

# UVP ChemStudio touch



**Kai-Feng Cheng**

**Instrument Product Specialist**



進階生物科技  
Level Biotechnology Inc.

# ChemStudio PLUS Touch

## 高敏感高解析度CCD

- 壽命長
- 敏感度超越壓片
- 810萬畫素



## 15.6吋觸控電腦

- 直覺式操控介面
- 巨集一鍵完成影像擷取



## 內建RGB螢光/白光模組



## 全自動濾鏡盤

- 5個濾鏡孔, 可自由選配多種濾鏡
- 一鍵輕鬆切換

## 下方光源模組

- 全平面UV BOX(302nm)
- 全平面白光板 (選配)

## 安全門保護裝置

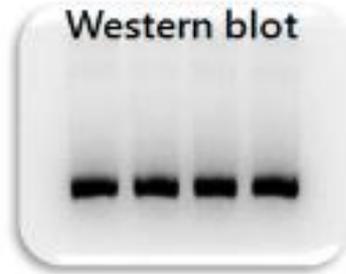
- 當門未關緊時, UV燈將無法開啟, 保護使用者的操作安全



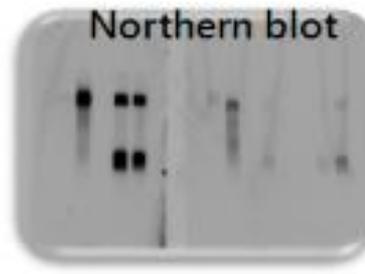
# 產品應用

Chemiluminescence

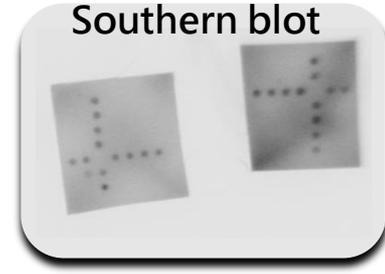
Western blot



Northern blot

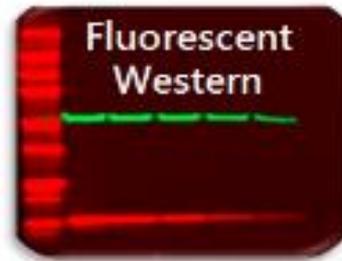


Southern blot

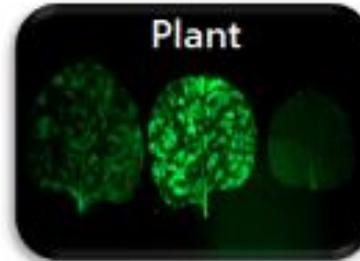


Fluorescent

Fluorescent  
Western

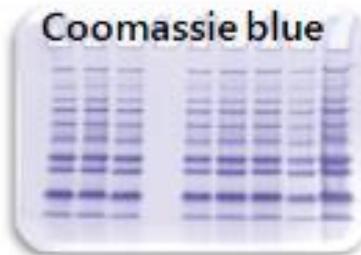


Plant



Visible light  
imaging

Coomassie blue



Colony plate

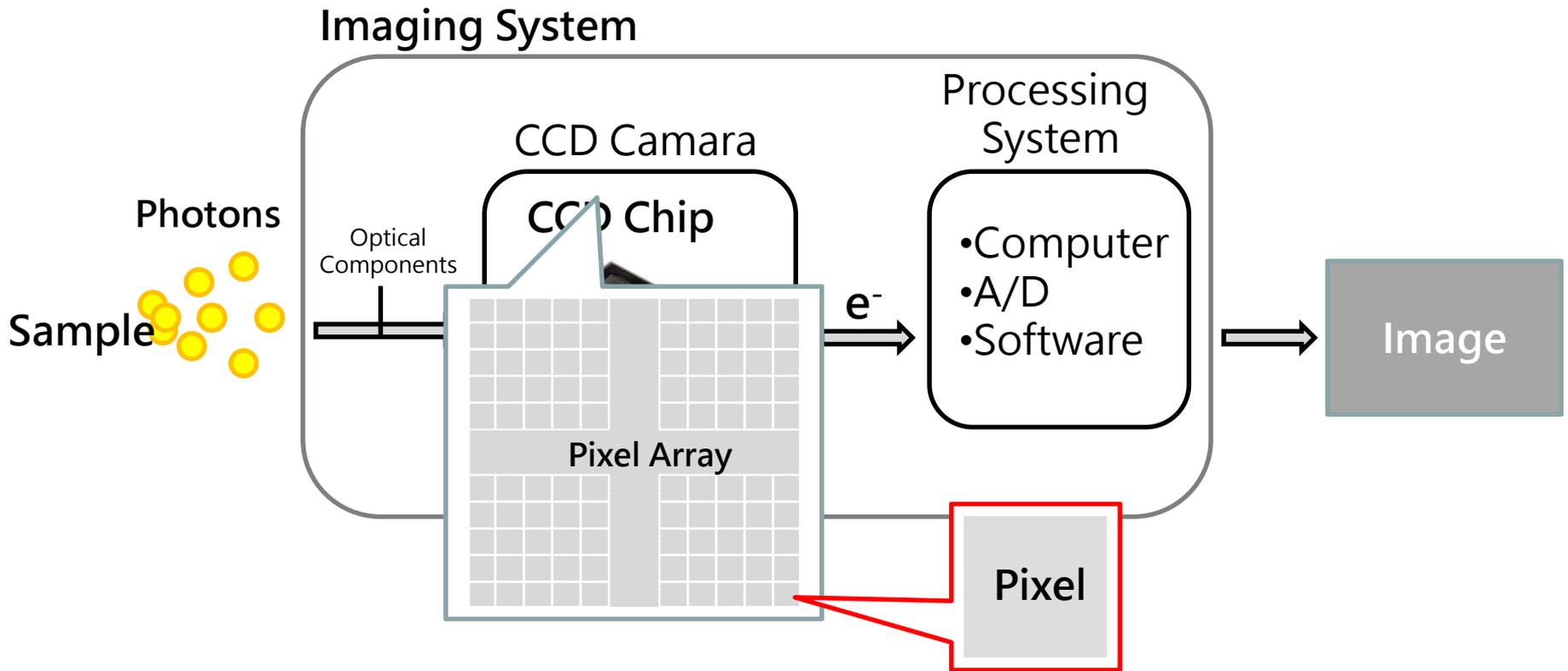


X-ray film



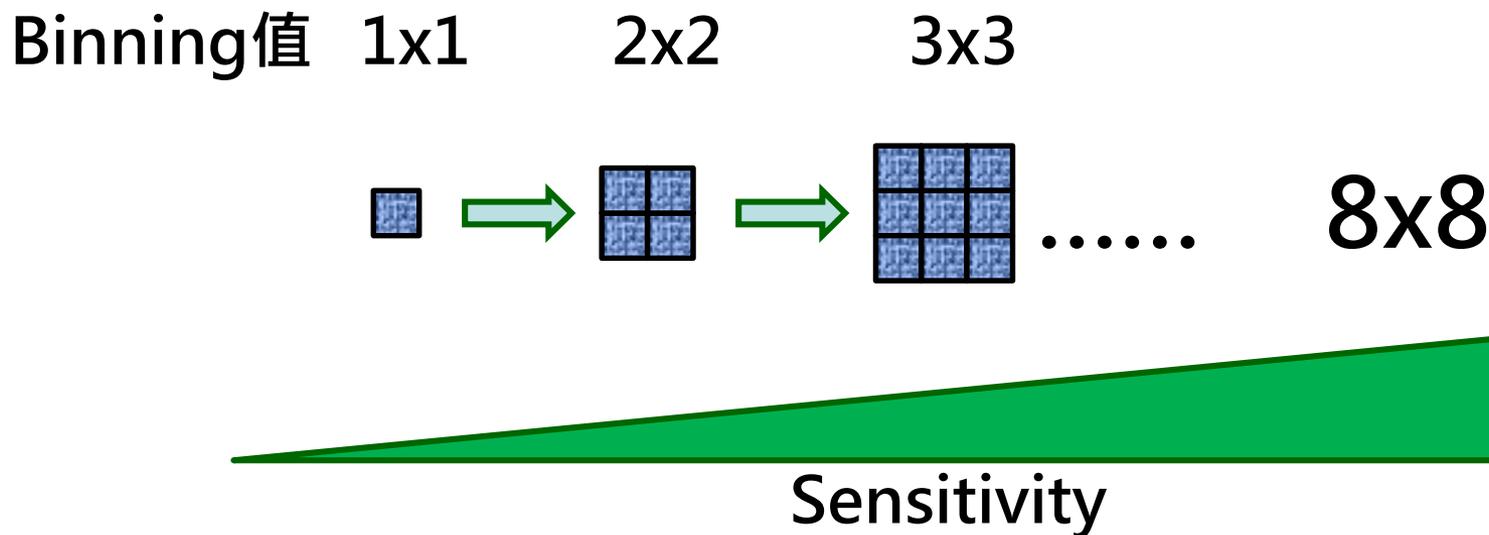
•主要應用涵蓋冷光/多重螢光與可見光影像,甚至是活體影像(植物葉片)

# Principle of CCD imaging system



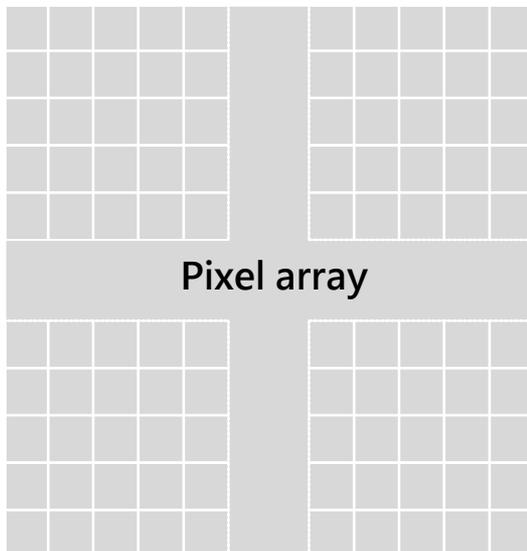
# Binning模式

- ✓ 使用時機:當訊號微弱時，可以調整Binning值來增加敏感度
- ✓ 高畫素CCD兼顧敏感度及解析度!!!



# 光源訊號充足 vs. 訊號微弱

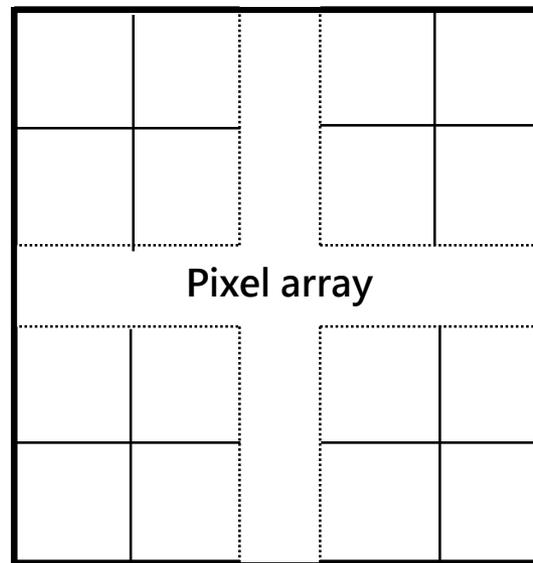
Low Binning



High resolution

Application: White Light Applications

High Binning

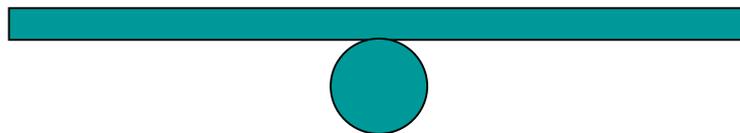


High sensitivity

Application: Luminescence

Resolution

Sensitivity



# 產品介紹-軟體VisionWorks

1. 同一個軟體具有**拍攝與分析**功能。

2. 拍攝：

- ◆ 自動與手動模式
- ◆ 影像優化(自動灰階、套色、反白)
- ◆ UVP數位影像系統專用軟體 (VisionWorks)

**支援 FDA 21 CFR Part 11**規範，自動記錄影像修改紀錄與拍攝參數。

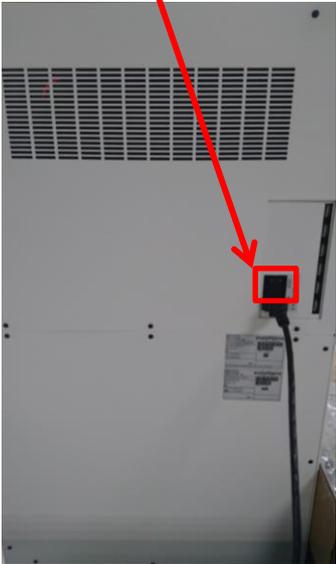
3. 分析：

- ◆ 1D分析：適用膠體電泳，可進行訊號強度分析、分子量及濃度估算。
- ◆ Area Density(AD)分析：適用Western blot，可進行訊號強度分析。
- ◆ Colony Counting(CC)分析：可進行菌落數計算。



# 開機步驟

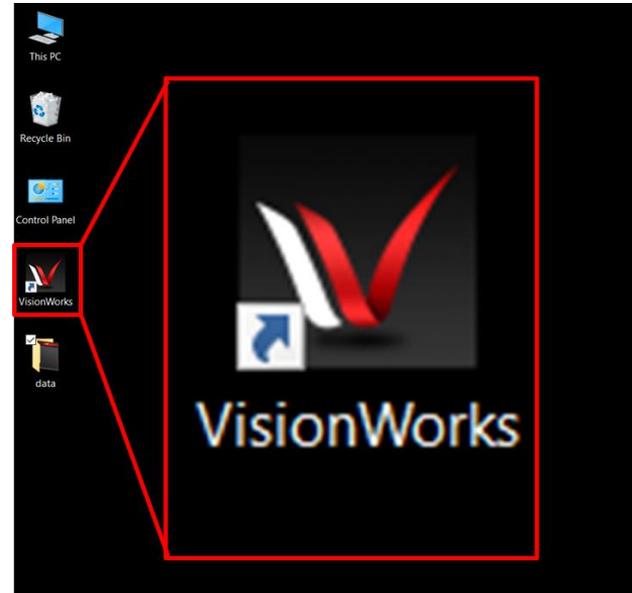
1. 開啟總電源



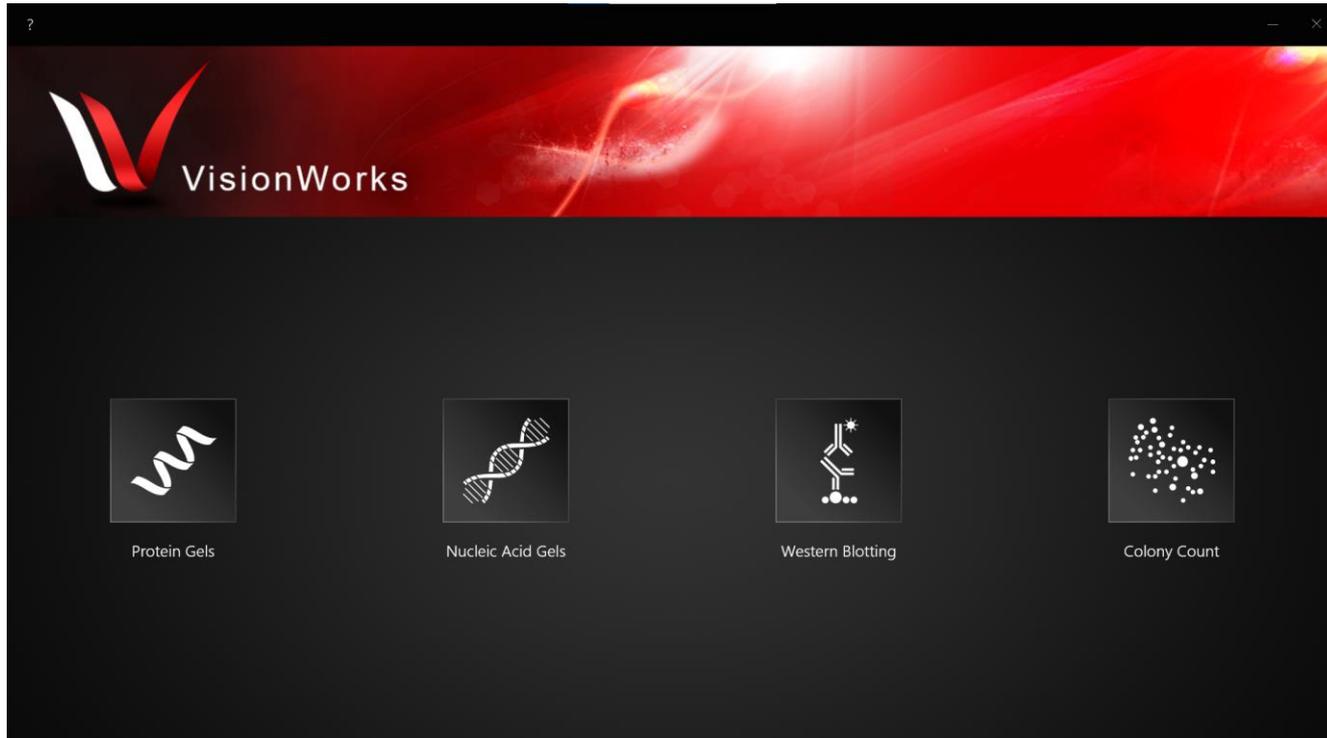
2. 開啟電腦



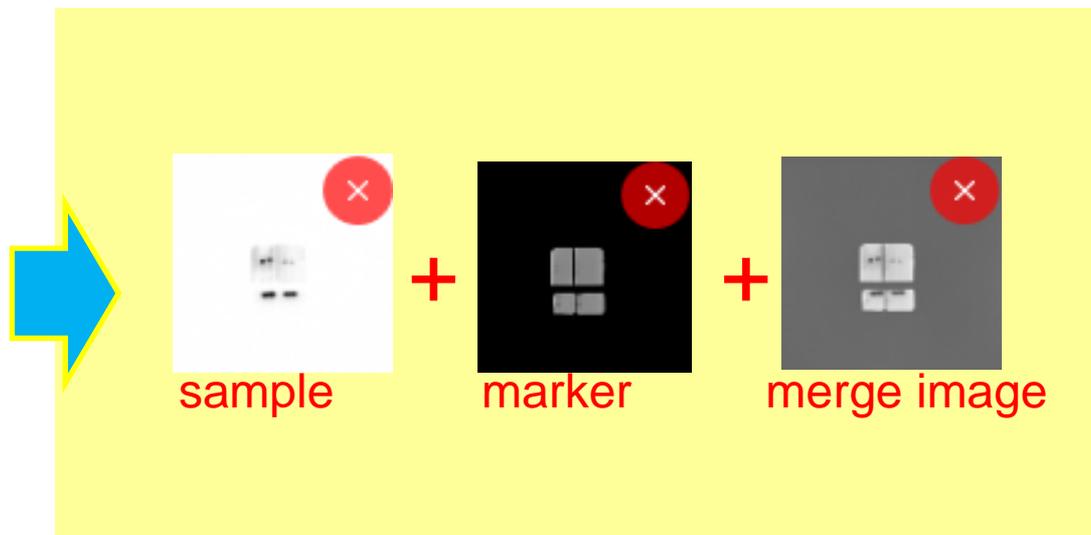
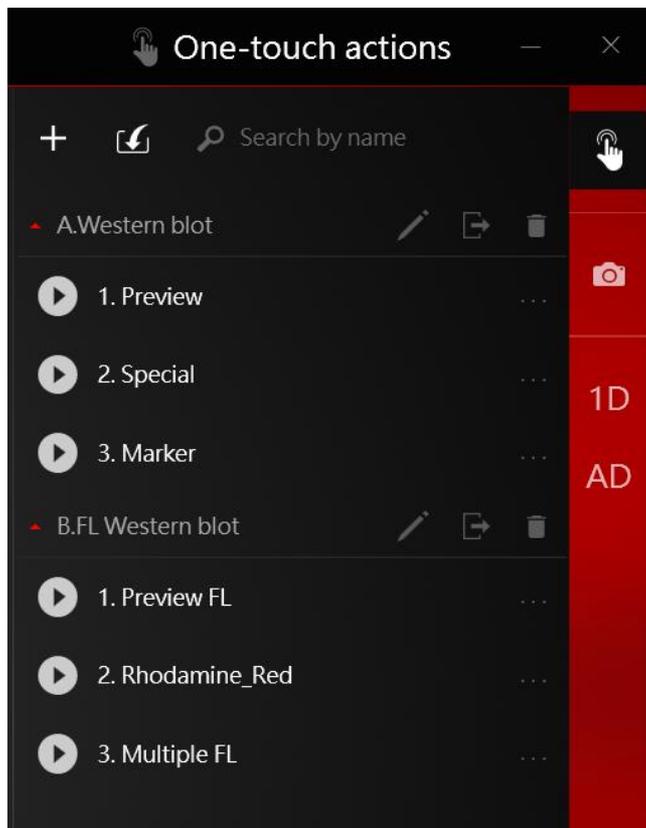
3. 開啟VisionWorks軟體



# 主畫面選單

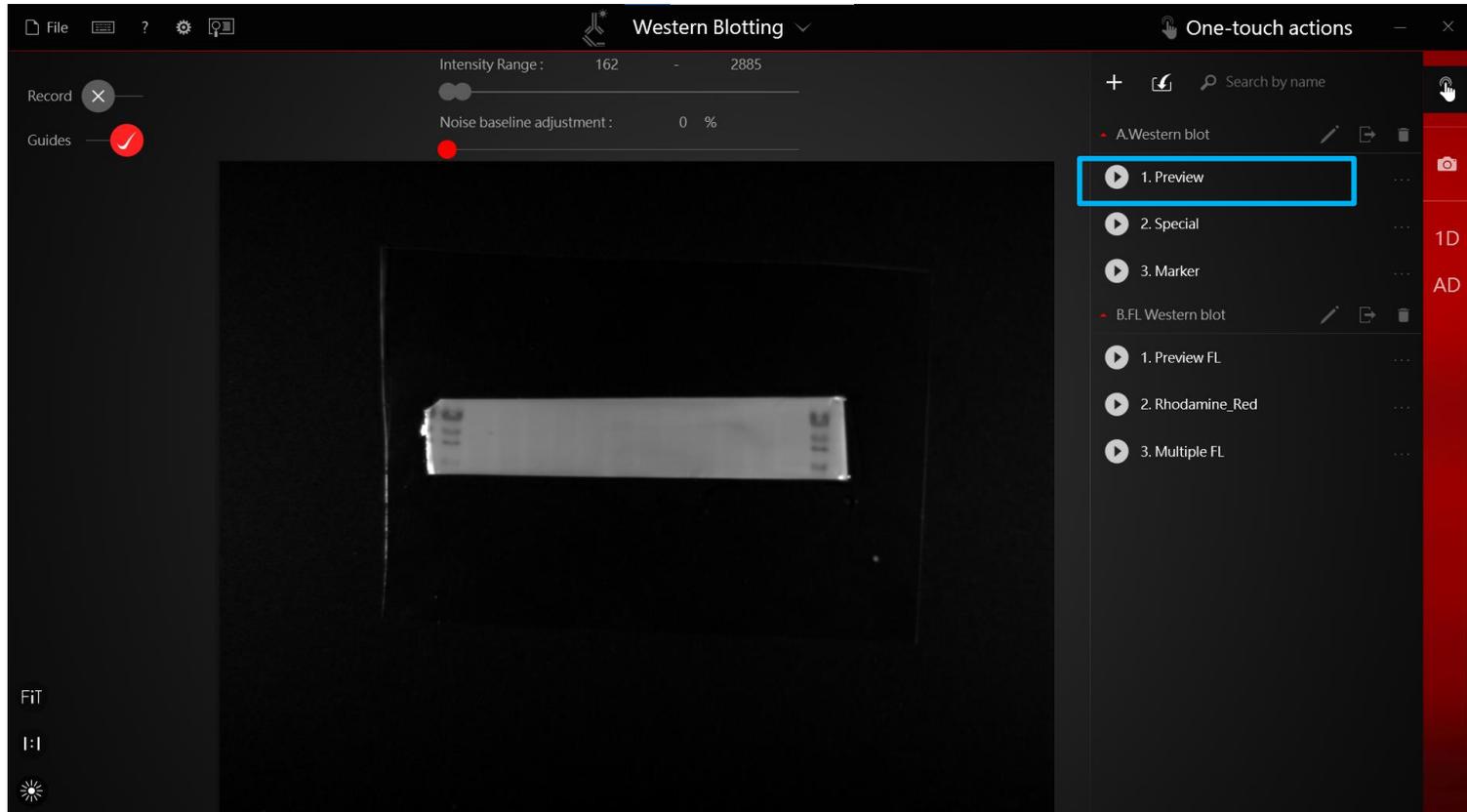


# 冷光拍攝



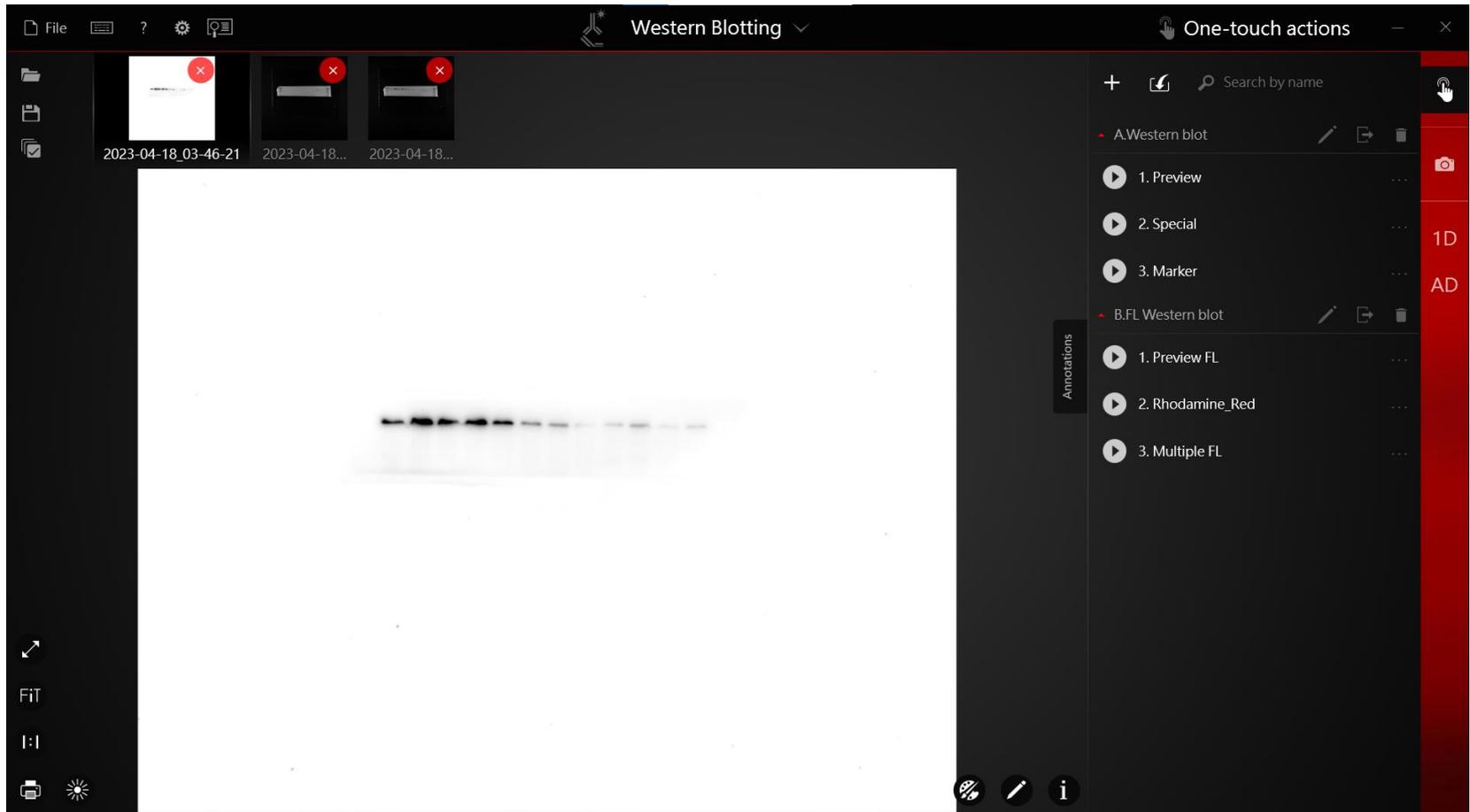
- 一鍵巨集拍攝, 可同時擁有: (1) 樣品影像  
(2) marker  
(3) merge影像

# 冷光拍攝-預覽(Preview)

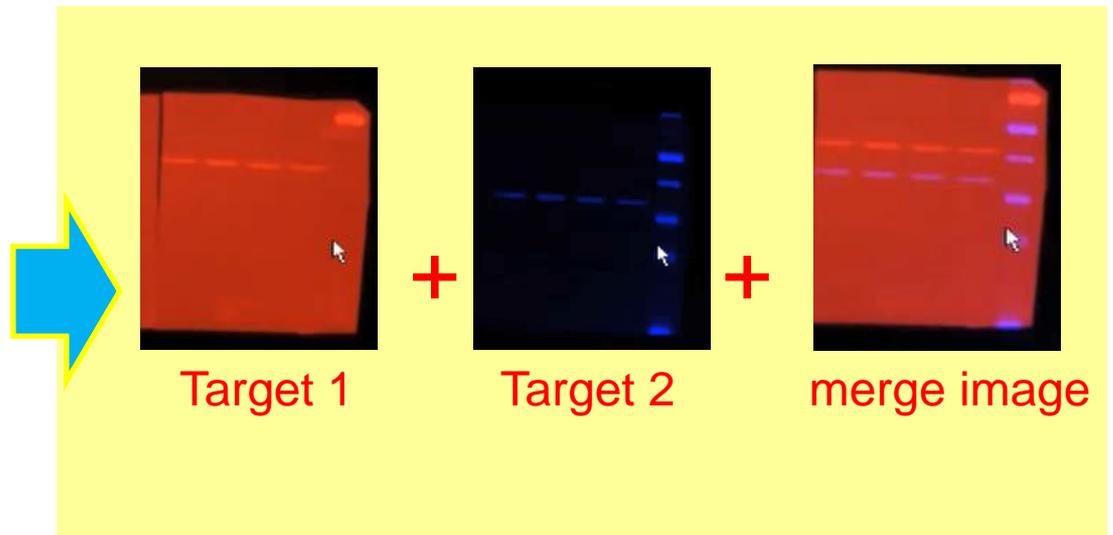
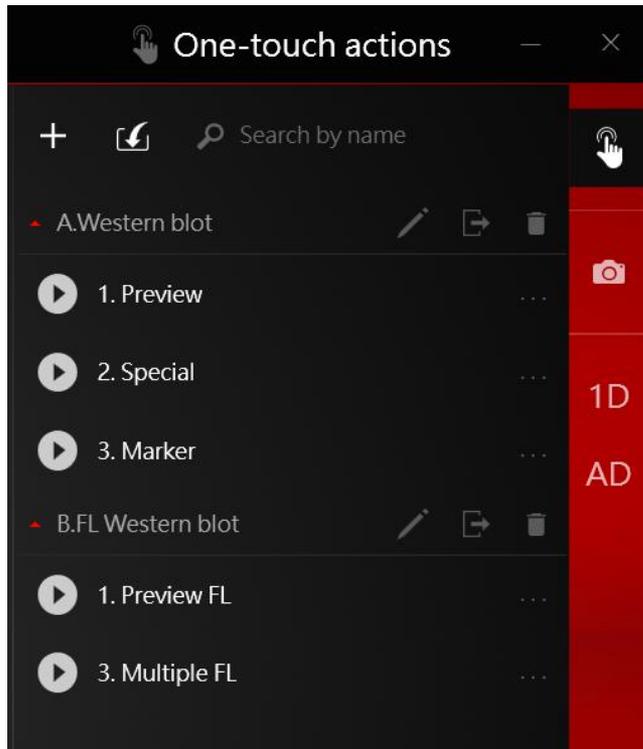


# 冷光拍攝-連拍模式(Special)

Special → Stack (累積訊號)

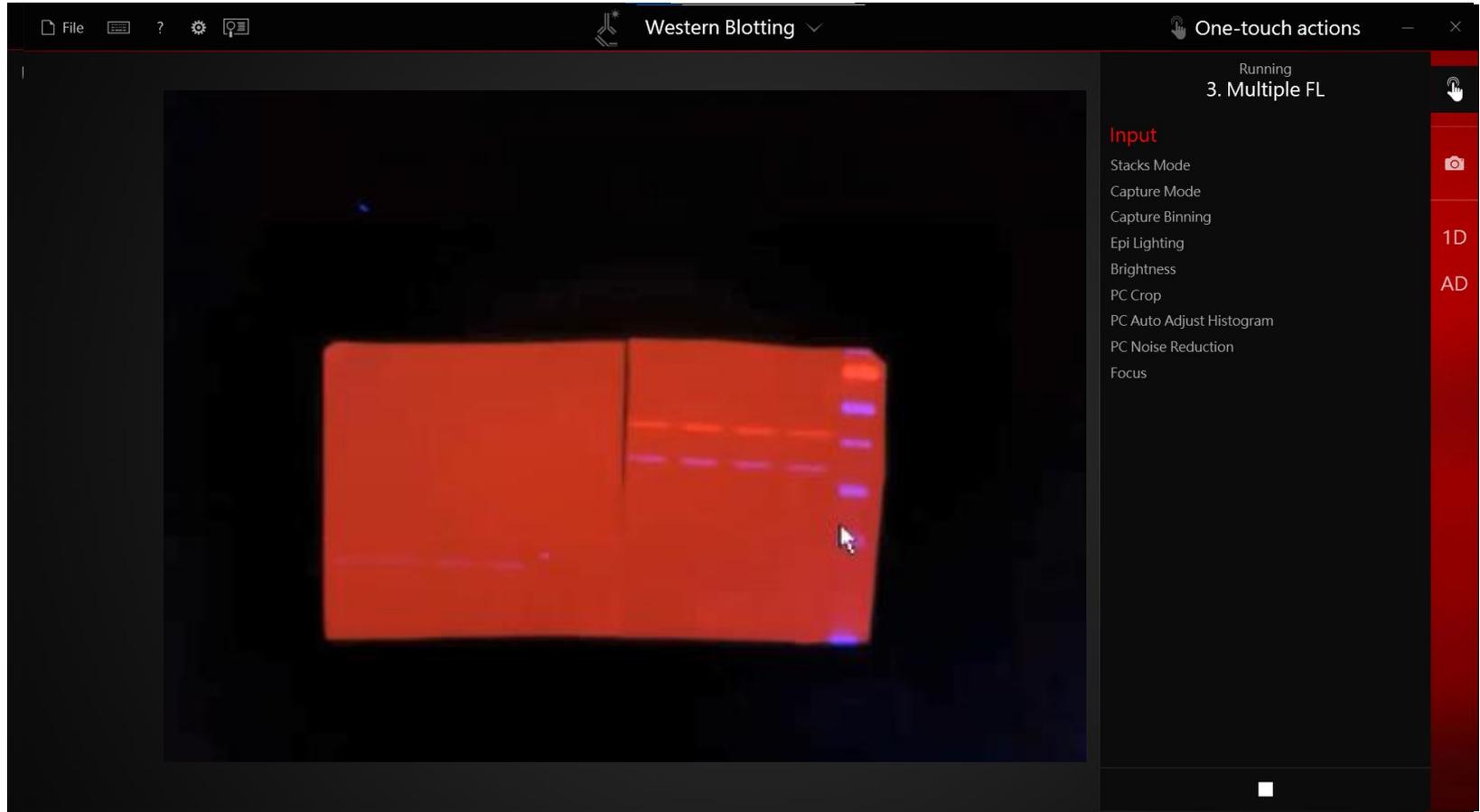


# 螢光拍攝



- 一鍵巨集拍攝, 可同時擁有: (1) 樣品1影像  
(2) 樣品2影像  
(3) merge影像

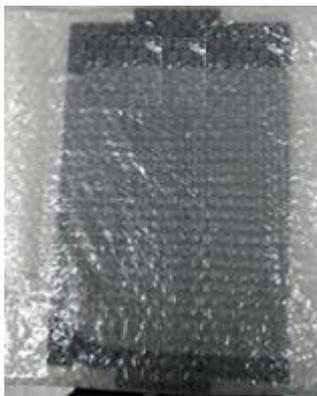
# 螢光拍攝



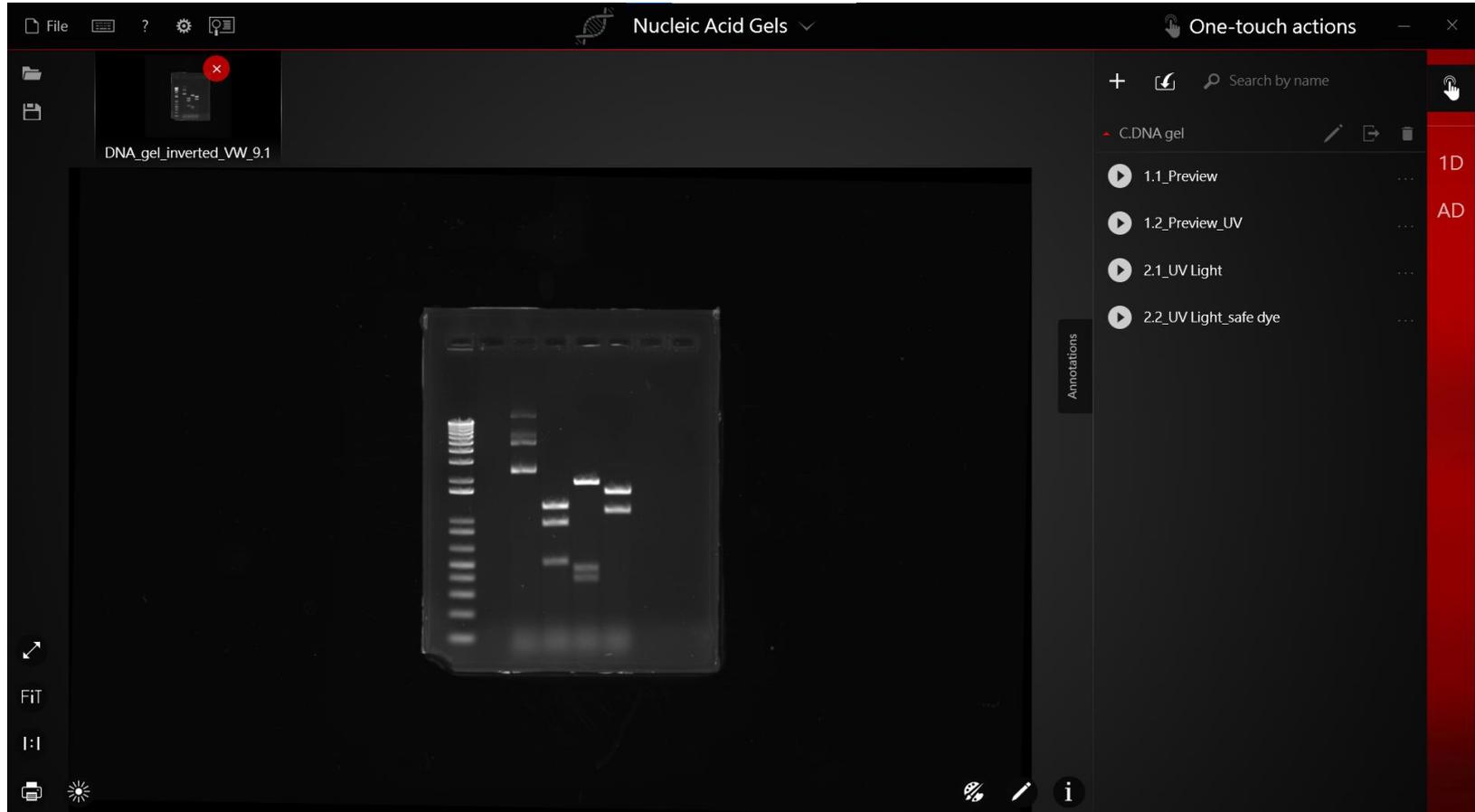
# DNA gel拍攝前

移除冷光板

冷光板



# DNA gel拍攝



# 影像調整

自動 手動 無調整 套色

照片拍攝條件

- ▲ Flip Horizontal
- ◀ Flip Vertical
- ↻ Rotate
- Crop
- ▲ Sharpen
- ✨ Enhance Exposure
- Remove Noise

灰階比  
亮度  
對比度  
γ值  
反白

影像調整

Capture Mode	Manual
Exposure Time	0:01.090
Capture Binning	1
External Light Status	OFF
Epi Lighting	Blue
Trans Lighting	OFF
Emission Filter	#4 800
Brightness	100%
Focus	76%
PC Crop	100%
PC Pseudocolor	None
PC Auto Adjust Histogram	ON
Camera	615

角度微調

裁切

去除噪點

# 冷光分析 - Area Density

Area Density Report for 2023-04-18\_03-46-21 - Excel

Region	Total Density	Total Raw Density	Total Background	Mean Density	Mean Raw Density	Mean Background	Area (px^2)	Minimum Intensity	Maximum Intensity
1	26,500,000	46,900,000	20,390,000	2,861	5,062	2,201	9,265	2,306	27,472
2	54,150,000	75,220,000	21,070,000	5,845	8,119	2,274	9,265	2,677	45,178
3	36,400,000	57,440,000	21,040,000	3,929	6,200	2,271	9,265	2,719	29,695
4	43,550,000	64,260,000	20,700,000	4,701	6,935	2,234	9,265	2,738	41,782
5	29,490,000	50,160,000	20,670,000	3,183	5,414	2,231	9,265	2,572	22,508
6	15,120,000	35,740,000	20,620,000	1,632	3,857	2,226	9,265	2,450	11,197
7	13,050,000	33,640,000	20,590,000	1,408	3,631	2,223	9,265	2,425	9,497
8	5,661,000	26,240,000	20,580,000	611	2,833	2,222	9,265	2,328	4,762
9	6,951,000	27,700,000	20,750,000	750	2,990	2,239	9,265	2,344	5,652
10	9,822,000	30,740,000	20,910,000	1,060	3,317	2,257	9,265	2,353	7,683
11	4,882,000	25,580,000	20,700,000	527	2,761	2,234	9,265	2,384	3,978
12	5,719,000	26,400,000	20,680,000	617	2,850	2,233	9,265	2,269	4,696

Density List

# DNA/Protein gel分析- 1D Analysis

Back Export

DNA\_gel\_inverted\_analyzed\_VW\_9.1

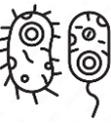
Image Information Lanes Bands Concentration Calibration **Molecular Weight** Simplified

Show Report on One Page

- Overview
- Adjustments
- History
- Capture Data
- ✓ Image Information
- ✓ Lanes
- ✓ Bands
- ✓ Concentration
- ✓ Calibration
- ✓ Molecular Weight

Calibration details

Band	A	B	C	D	E
1	12,216.00 bp	12,215.31	6,979.31	8,144.00	7,126.00
2	11,198.00 bp	11,183.21	6,022.73	3,379.26	6,752.57
3	10,180.00 bp	10,730.10	3,731.93	2,036.00	
4	9,162.00 bp	9,068.68			
5	8,144.00 bp				
6	7,126.00 bp				
7	6,108.00 bp				
8	5,090.00 bp				
9	4,072.00 bp				
10	3,054.00 bp				
11	2,036.00 bp				
12	1,636.00 bp				
13	1,018.00 bp				
14	506.00 bp				



# Colony Count (1)

The screenshot displays the 'Colony Count' software interface. On the left, a petri dish image is shown with a 'Colony Sample' thumbnail above it. A red arrow points from the text 'Colony Counting分析' to the 'Colony Count' option in the central menu. The menu includes: Home, Protein Gels, Nucleic Acid Gels, Western Blotting, and Colony Count. On the right, a zoomed-in view of the software's analysis tool is shown. A red box highlights a dashed circle selection tool, with the text '框選欲分析的範圍' (Select the range to be analyzed) below it. Below this, another red box highlights a circular area with red dots and the text 'Define no. of classes' (Define the number of classes). At the bottom right, the text '自動計數與偵測菌落種類' (Automatic counting and detection of colony types) is displayed. The interface also features a top menu bar with 'File', a search icon, and a 'Colony Count' dropdown. A bottom toolbar contains icons for zooming, fitting, and information.

# Colony Count (2)



The screenshot displays the Colony Count software interface. The main window shows a petri dish with numerous red square markers representing colonies. The software's control panel on the right includes a top status bar showing '123 Colonies: 123' and '1 Class: 1'. Below this, there are buttons for manual colony addition and subtraction, labeled '手動新增菌落' (Manual Add Colony) and '手動刪除菌落' (Manual Remove Colony). The 'Annotations' section contains sliders for 'Circularity 50%' and 'Size 20 px', with the label '設定菌落計數的圓度與大小' (Set colony count circularity and size) pointing to them. At the bottom of the control panel, there are three main buttons: 'Define Classes...', 'Report...' (highlighted with a red box and labeled '產生分析報告' (Generate analysis report)), and 'Delete Analysis'. The software title bar reads 'Colony Count'.

# Colony Count (3)

Colony Sample

Back Export

Show Report on One Page

Classes Colony ROIs Simplified +

Classes			
Class Number	No of colonies	No of colony ROIs	Total Area (px <sup>2</sup> )
1	123	123	58,675.00

Overview  
Adjustments  
History  
Capture Data  
✓ Classes  
✓ Colony ROIs

*Thank you!!*

*Thank you!!*



進階官網



FB粉絲團