>https://www.zeiss.com/microscopy/int/products/microscope-software/zen-lite/zen-lite-response.html</u> (輕薄版本)

<u>https://www.zeiss.com/microscopy/int/products/microscope-software/zen/free-60-day-version-of-zen-blue-edition.html#trial</u> (60天全功能版本 含多種影像處理功能)

# Switching System Power Off 關機







- 1. Make sure you have saved all your image data.
- 2. Switch of all the lasers.
- 3. Terminates the ZEN software.
- 4. Shut down WINDOWS.
- 5. About 20 seconds later, shut down the computer.
- 6. Switching the **Components** switch to the off position.
- •7. Switching the **Main power** switch to the off position.
  - 離線電腦為獨立電源,可最後再單獨關閉
  - 離開前確認已清理物鏡及使用桌面
  - 使用登記本填寫