



Cytiva Amersham™ ImageQuant™ 800



Marketing & Technical Department
Specialist Kay Hsu
Field Sales Representative Frank Huang



岑祥股份有限公司
TSENG HSIANG LIFE SCIENCE LTD.

Overview & Initialization

Turning system ON

- Press the power button of the IQ800 & PC



- 1 Power button
- 2 External mini PC
- 3 Cable organizer



- 1 Touchscreen
- 2 System power and status indicator
- 3 Door
- 4 Filter access door
- 5 Power button

- Ready to use
- System busy
- System error, check the instrument and the log file record

Overview & Initialization

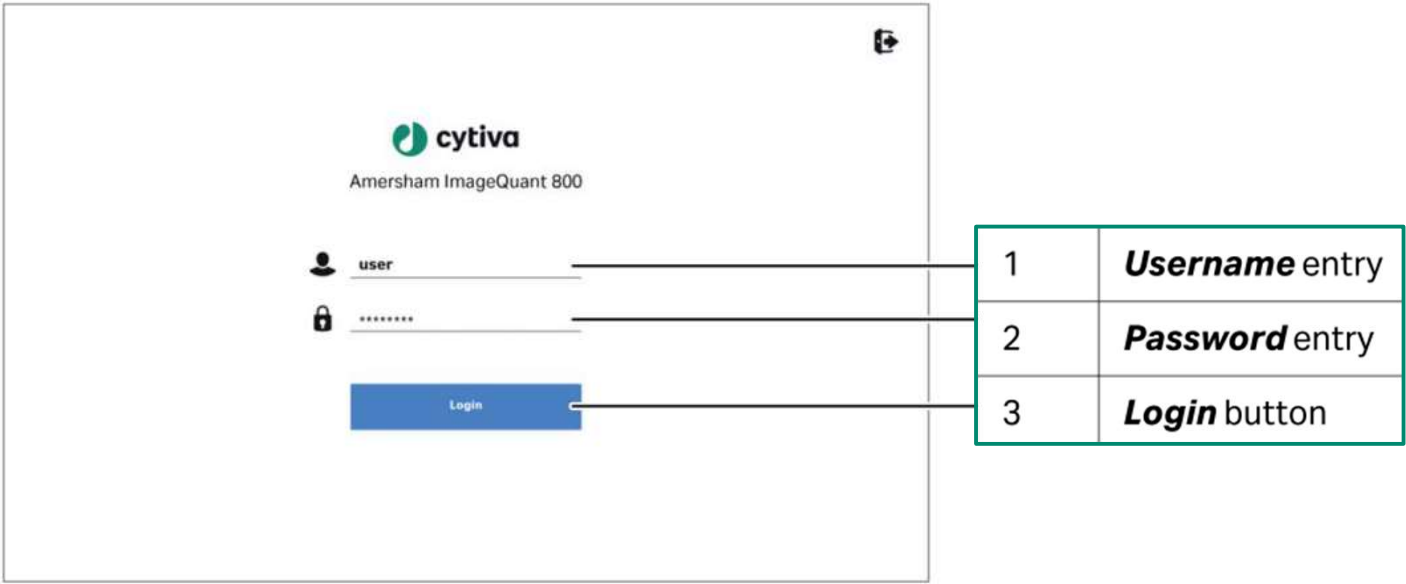
Software initialization
- The IQ800 control will start up automatically after log into the windows



進入軟體各功能介面，一般簡化操作可直接跟隨藍色Button進行，由左而右進行設定



Log-in Interface





The Control Software Operation

Amersham™ ImageQuant™ 800



岑祥股份有限公司
TSENG HSIANG LIFE SCIENCE LTD.



Hi, AutoLogin

Login User

Logout/Turn Off

Image Mode

Imaging

Chemiluminescence

Colorimetric

Fluorescence

Utilities

Scheduler

Image library

Settings

Booking System

Image Library

System Setting

CCD Status

Tray position Lower

13 Dec 2021 17:12



Hi, AutoLogin

Chemiluminescence

Imaging
Colorimetric

Fluorescence

Scheduler

Image library

Settings

Booking System

CCD Status Tray position Lower

HOME

Chemiluminescence Colorimetric Fluorescence

Help

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10							
9 ^{AM}							
10 ^{AM}							
11 ^{AM}							
12 ^{PM}							
1 ^{PM}							

CCD Status Username Tray position Lower 14 Jan 2021

A 登入Booking system

B 點選欲預約時段

C 確認時段及填寫實驗內容後即可儲存預約

New Booking

Username

UserName

Comment

Enter details here

Date

15 January, 2021

From

11:00 am

To

11:15 am

Cancel

Save



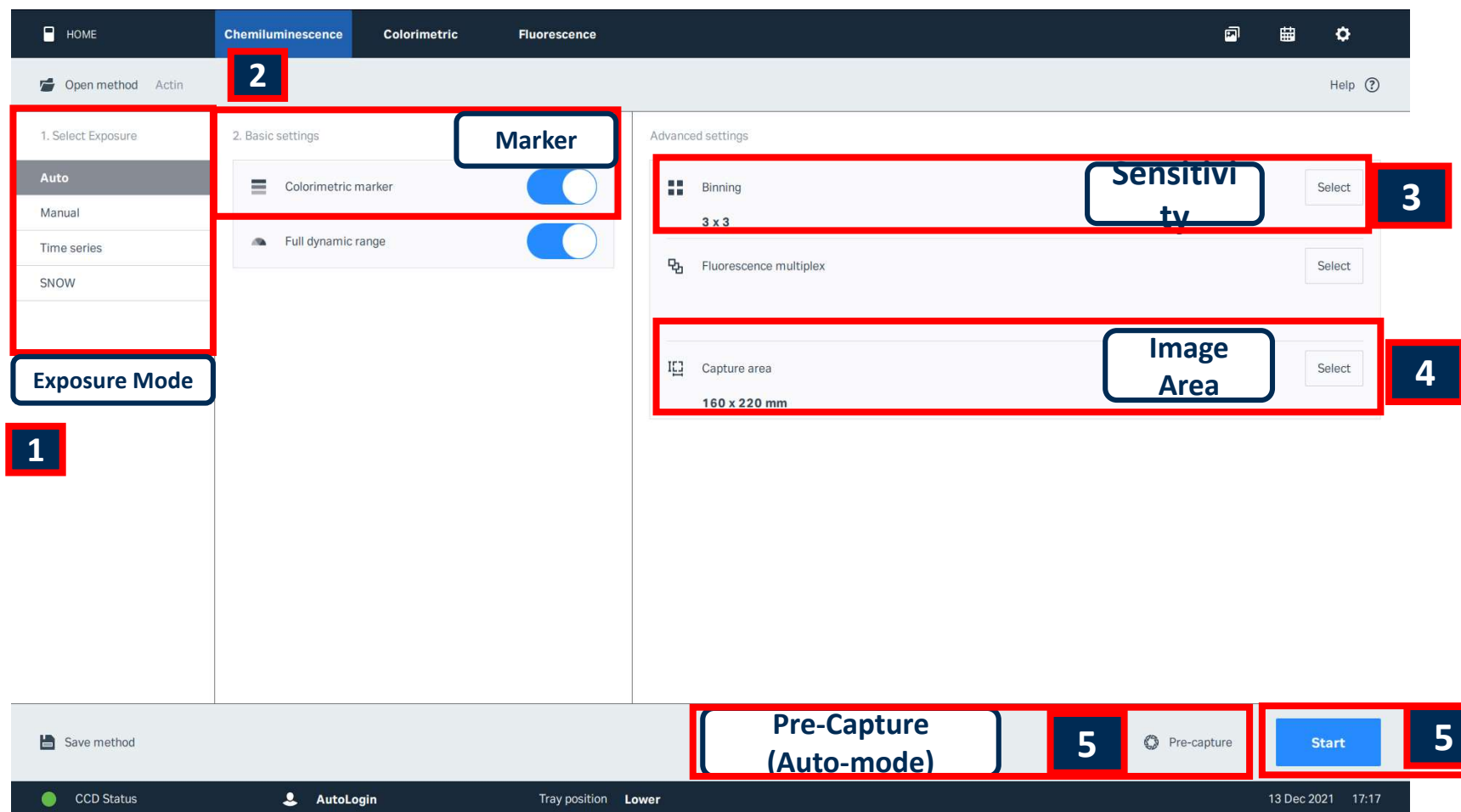
Exposure mode

Auto-當影像需要擷取整張樣品的最佳動態範圍時，系統會計算不超過飽和曝光的曝光時間點來擷取影像

Pre-Capture-對樣品特定區域感興趣時，系統會短時間預曝光取得一張影像，再藉由選擇樣品需要聚焦的區域，軟體會計算其最佳的曝光時間

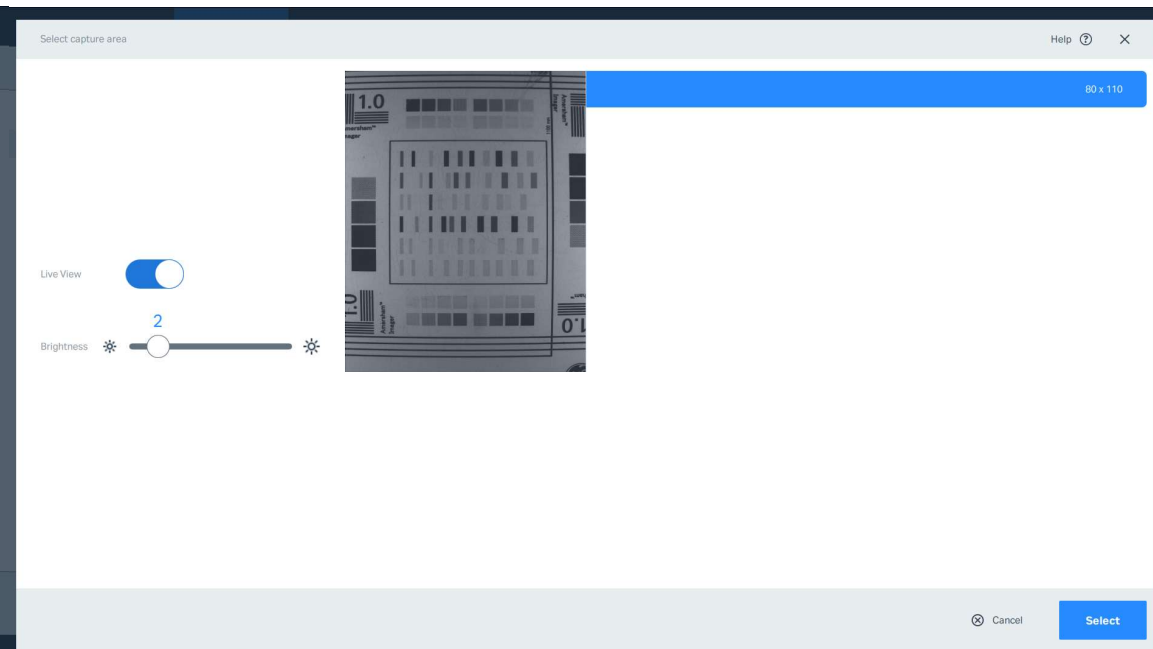
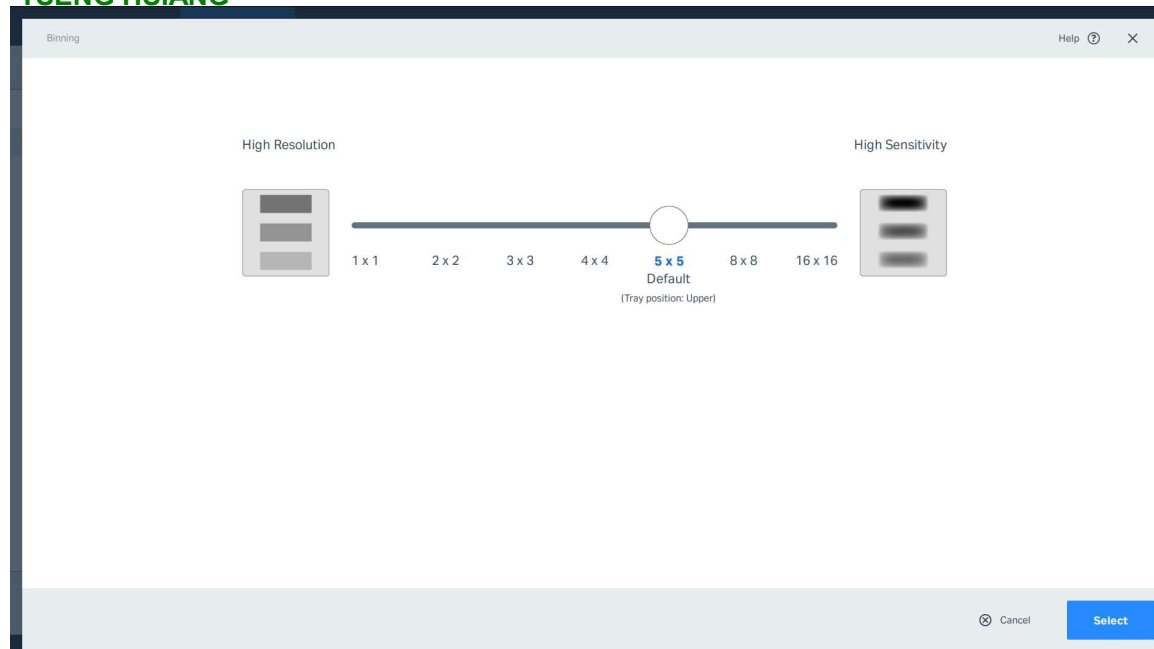
Manual-自動曝光後影像仍不足或已知樣品所需的曝光時間，進行手動曝光時間設定後進行擷取影像

Time series-針對樣品進行累積曝光，須設定重複張數(上限50張)及曝光間隔時間(10sec起)，以做擷取連續影像

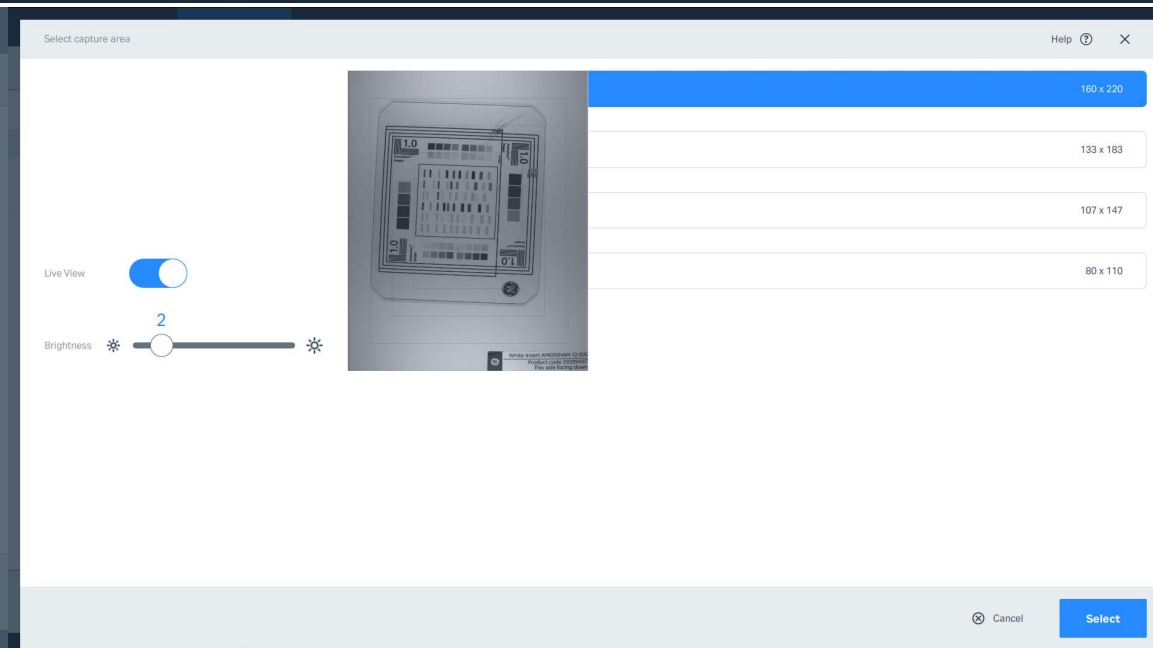
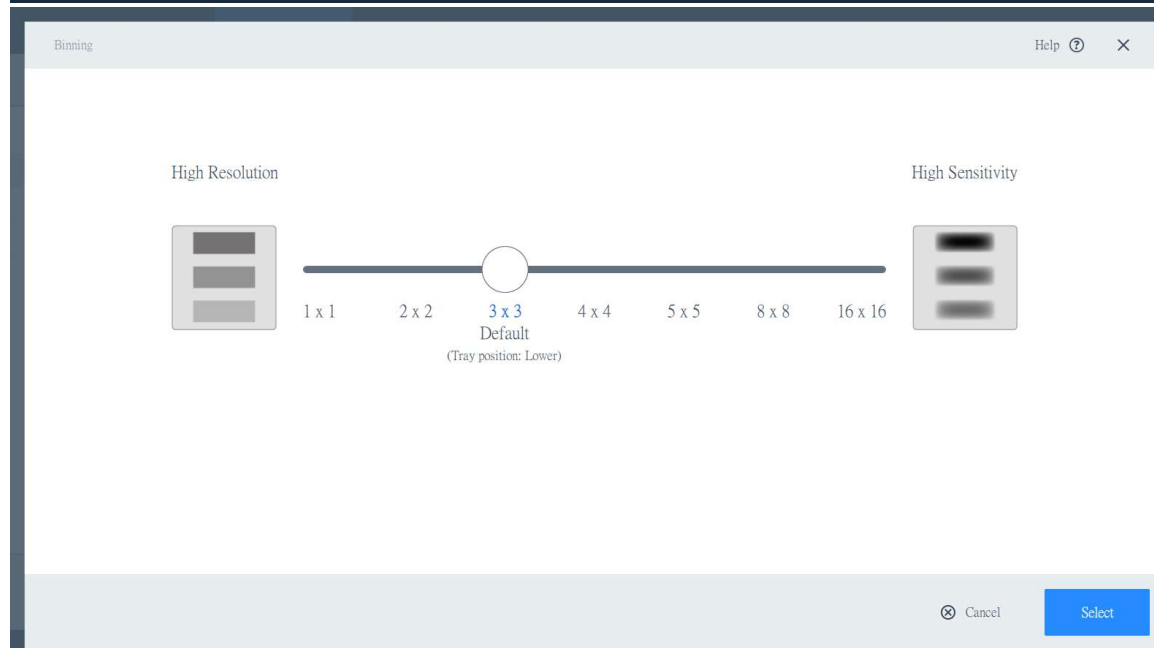




Upper Layer

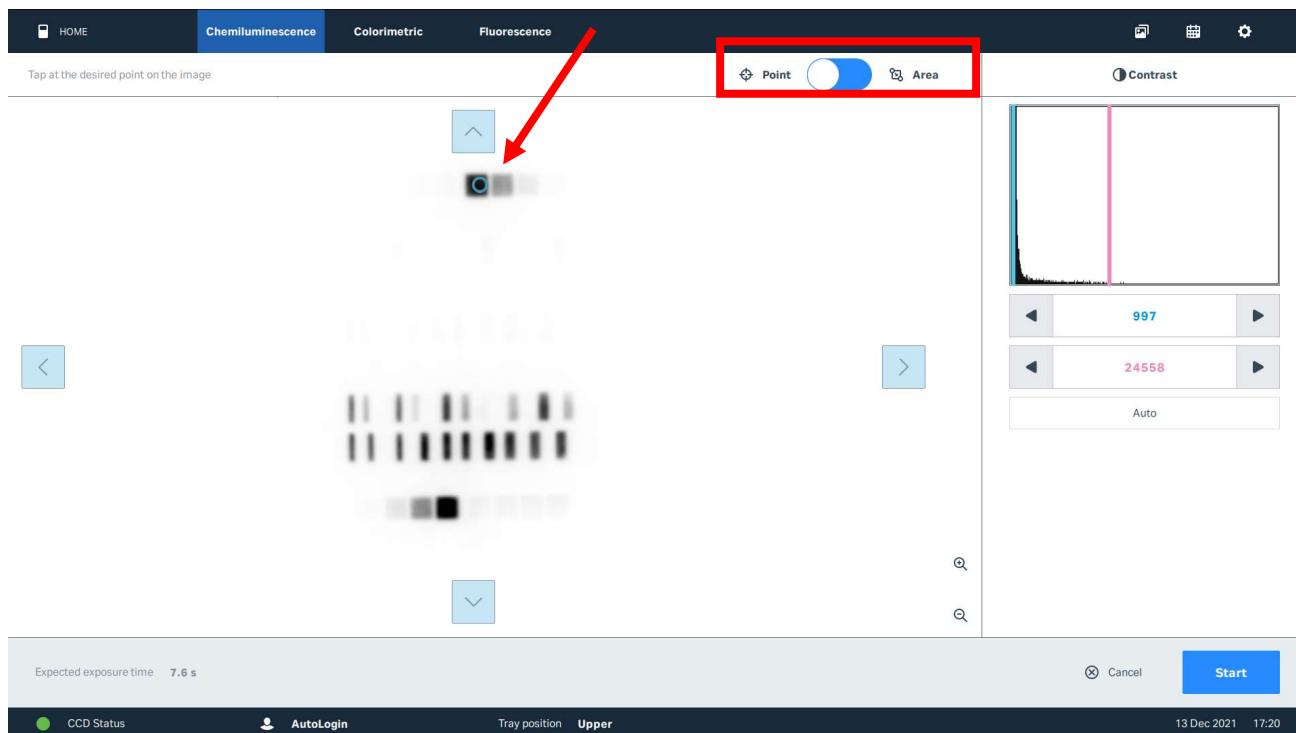


Lower Layer

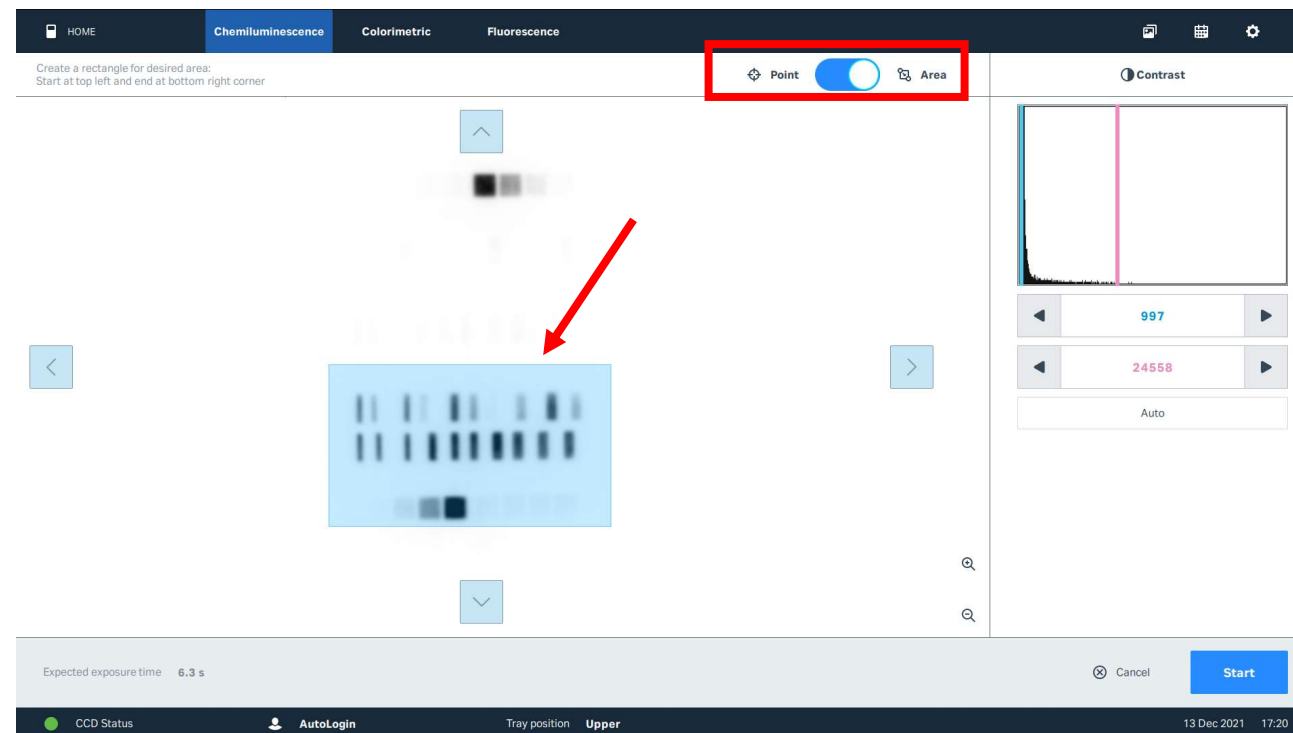


Select the target site or area, then the system will show the expect exposure time as your reference.

Point target



Area target



Exposure mode

Manual-自動曝光後影像仍不足或已知樣品所需的曝光時間，進行手動曝光時間設定後進行擷取影像

HOME Chemiluminescence Colorimetric Fluorescence

Open method Help ?

1. Select Exposure

Auto
Manual
Time series
SNOW

2. Basic settings **2** **Marker/Exposure Time**

Exposure time

hour min sec 1/10 sec

06 3

Colorimetric marker

Sensitivity

5 x 5

Fluorescence multiplex

None

Capture area

80 x 110 mm

Image Area

Exposure time

hour min sec 1/10 sec

00 00 06 3

Cancel Reset OK

Start **3**

CCD Status AutoLogin Tray position Upper 13 Dec 2021 17:23



Exposure mode

Time series-針對樣品進行累積曝光，須設定重複張數(上限50張)及曝光間隔時間(10sec起)，以做擷取連續累積曝光影像

Cumulative-如不須進行曝光訊號的累積，則可關閉此功能

The screenshot displays the Chemiluminescence software interface. The top navigation bar includes 'HOME', 'Chemiluminescence' (selected), 'Colorimetric', and 'Fluorescence'. A 'Help' icon is visible on the right. Below the navigation bar, the 'Open method' section shows a list of exposure modes: 'Auto', 'Manual', 'Time series' (highlighted with a red box and number 1), and 'SNOW'. The 'Basic settings' section (highlighted with a red box and number 2) contains the following controls:

- Number of images:** A numeric input field set to '5' with '-' and '+' buttons.
- Exposure time per image:** A numeric input field set to '10' with 'min' and 'sec' units.
- Cumulative:** A toggle switch that is currently turned on.
- Stop when saturated:** A toggle switch that is currently turned on.
- Colorimetric marker:** A toggle switch that is currently turned on.

The 'Advanced settings' section on the right includes 'Binning' (set to '5 x 5') and 'Capture area' (set to '80 x 110 mm'). Below these, there are 'Sensitivity' and 'Image Area' buttons, each with a 'Select' dropdown. At the bottom right, the 'Start' button is highlighted with a red box and number 3. The bottom status bar shows 'CCD Status' (green dot), 'AutoLogin', 'Tray position: Upper', and the date/time '13 Dec 2021 17:25'.



Exposure mode

Snow mode-針對強弱差異極大的樣品，且微弱訊號受到周遭背景訊號遮蔽干擾的樣品，進行背景雜訊平均化的曝光

系統會進行預曝光後，再依曝光範圍，有興趣的微弱訊號位置及干擾的背景處進行設定後，進行訊噪比最佳化的影像曝光，所需時間較長，但能最有效針對微弱影像進行曝光，以取得最大動態範圍的影像結果

HOME Chemiluminescence Colorimetric Fluorescence

Open method Help ?

1. Select Exposure

Auto

Manual

Time series

SNOW

2. Settings

Colorimetric marker

Advanced settings

Binning 5 x 5

Capture area 80 x 110 mm

Sensitivity

Image Area

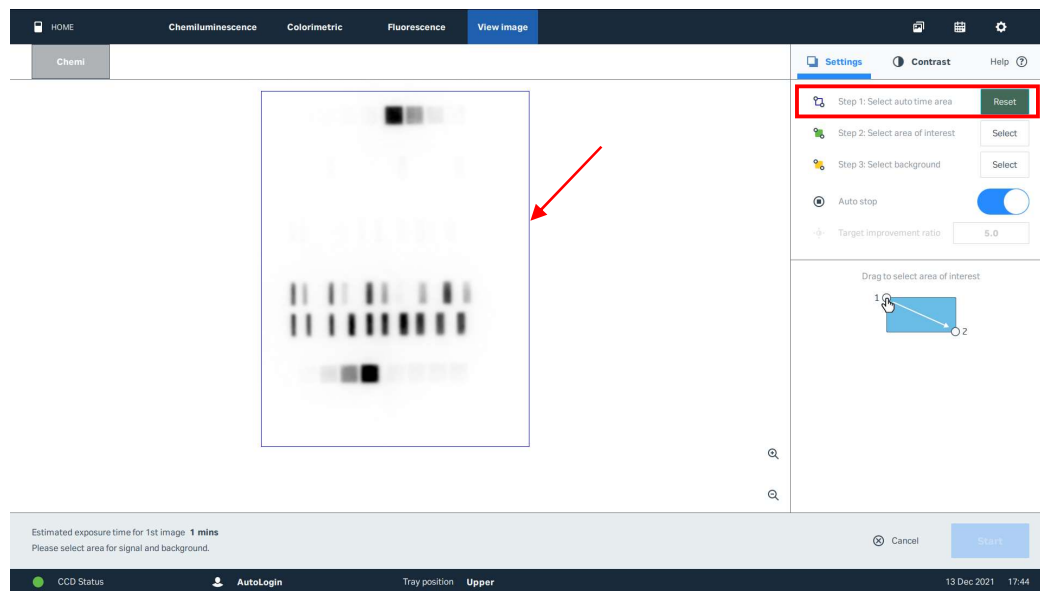
Start

CCD Status AutoLogin Tray position Upper 13 Dec 2021 17:27

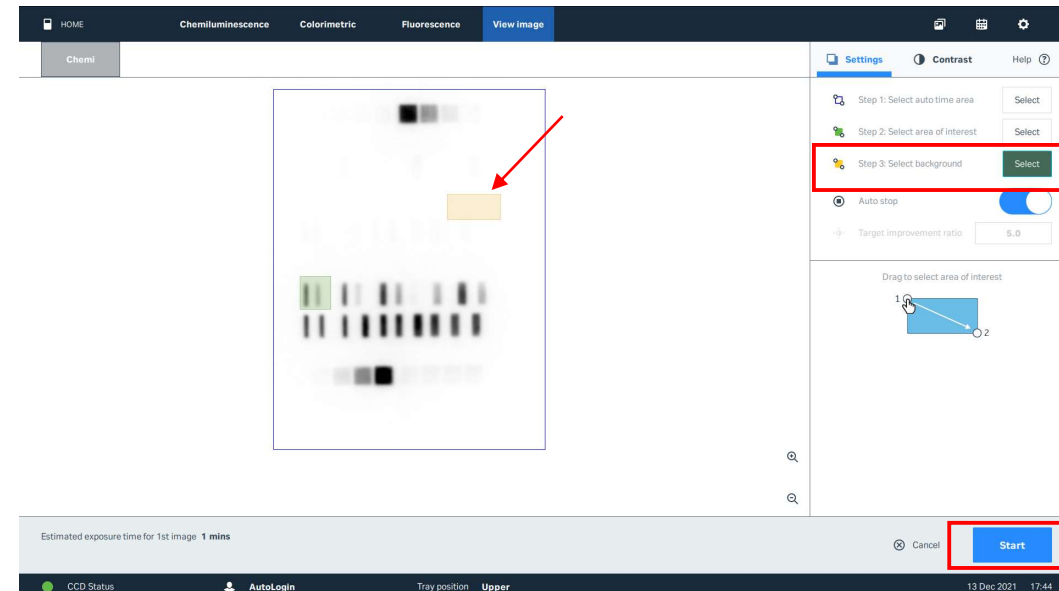
岑 祥

TSENG HSIANG

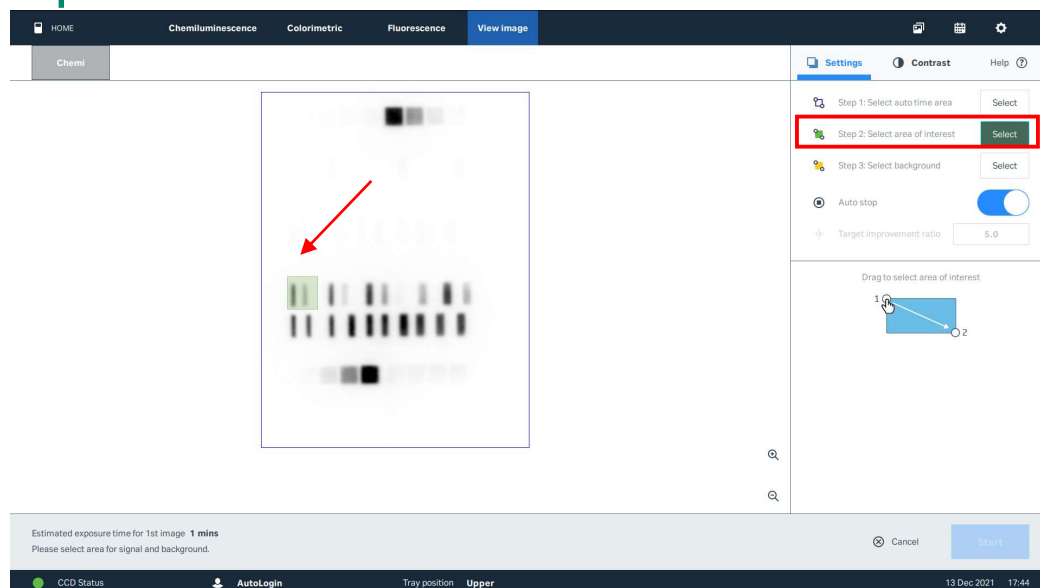
Step 1 Select Image Area



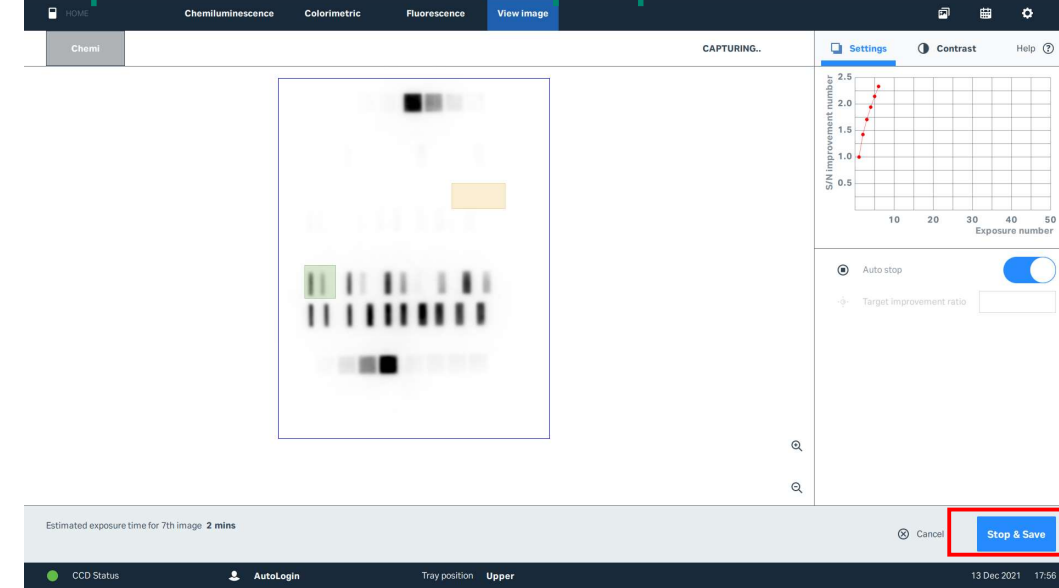
Step 3 Select background area, then start exposure



Step 2 Select interest area



Step 4 Manual or auto stop exposure





Exposure mode

可見光曝光-托盤可放置上層及下層,需搭配白色背景片,如需拍攝12孔盤以下的多孔盤,則建議放置上層進行拍攝。

HOMEChemiluminescenceColorimetricFluorescence

Open methodHelp ?

1. Select Exposure

2. Basic settings

Advanced settings

Gel documentation

OD measurement

Auto Exposure

Capture area

160 x 220 mm

Select

Save method

Start

CCD Status

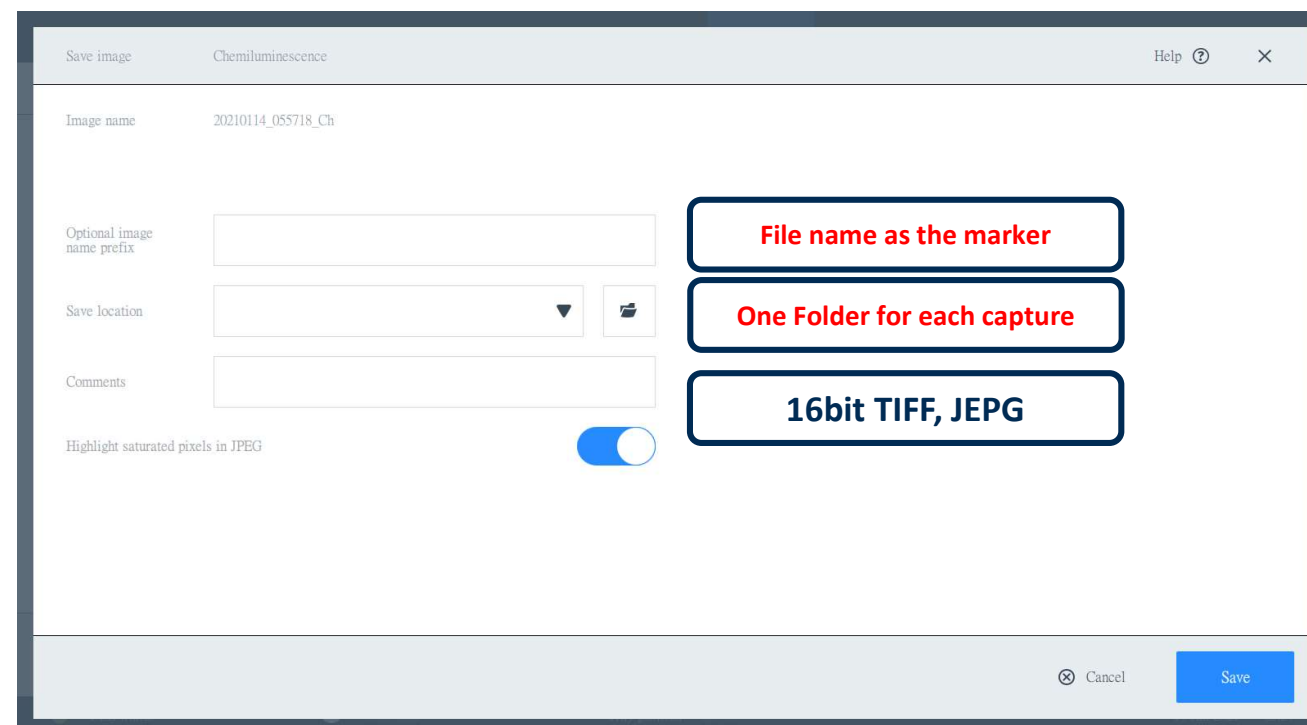
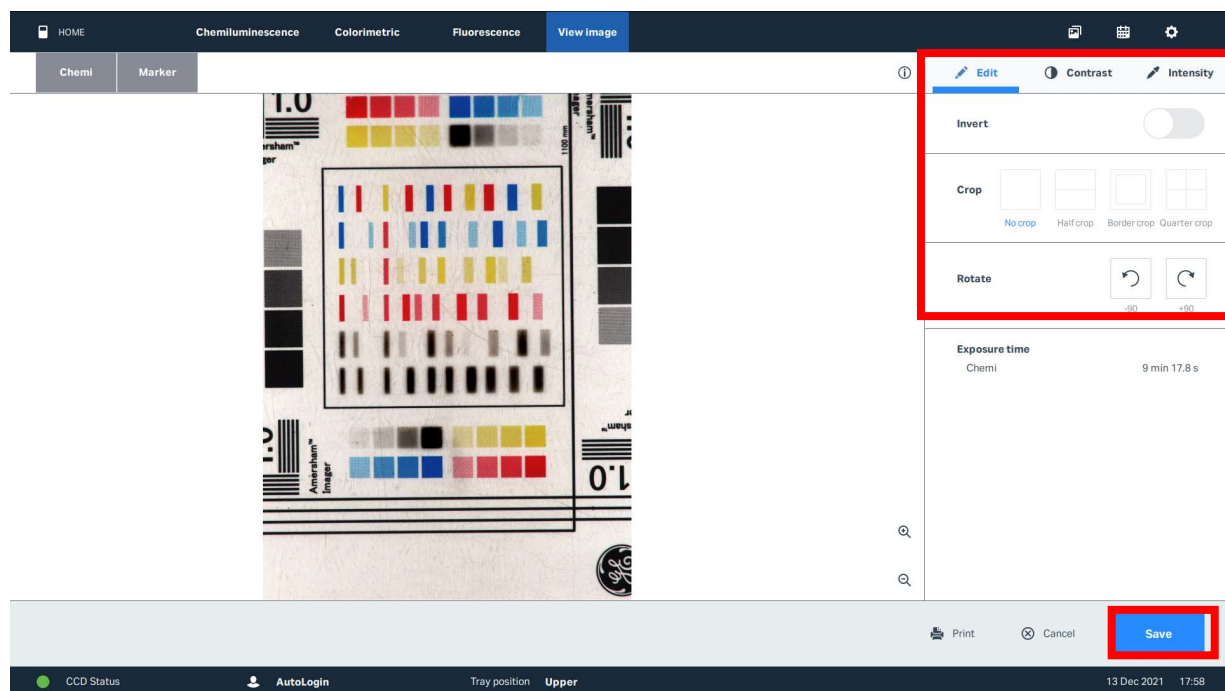
AutoLogin

Tray position Lower

13 Dec 2021 17:58

Edition the contract, the image will output as the TIF, JPG file.
The TIF file is the original file for analysis

The capture date will be automatic named.



Saving location setting



In the setting mode, you can add the saving folder your own and make it as the default folder.

HOME Chemiluminescence Colorimetric Fluorescence

System settings

- Focus
- Sleep
- Display
- Filters
- Fluor dyes
- User accounts
- Save locations**
- Service

Add, remove or edit locations for saving images after capture

Help ?

C:/Users/q/Desktop/IQ800 Image Data

Make default

Add location Delete

Back Cancel Done

CCD Status AutoLogin Tray position Lower 13 Dec 2021 18:17

Select your images then copy and move them to you device.

HOME

Chemiluminescence

Colorimetric

Fluorescence

Folder name

Method

Sort by

Search...

Actin 20211213_181137_FI

Actin 20211213_175955_Co

Actin 20211213_175254_Ch

Actin 20211213_172621-02_Ch

Actin 20211213_172621-04_Ch

Actin 20211213_172621-05_Ch

Actin 20211213_172139_Ch

lower 3x3 20211213_153535_Ch

upper 5X5 20211213_152822_Co

File name meaning

Ch - Chemiluminescence

Co - Colorimetric

FI - Florescence

One capture-image in One Folder

upper 5X5 20211213_152822_Co

Method

Exposure mode

Full dynamic range

Binning

Capture area

LED + Filter

Exposure time

Date & time

Comments

Image detail information.

List view

Select all

Delete

Copy/Move

Open

CCD Status

AutoLogin

Tray position

Lower

13 Dec 2021 18:12



Minimize application the control software

Logout the personal account

Shut down the IQ800 and Computer



ImageQuantTL

v10.0 - 261

The Quick Operation of ImageQuant TL 10.0 image analysis software



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TSENG HSIANG LIFE SCIENCE LTD.



ImageQuantTL

v10.0 - 261

Analysis Function

Gel and Blot Analysis
1D Gel image analysis

Analysis Toolbox
Images with wide range analysis

Gel and Blot Analysis

Analysis Toolbox

Create Multiplex

Image Editor

Configure License

EULA

Create Multiplex
Create multichannel file(DSC file)

Image Edition
For image edition(ex rotation)



Function Steps



Image setup

Open Image File (TIF file)



Define lanes

Detect lanes on the image



Define Background

Subtract background intensity



Define bands

Detect bands on the image



Define molecular sizes

Calibrate by the marker



Compare lane profile

Output compare profile



Normalization

Normalize band volumes



Results

Output the analysis results

ImageQuantTL 1D



Image



Lanes



BG



Bands



MW



Compare



Normalize



Results



Help



Undo



Redo

Image Area

NO IMAGE

Image Setup

- Choose analysis image

Open

Function setting

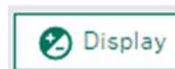
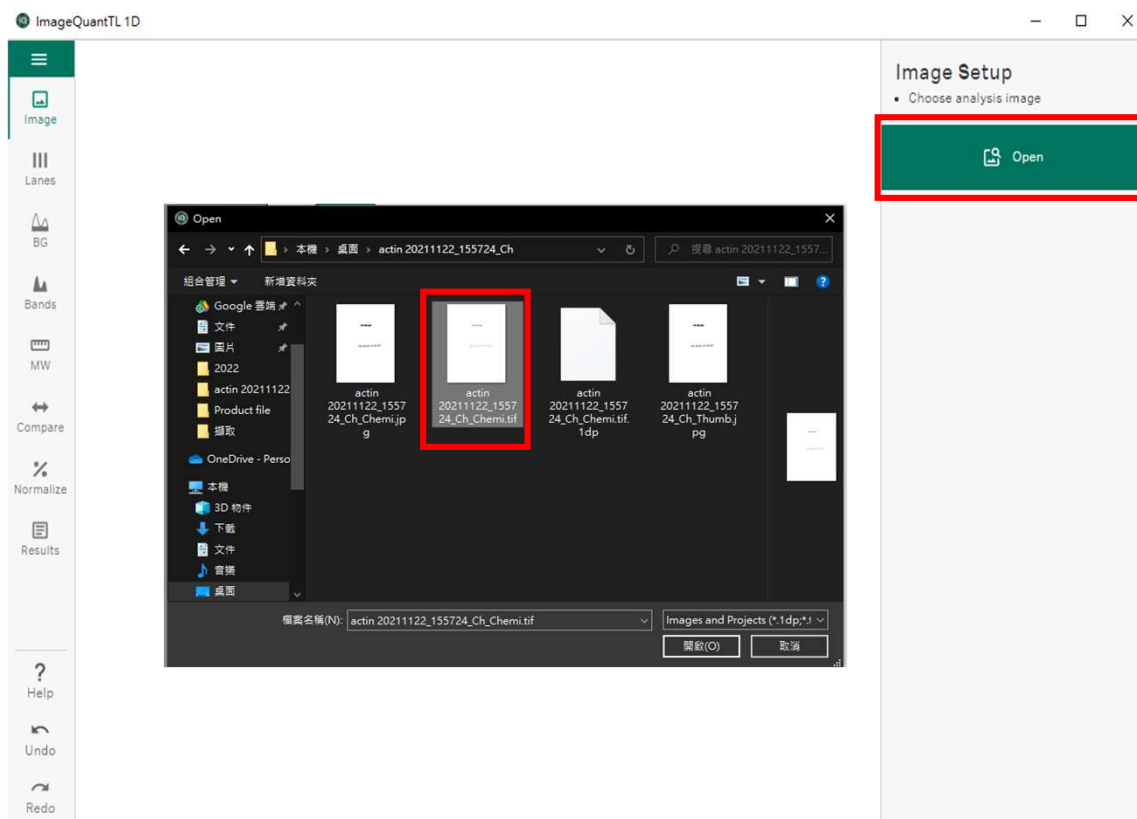


Function Step 1



Image setup

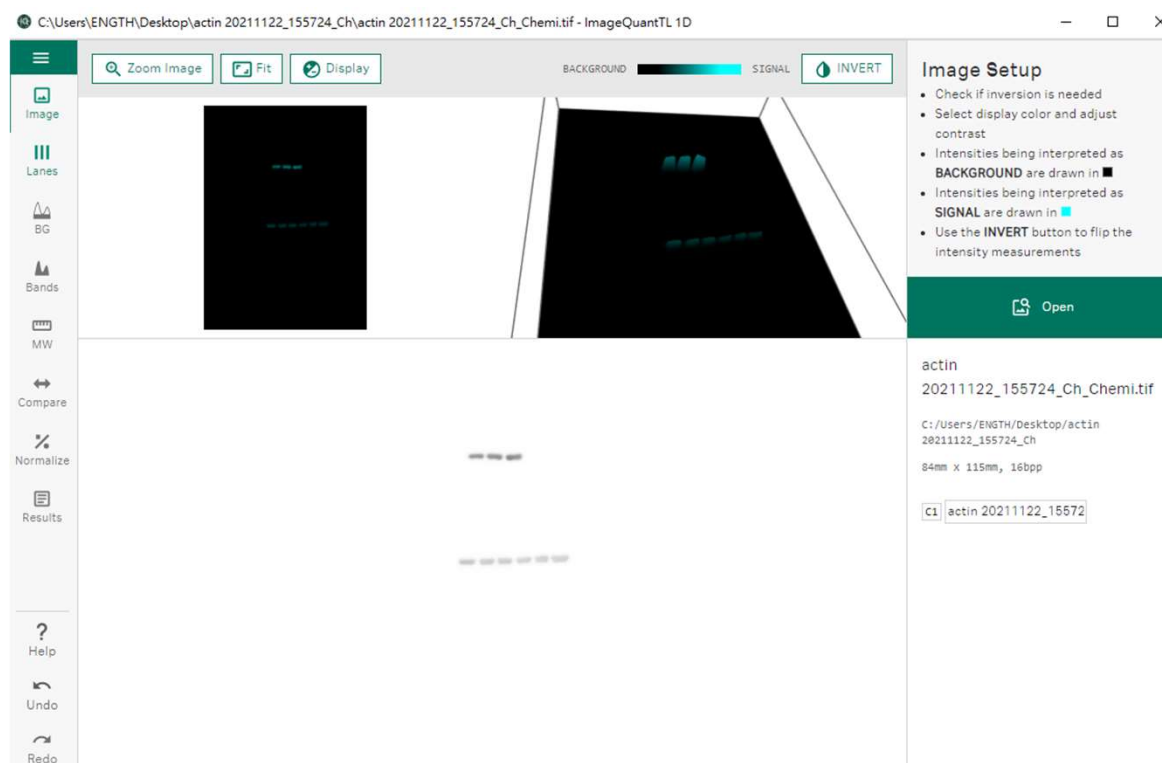
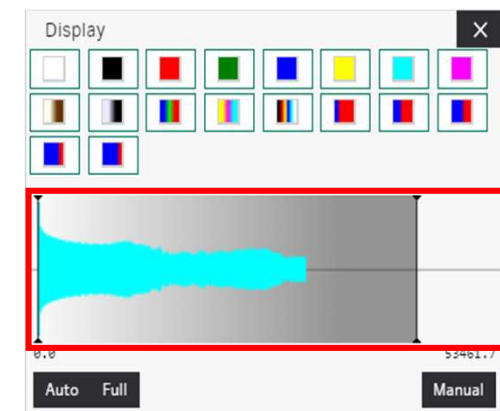
Click the Open to open the image file (TIF file)



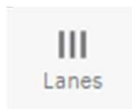
Change the image contrast for easy to see



Zoom into a selected area

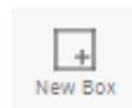


Function step 2

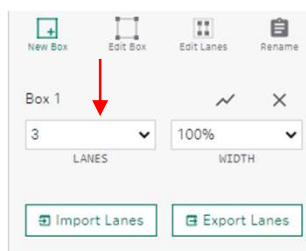
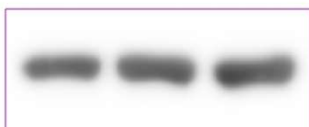


Define lanes

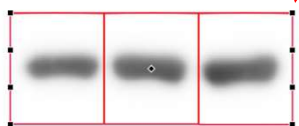
Detect lanes on the image



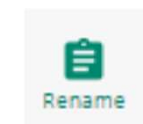
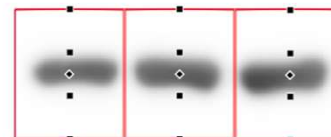
1. Draw the area of the interest in the image and set the number of the lane



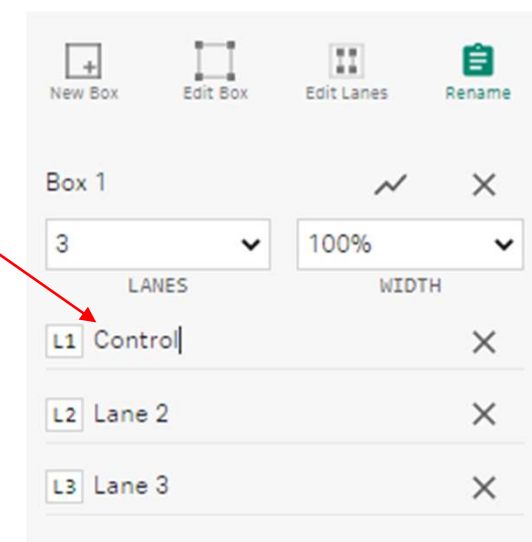
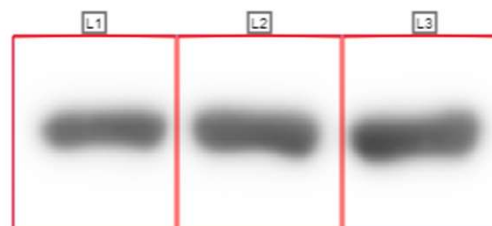
2. Edit the lane box by the note spot



3. Edit an individual lane by dragging the black point



4. You can rename the lane name

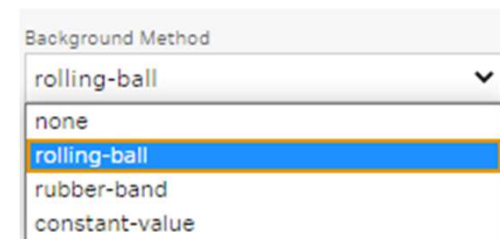
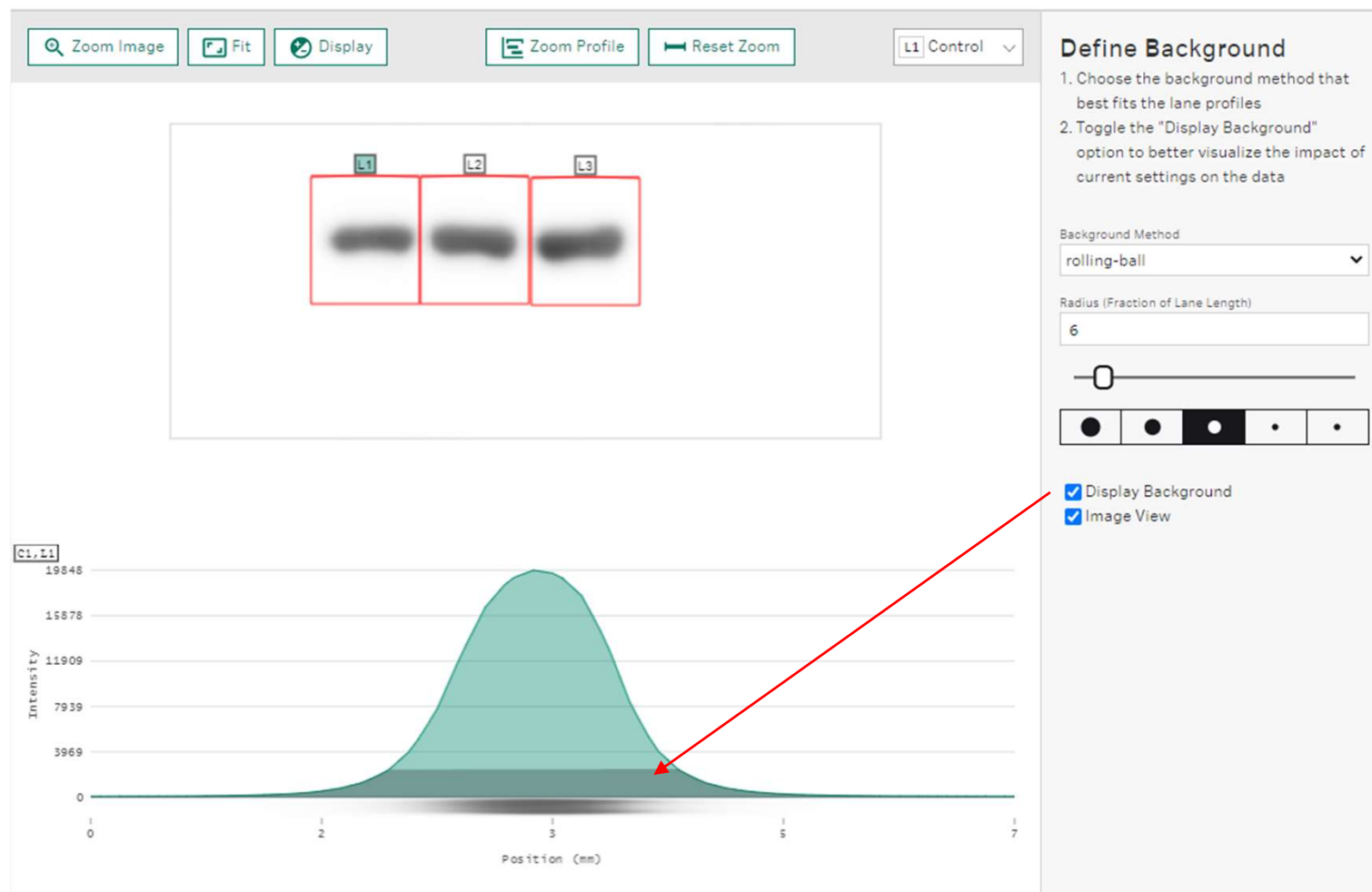


Function step 3



Define
Background

Subtract background intensity, select the optimization method and Radius

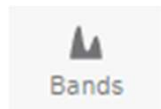


3 ways to subtract the image background,
recommend to choose the rolling-ball method

☒ Display Background
☒ Image View

To show the background area on the image

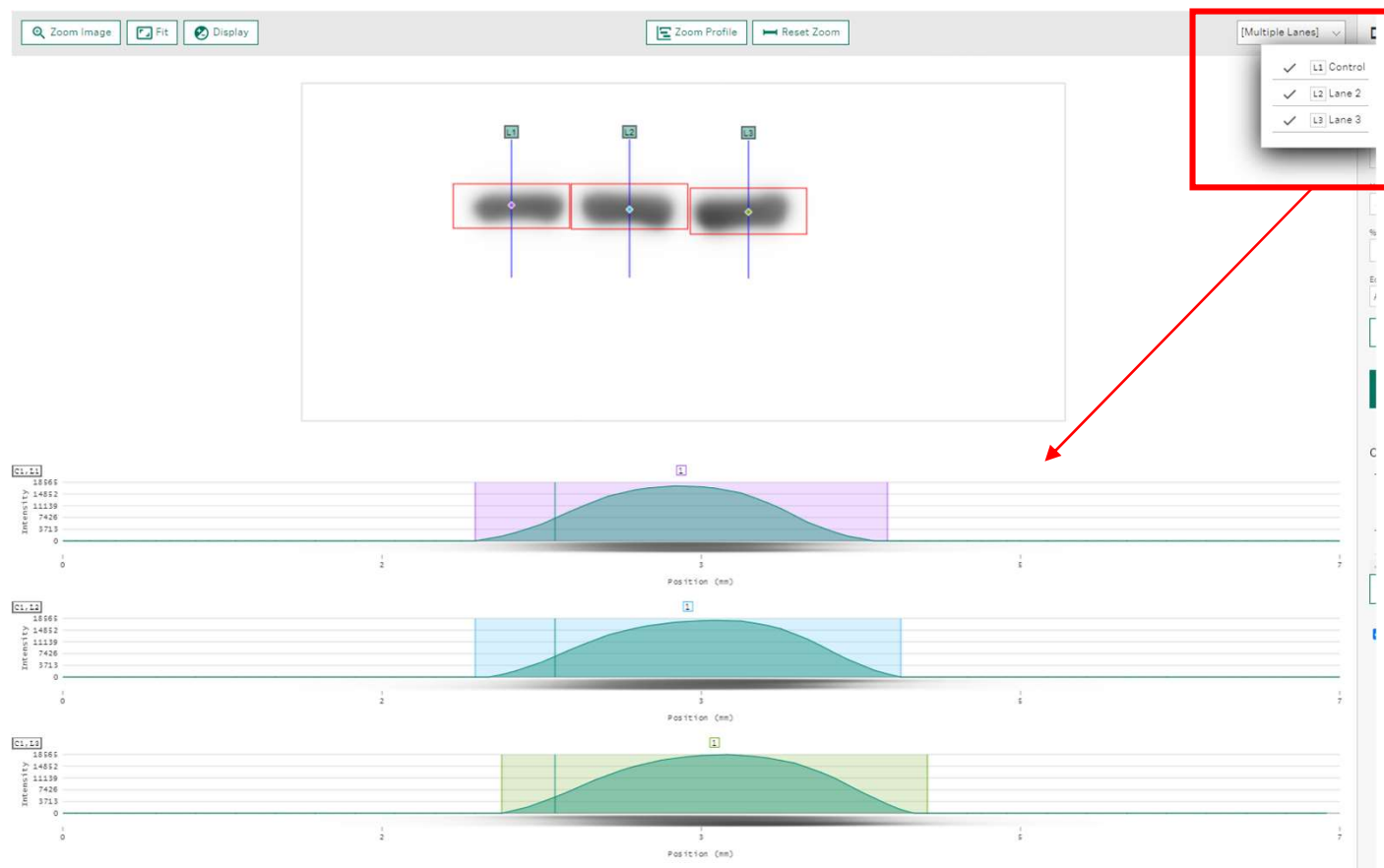
Function step 4



Define bands

Detect bands on the image

To select the multi-band to show



Define Bands

1. Detect bands automatically using the options to fine-tune the results
2. Edit bands manually by interacting with the profile display

Min-Slope

100

Noise

4

% Max-Peak

3

Edge Mode

Automatic

Defaults

Detect Bands

Current Detection

	Slope	% Noise	Max Peak	Edge Mode	E V
C1	100	4	3	Automatic	

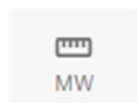
Clear

☒ Image View

Click to detect the band
And you also can choose the best condition then detect the band

Clear the data then detection again

Function step 5 Option function



Define
molecular sizes

Calibrate by the marker

1. Create your own standard

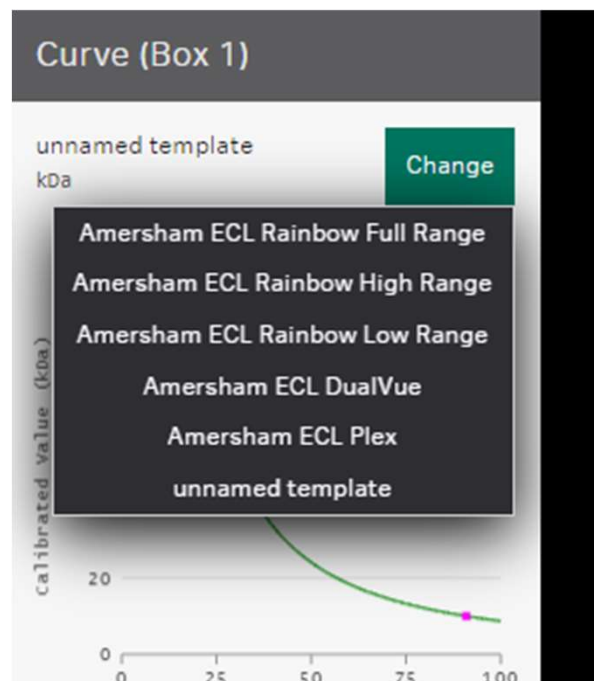
MW Standard Templates

Templates NEW Name Unit

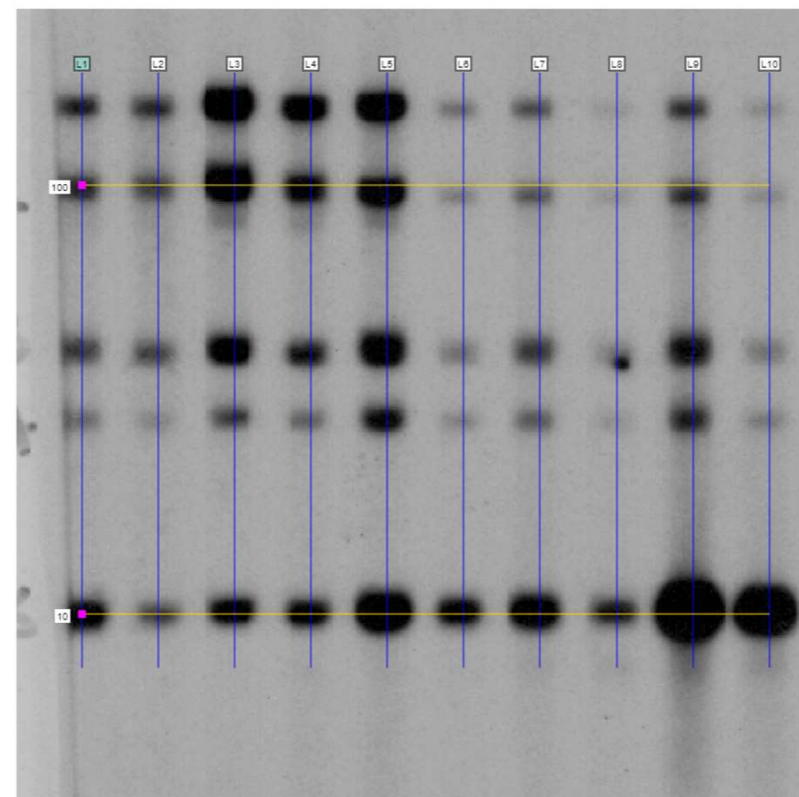
Amersham ECL Rainbow Full Range	100	X
Amersham ECL Rainbow High Range	10	X
Amersham ECL Rainbow Low Range	Next Value:	+
Amersham ECL DualVue		
Amersham ECL Plex		
unnamed template		DELETE TEMPLATE

NOTE: Changes to these templates will not affect existing application. To realise changes, manually re-apply the template. Save Discard Changes

2. Choose your standard template



3. Assign the marker lane, then you can get the molecular weight data with each band

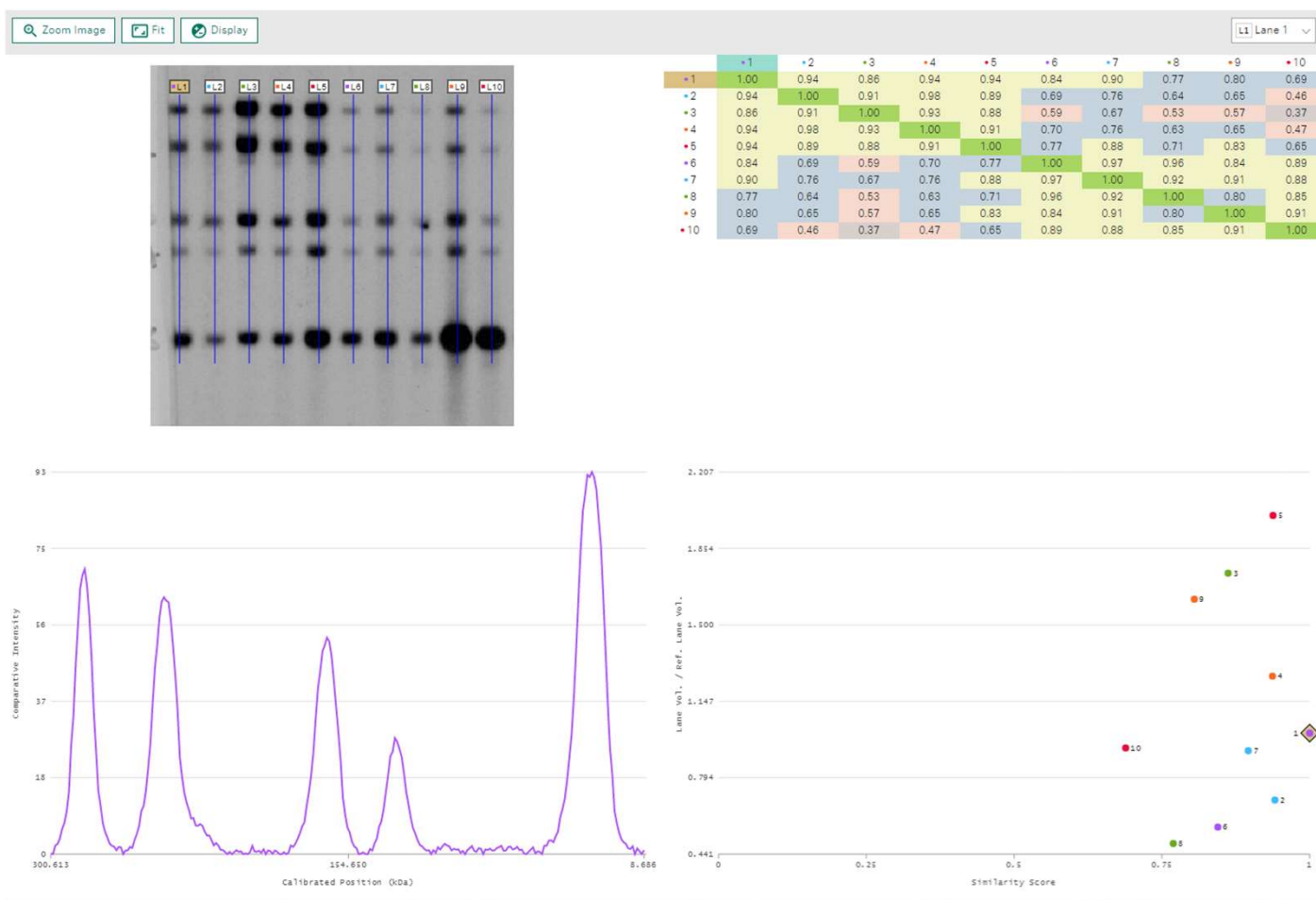


Function step 6 Option function

Compare

Compare lane profile

Output compare profile



3. Choose the reference lane and alignment then get the compare profile map

Compare Lanes

Examine lane similarity

Reference Lane

Lane 1

Alignment

MW

Display

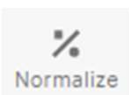
☒ Image
 ☒ Similarity Table

☒ Profiles
 ☒ Scatter Plot

☒ Scatter Plot Labels

The scatter plot shows the similarity scores for each lane relative to the reference lane (Lane 1). The y-axis represents the lane number (L1-L10) and the x-axis represents the similarity score (0 to 1). Lane 1 is highlighted in yellow.

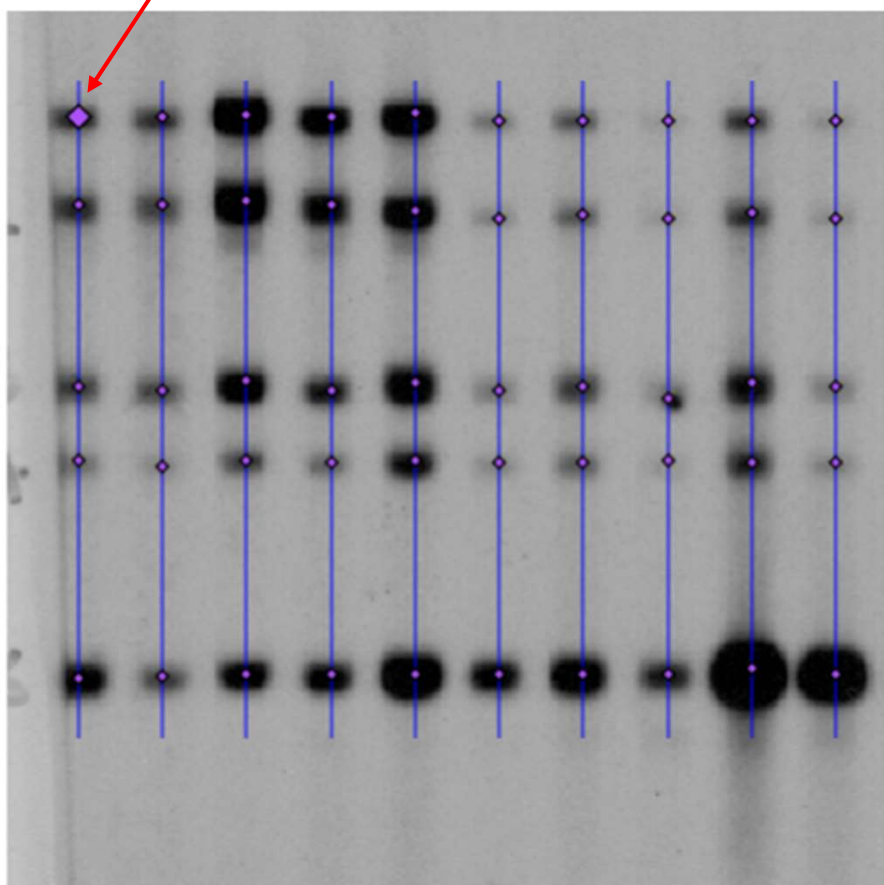
Function step 7 Option function



Normalization

Normalize band volumes

Choose the reference band and value



Define Normalization

Normalize band areas across your gel

Method

In-Channel Band

Ref. Band :

Lane 1, band 1

Ref. Value:

1

Click on the desired reference band in the image view, or

Use Largest

The chosen reference band will be assigned a normalized value of 1.
Remaining bands will be assigned a normalized value of
 $1 * (\text{volume} / \text{ref. volume})$.

☒ Show Table

After setting, you can get the normalize value result

Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
ch. 1	ch. 1	ch. 1	ch. 1	ch. 1
1.000	0.907	2.491	1.857	2.233
1.247	0.955	2.820	1.776	2.330
0.934	0.705	1.624	1.081	2.023
0.462	0.138	0.511	0.312	1.212
1.707	0.672	1.371	1.434	2.953



Function step 8



Results

Output the analysis results

Select the data you need then you can output a CSV file, you can open it by the excel

The data you have selected then you can preview it.

Band Information

Band #	Lane	Position	Unit	Type	Volume
1	Lane 1	588.28	kDa	detected	24006.62
2	Lane 1	100.00	kDa	detected	29928.32
3	Lane 1	26.90	kDa	detected	22410.66
4	Lane 1	19.47	kDa	detected	11079.92
5	Lane 1	10.00	kDa	detected	40978.77

Lane Information

Name	Width	Length
Lane 1	11.18mm	89.07mm

Explore Results

1. View all measurements generated during analysis in a tabular format
2. Export all, or a portion of the data as CSV for use in other applications

Data Selection

☐ All Lanes

☒ Lane 1

Display Decimal Places: 2

Band Table

☒ Show Band Table

- ☐ Band ID
- ☒ Band #
- ☒ Lane
- ☐ Channel
- ☒ Position
- ☒ Unit
- ☒ Type
- ☐ Peak
- ☐ Raw Peak
- ☒ Volume
- ☐ Volume - Raw
- ☐ Volume - Norm.
- ☐ Band %
- ☐ Lane %
- ☐ Extents (px)
- ☐ Length (px)
- ☐ Band Area (px)

Lane Table

☒ Show Lane Table

- ☒ Name
- ☒ Width
- ☒ Length
- ☐ Width (px)
- ☐ Length (px)
- ☐ Volume
- ☐ Volume - Raw
- ☐ Bands

Band Table

☒ Show Band Table

- ☐ Band ID
- ☒ Band #
- ☒ Lane
- ☐ Channel
- ☒ Position
- ☒ Unit
- ☒ Type
- ☐ Peak
- ☐ Raw Peak
- ☒ Volume
- ☐ Volume - Raw
- ☐ Volume - Norm.
- ☐ Band %
- ☐ Lane %
- ☐ Extents (px)
- ☐ Length (px)
- ☐ Band Area (px)

Lane Table

☒ Show Lane Table

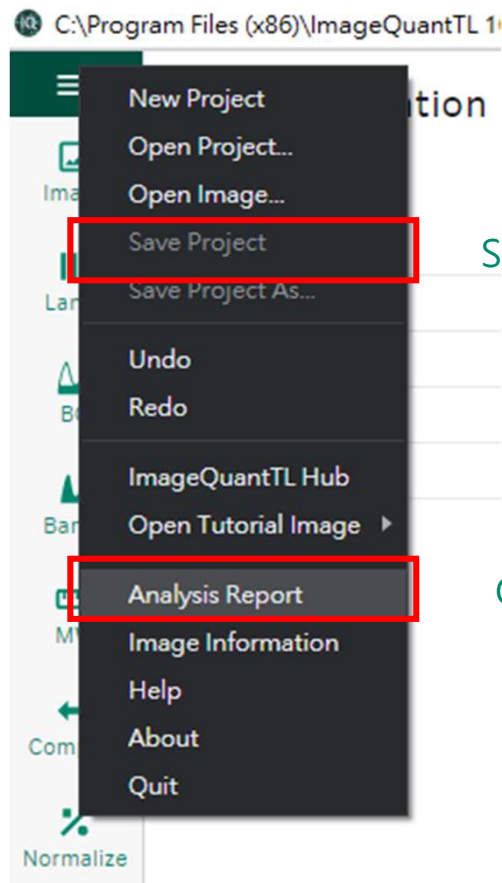
- ☒ Name
- ☒ Width
- ☒ Length
- ☐ Width (px)
- ☐ Length (px)
- ☐ Volume
- ☐ Volume - Raw
- ☐ Bands
- ☐ Band Volume
- ☐ Band Volume - Raw

Export CSV

Detailed Appendices

- ☐ Profile
- ☐ Profile - Raw
- ☐ Volume
- ☐ Volume - Raw
- ☐ Background

Export CSV



Save the analysis project as a .1dp f

Output a pdf report

