

# Cellometer Auto T4 中文操作手冊



# 目錄主題

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1. 儀器安裝
2. 背景值影像拍攝 (第一次使用才需要)
3. 樣品上機實戰教學
4. 軟體功能介紹
5. 細胞影像精靈使用
6. Cell type 參數介紹

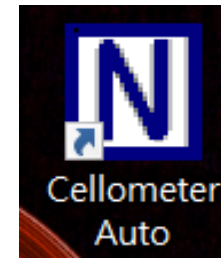
# 主題一：儀器安裝-確定儀器配件

1. Cellometer主機
2. 電源變壓器
3. 電源線
4. USB Cable



# 主題一：儀器安裝-軟體安裝步驟

- 將USB插入電腦中，並按照指示操作



桌面上出現捷徑才算安裝完成

# 主題一：儀器安裝-硬體安裝步驟

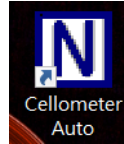
1. 將Cellometer電源線接上電源
2. 打開Cellometer電源開關
3. 將USB Cable連接線接上Cellometer與電腦



## 主題二：背景值影像拍攝

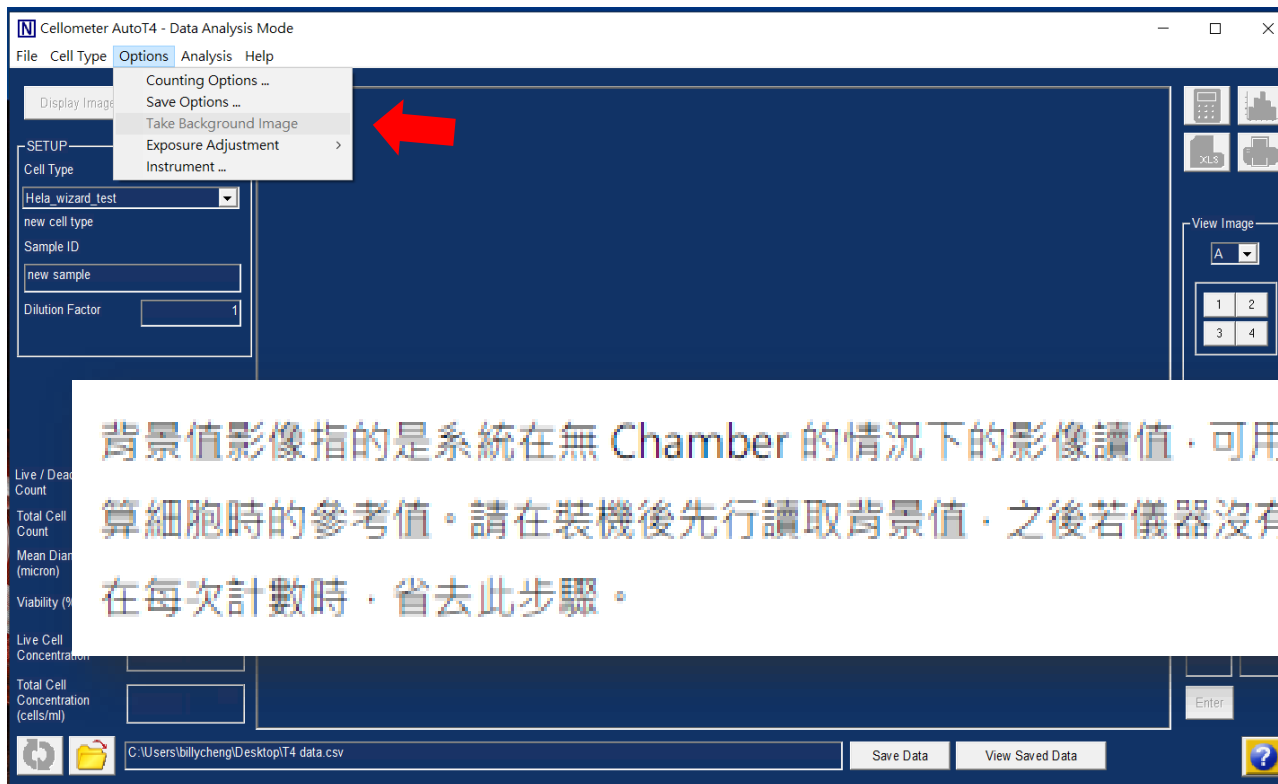
- 背景值擷取：

請點選桌面捷徑



，若第一次啟用，系統會自動要

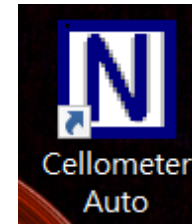
求讀取背景值，請參照指示。



背景值影像指的是系統在無 Chamber 的情況下的影像讀值，可用來當作系統計算細胞時的參考值。請在裝機後先行讀取背景值，之後若儀器沒有被移動過，可在每次計數時，省去此步驟。

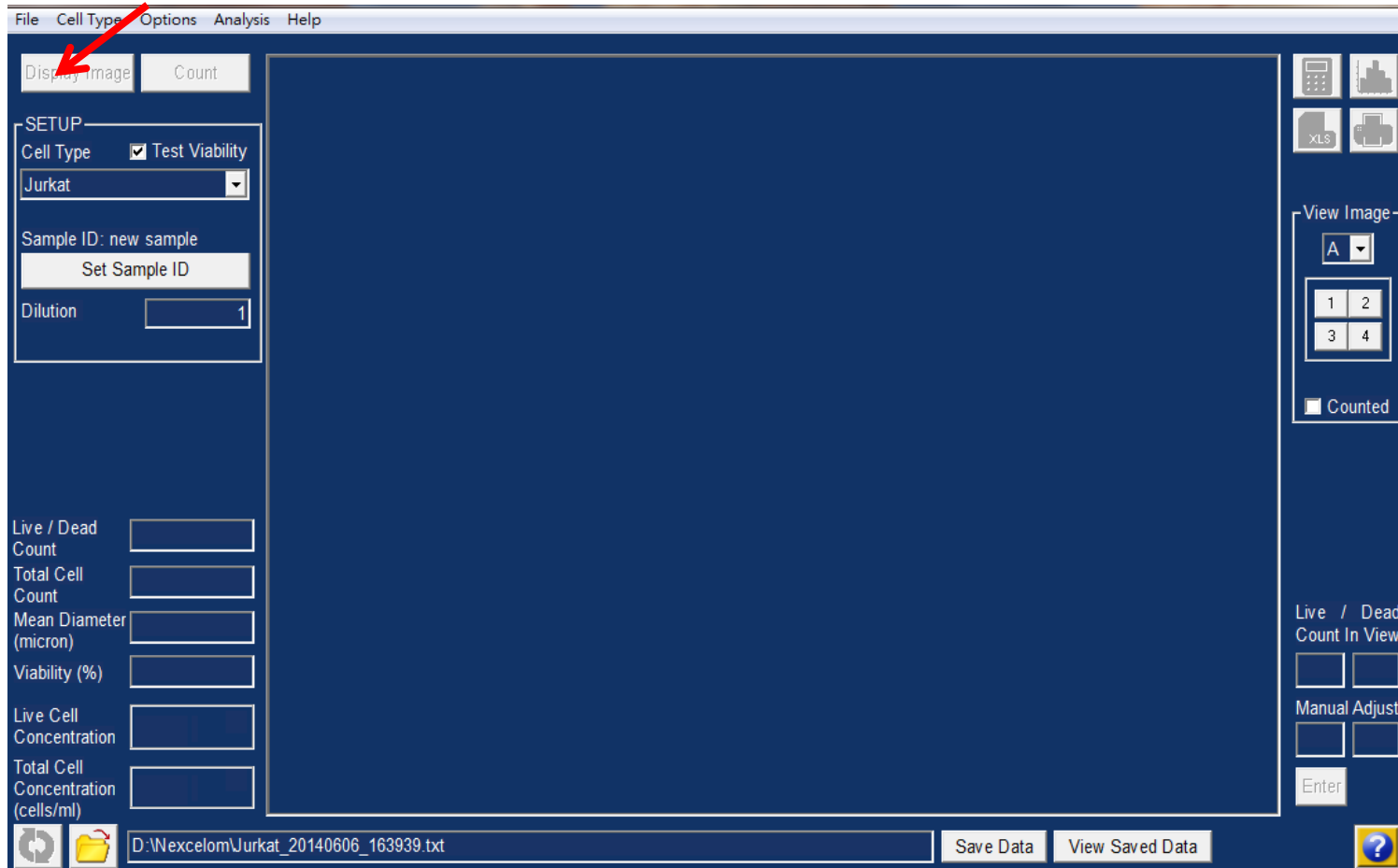
# 主題三：樣品上機實戰教學

1. 打開Cellmeter Auto Counter 軟體
  2. 細胞濃度建議在 $5 \times 10^5 \sim 10^7$  cells/ml
  3. 計算存活率
- \*請使用0.2%trepen blue與Sample 1:1混合**
4. 取樣**20 ul**的sample 注入chamber 中
  5. 放入玻片進入口

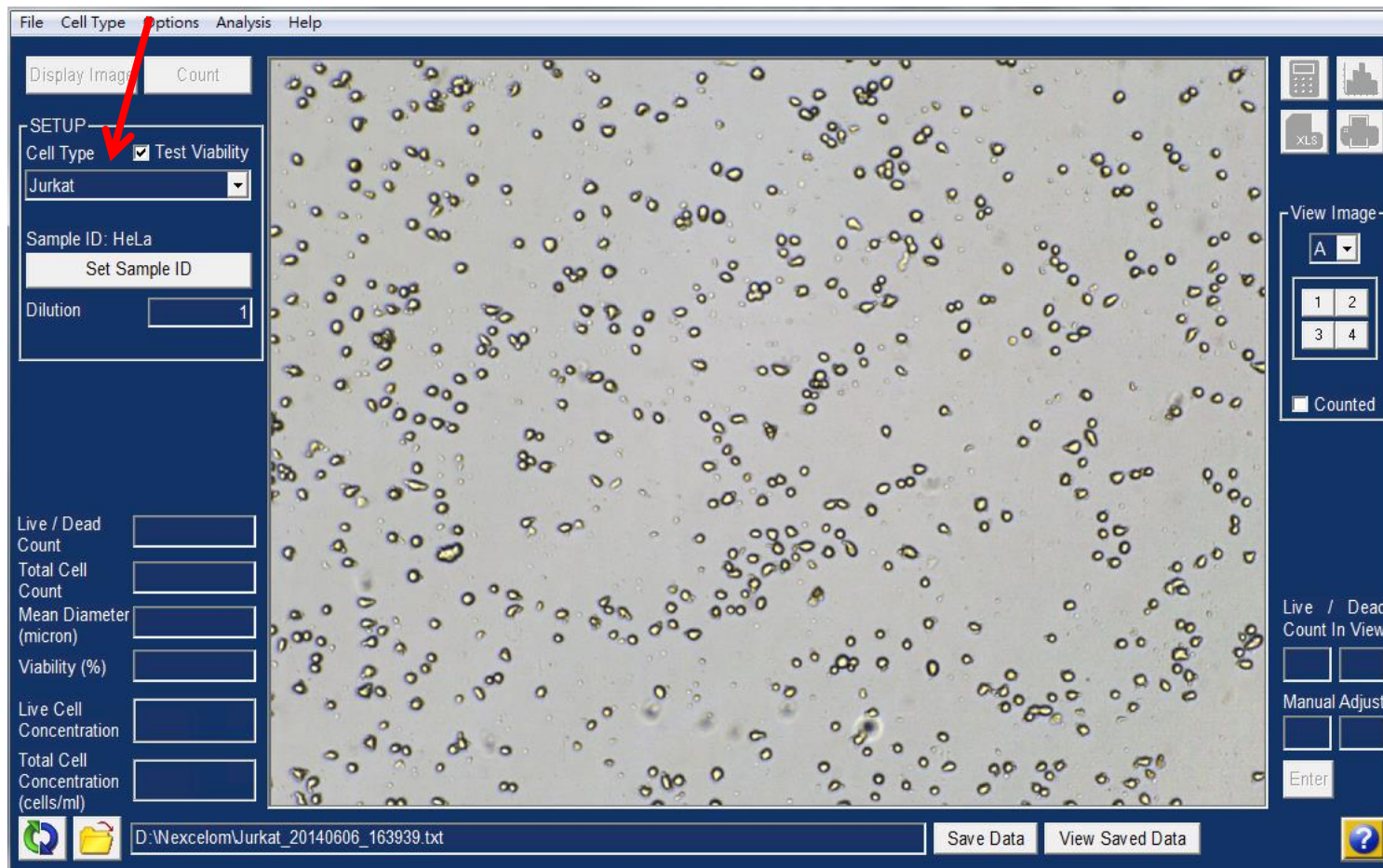


# 主題三：樣品上機實戰教學-軟體操作

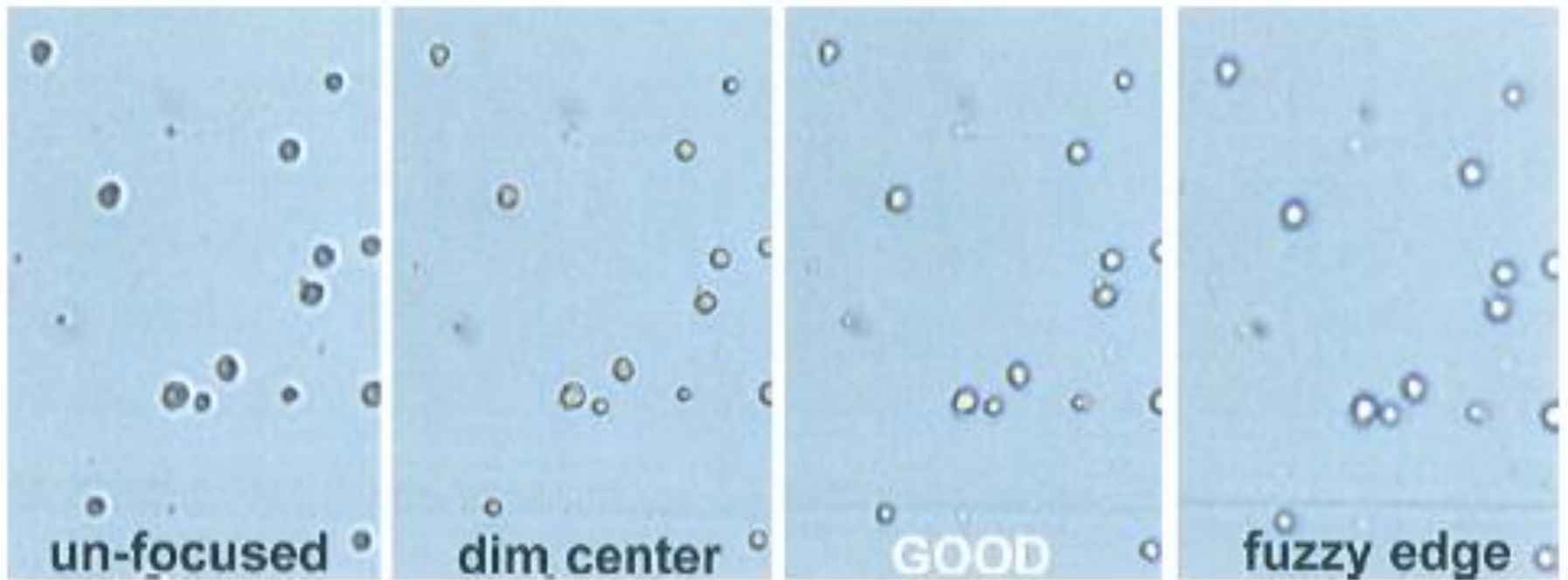
## 1. 點選 Display Image



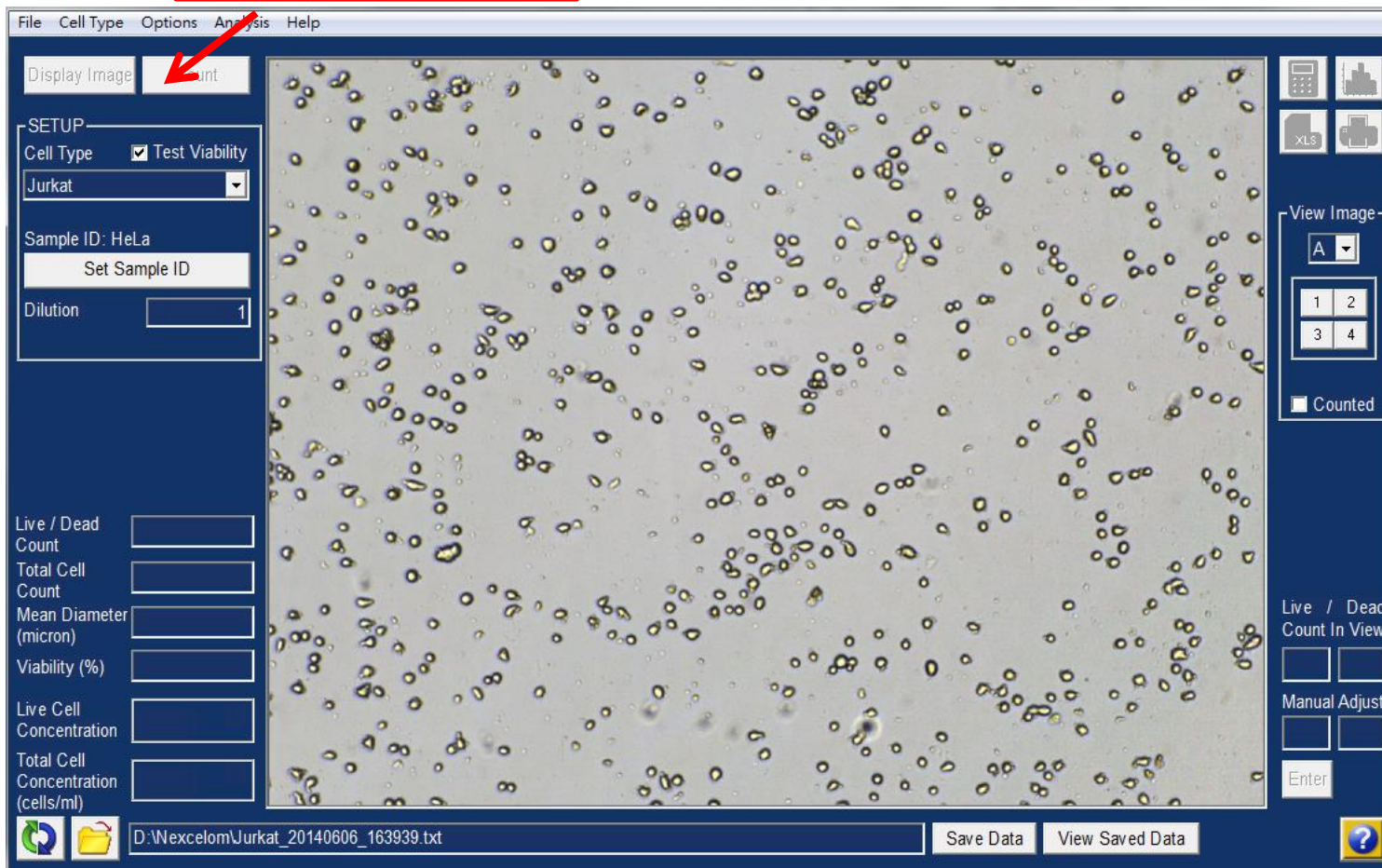
## 2. 選擇Cell type



- 調整影像焦距



### 3. 點選Count



File Cell Type Options Analysis Help

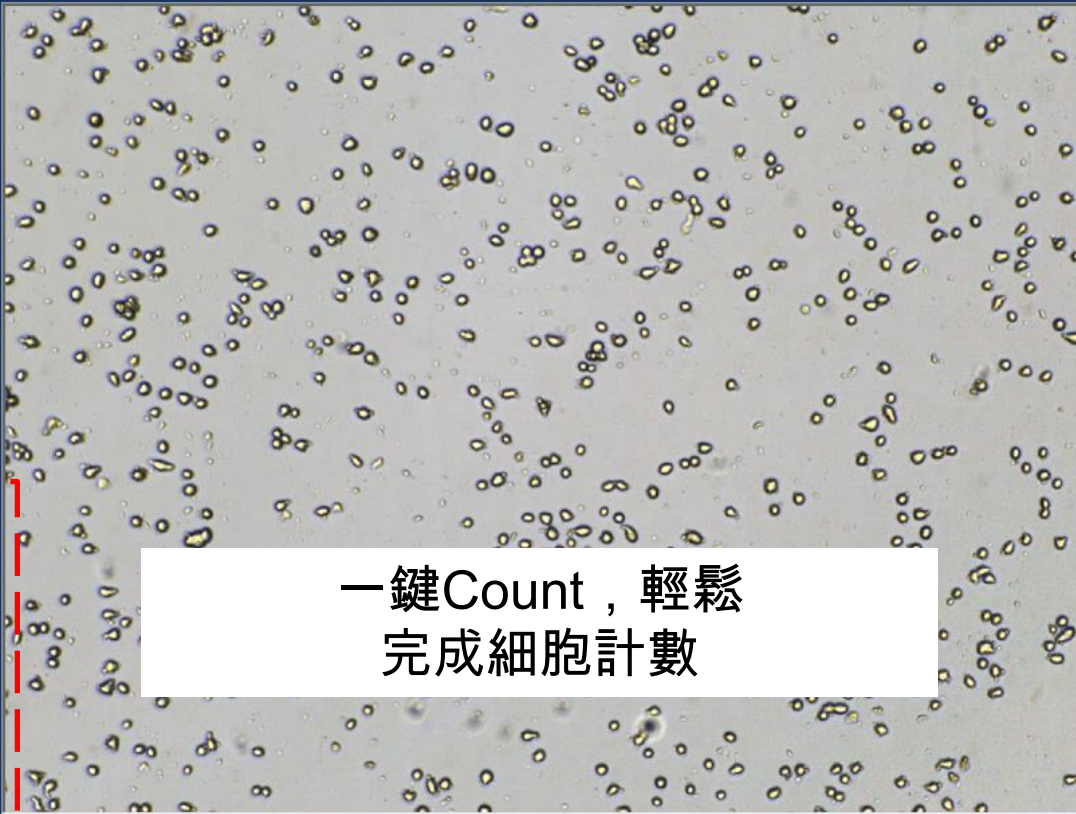
Display Image Count

SETUP

Cell Type  Test Viability  
Hela

Sample ID: HeLa  
Set Sample ID

Dilution 1



View Image

A

|   |   |
|---|---|
| 1 | 2 |
| 3 | 4 |

Counted

Live / Dead Count In View  
544 1

Manual Adjust  
0 0

Enter

Live / Dead Count  
1088 / 2

Total Cell Count  
1090

Mean Diameter (micron)  
18.6

Viability (%)  
99.8

Live Cell Concentration  
 $3.20 \times 10^6$

Total Cell Concentration (cells/ml)  
 $3.21 \times 10^6$

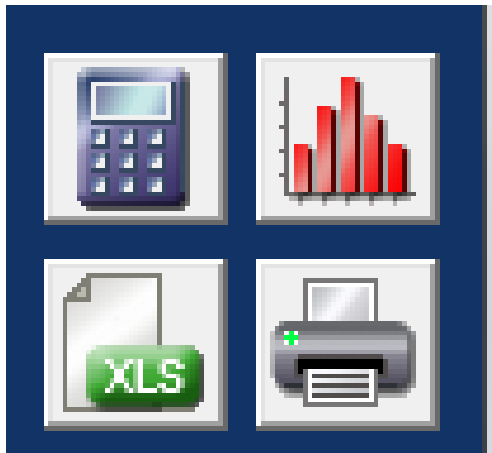
D:\WexcelomJurkat\_20140606\_163939.txt

Save Data View Saved Data

?

一鍵Count，輕鬆完成細胞計數

## 主題四：軟體功能介紹



- 1.專業報告格式輸出
- 2.完整數據記錄
- 3.即時的細胞大小監測
- 4.貼心計算機



## 報告書出格式

- 1.品質管理
- 2.快速輸出
- 3.不可變動性

Cellometer Simply Counted

06/09/2014 15:05:35

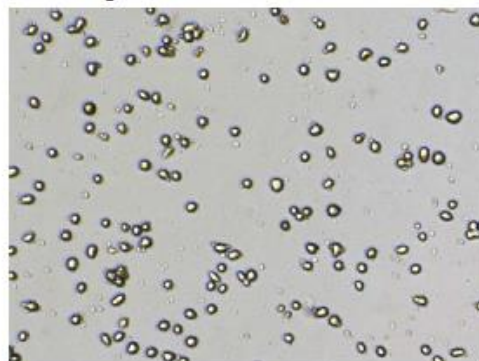
Sample: HeLa  
Dilution: 1.00  
Cell Type: HeLa  
Instrument Serial Number:  
Chamber Type: d100  
Operator Signature:

### Results: Trypan Blue Viability

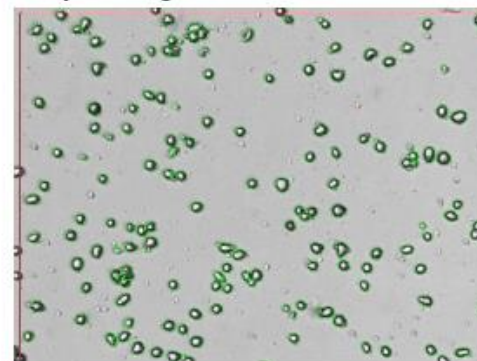
99.8 % Viability

| Count       | Concentration               | Mean Diameter |
|-------------|-----------------------------|---------------|
| Live: 1088  | $3.20 \times 10^6$ cells/mL | 18.6 micron   |
| Dead: 2     | $5.89 \times 10^3$ cells/mL | 11.4 micron   |
| Total: 1090 | $3.21 \times 10^6$ cells/mL |               |

Raw Image: 1 of 8



Analyzed Image: 1 of 8

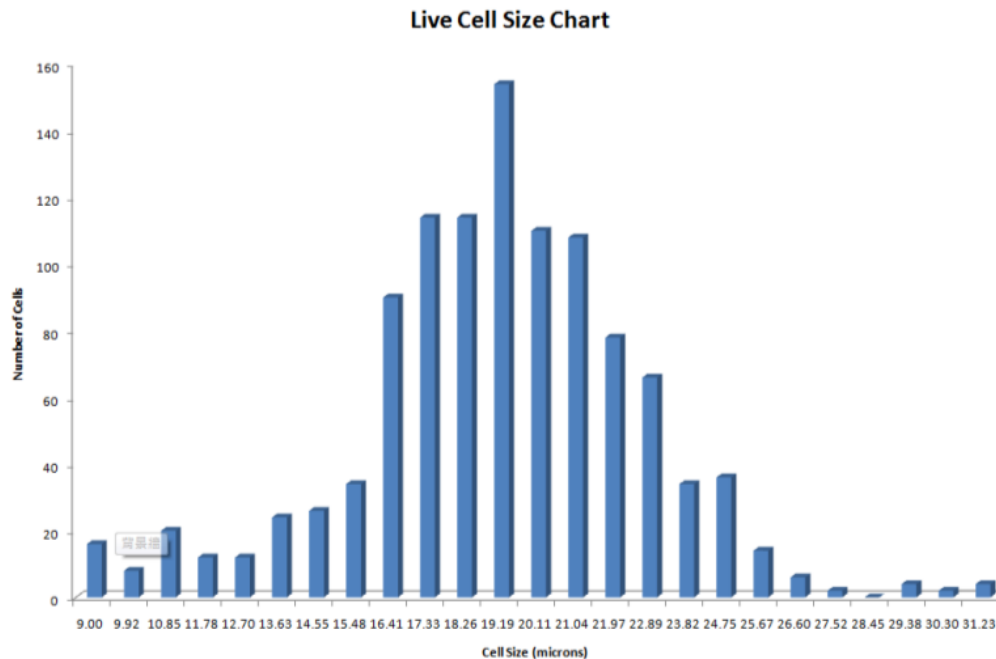




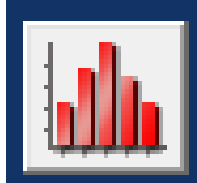
## 數據輸出

1. 程式設定參數
2. 每一顆細胞大小
3. 照片超連接
4. 細胞大小分布圖.....等

| Cell | Size (microns) |
|------|----------------|
| 1    | 15.29          |
| 2    | 8.88           |
| 3    | 17.75          |
| 4    | 19.13          |
| 5    | 15.72          |
| 6    | 20.28          |
| 7    | 15.76          |
| 8    | 15.88          |
| 9    | 15.72          |
| 10   | 18.77          |
| 11   | 16.7           |
| 12   | 23.51          |
| 13   | 18.23          |
| 14   | 19.91          |
| 15   | 18.92          |
| 16   | 19.4           |
| 17   | 17.1           |
| 18   | 22.01          |
| 19   | 16.86          |
| 20   | 17.94          |
| 21   | 19.2           |
| 22   | 19.57          |
| 23   | 18.92          |



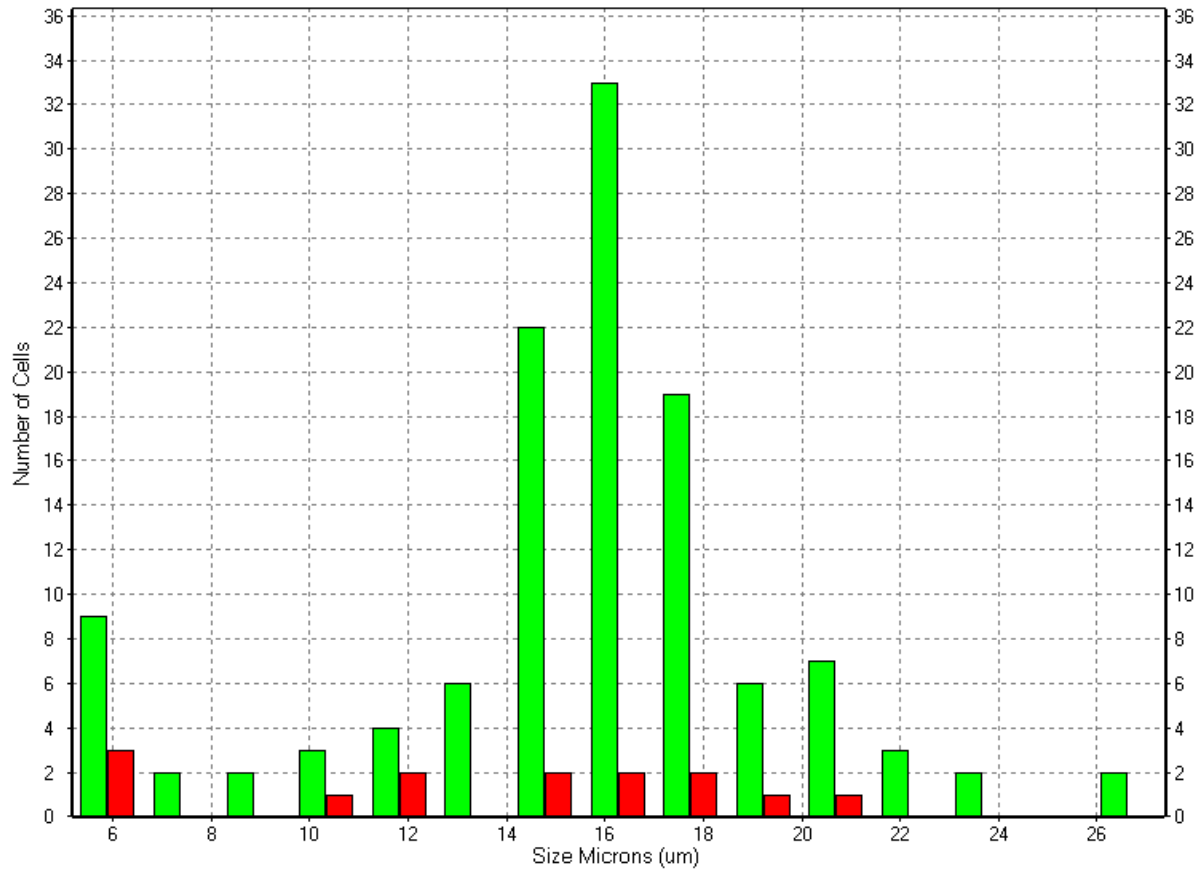
|    |   |  |
|----|---|--|
| 2  |   |  |
| 3  | <b>Cell Type: Hela</b>                    |  |
| 4  |   |  |
| 5  | Description:                              |  |
| 6  |   |  |
| 7  |   |  |
| 8  | <b>Cell Parameters</b>                    |  |
| 9  | Min Cell Diameter: 8.0 microns            |  |
| 10 | Max Cell Diameter: 37.0 microns           |  |
| 11 | Roundness: 0.10                           |  |
| 12 | Contrast Enhancement: 0.40                |  |
| 13 |   |  |
| 14 | <b>Trypan Blue Viability Parameters</b>   |  |
| 15 | Do not use a Default Viability Preference |  |
| 16 | Sensitivity: 1.0                          |  |
| 17 | Uniformity: 150                           |  |
| 18 | Very Dim Dead Cells Checked               |  |
| 19 | Enhancement: 0.60                         |  |
| 20 |   |  |
| 21 | <b>Decluster Parameters</b>               |  |
| 22 | Decluster Edge Factor: 0.5                |  |
| 23 | Decluster Th Factor: 1.0                  |  |
| 24 | Do not Decuster Clumps not Checked        |  |



# Show cell size distribution –即時查看細胞大小

Cell Diameter Histogram

ADSC\_20141029\_121314\_20141030\_084440, 15:20:29 07-16-2015





Sample Adjustment

|   |           |
|---|-----------|
| Measured Live Concentration (cells/ml)                              | 3.20e+006 |
| Original Sample Volume (ml)   | 5         |
| Total Cell Number in Sample   | 1.60e+007 |
| <input checked="" type="checkbox"/> Target Concentration (cells/ml) | 1.00e+006 |
| <input type="checkbox"/> Target Number of Cells                     | 20000     |

Apply Change

Sample Adjustment

Add diluent amount: 11.02 ml.

Print

Done

Print with report

→ 細胞濃度/mL

→ 樣品總體積

→ 想要的細胞濃度

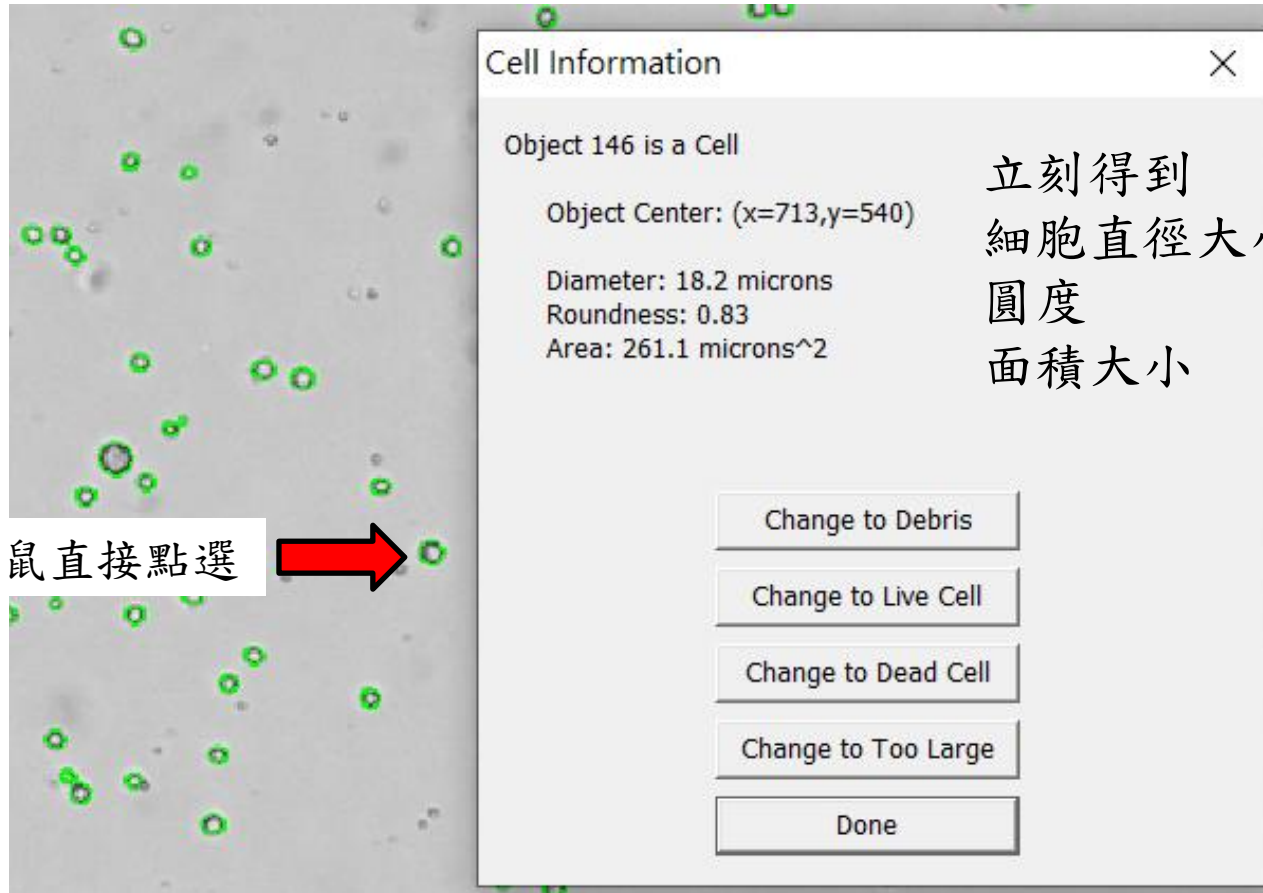
→ 想要的細胞顆數

按一下

→ 換算結果

自動換算細胞濃度

# 分析細胞面積大小



Cell Information

Object 146 is a Cell

Object Center: (x=713,y=540)

Diameter: 18.2 microns  
Roundness: 0.83  
Area: 261.1 microns<sup>2</sup>

立刻得到  
細胞直徑大小  
圓度  
面積大小

滑鼠直接點選

Change to Debris

Change to Live Cell

Change to Dead Cell

Change to Too Large

Done

# 主題五. 細胞影像精靈

The screenshot displays the Cellometer AutoT4 software in 'Data Analysis Mode'. The main window shows a microscopic image of cells. On the left, there is a sidebar with various data fields and controls. A menu is open under 'Cell Type Wizard', with 'Cell Type Wizard ...' highlighted. A red box labeled '1' points to this menu item. A dialog box titled 'New Cell Type Wizard' is centered on the screen, with a red box labeled '2' pointing to it. The dialog box contains the text 'Select source of new cell parameters.' and two radio button options: 'Live Image' and 'Saved Image'. The 'Live Image' option is selected. Below the options are 'Continue' and 'Cancel' buttons. A text box at the bottom of the dialog box contains the instruction '選擇即時影像, 儲存影像'. The sidebar on the left shows fields for 'Sample ID' (ADSC\_20141029\_121314\_201), 'Dilution Factor' (1), 'Live / Dead Count' (120 / 14), 'Total Cell Count' (134), 'Mean Diameter (micron)' (15.6), 'Viability (%)' (89.6), 'Live Cell Concentration' ( $3.50 \times 10^5$ ), and 'Total Cell Concentration (cells/ml)' ( $3.91 \times 10^5$ ). The bottom status bar shows the file path 'C:\Documents and Settings\kevin\桌面\data.txt' and buttons for 'Save Data' and 'View Saved Data'.

1 選擇Cell type Wizard

2

New Cell Type Wizard

Select source of new cell parameters.

Live Image

Saved Image

Continue Cancel

選擇即時影像, 儲存影像

Cellometer AutoT4 - Data Analysis Mode

File Cell Type Wizard Options Analysis Help

Cell Type Wizard ...

Import / Export ...

New Cell Type ...

Edit Cell Type ...

Delete Cell Type

Set Current as Default

new cell type

Sample ID

ADSC\_20141029\_121314\_201

Dilution Factor 1

Live / Dead Count 120 / 14

Total Cell Count 134

Mean Diameter (micron) 15.6

Viability (%) 89.6

Live Cell Concentration  $3.50 \times 10^5$

Total Cell Concentration (cells/ml)  $3.91 \times 10^5$

C:\Documents and Settings\kevin\桌面\data.txt

Save Data View Saved Data

View Image

A

1 2

3 4

Counted

Live / Dead Count In View 53 9

Manual Adjust 0 0

Enter

Level Discovering new boundaries Level Biotechnology Inc.

# 主題五. 細胞影像精靈

The screenshot displays the Cellometer AutoT4 software interface in "Data Analysis Mode". A central dialog box titled "Cell Type" is open, allowing for the configuration of a new cell type. The "Cell Type Name" field is highlighted with a red box and contains the text "ADSC". A white callout box with the number "3" and the text "輸入新的Cell type 名稱" (Enter new Cell type name) points to this field. Below the dialog box, the "Save" button is highlighted with a red box, and a white callout box with the number "4" and the text "存檔" (Save) points to it. The background shows a microscopic image of cells. On the left, a "SETUP" panel includes fields for "Cell Type" (set to "Test Viability"), "Initial Cell Type" (set to "new cell type"), "Sample ID" (set to "ADSC\_20141029\_121314\_201"), and "Dilution Factor" (set to "1"). At the bottom left, a summary panel shows "Live / Dead Count" (126 / 20), "Total Cell Count" (146), "Mean Diameter (micron)" (15.3), "Viability (%)" (86.3), "Live Cell Concentration" ( $3.67 \times 10^5$ ), and "Total Cell Concentration (cells/ml)" ( $4.26 \times 10^5$ ). The bottom status bar shows the file path "C:\Documents and Settings\kevin\桌面\data.txt" and buttons for "Save Data" and "View Saved Data".

Cellometer AutoT4 - Data Analysis Mode

File Cell Type Options Analysis Help

Display Image Count

SETUP

Cell Type  Test Viability

Initial Cell Type

new cell type

Sample ID

ADSC\_20141029\_121314\_201

Dilution Factor 1

Live / Dead Count 126 / 20

Total Cell Count 146

Mean Diameter (micron) 15.3

Viability (%) 86.3

Live Cell Concentration  $3.67 \times 10^5$

Total Cell Concentration (cells/ml)  $4.26 \times 10^5$

C:\Documents and Settings\kevin\桌面\data.txt

Save Data View Saved Data

Cell Type

Cell Type Name ADSC  Lock from future editing

Detailed Description new cell type

Cell Diameter Minimum 7.0 micron Maximum 30.0 micron

Roundness 0.10

Contrast Enhancement 0.40

Use a default Dilution Factor of 1.00

Trypan Blue Viability Parameters

Default Setting for "SETUP/Test Viability": No Default

Sensitivity 1.0

Uniformity 150

Very Dim Dead Cells

Decluster Parameters

Decluster Edge Factor 0.5  Do not Decluster Clumps

Decluster Th Factor 1.0

Print

Cancel

Save

3 輸入新的Cell type 名稱

4 存檔

View Image

A

1 2

3 4

Counted

Live / Dead Count In View 55 12

Manual Adjust 0 0

Enter

# 主題五. 細胞影像精靈

The screenshot shows the Cellometer Auto T4 software in Data Analysis Mode. The main window displays a microscopic image of cells. A red box highlights the 'Cell Type' dropdown menu, which is open and shows 'ADSC' selected. A callout box with the number '5' and Chinese text points to this menu. The interface includes various control panels for image display, counting, and data management.

5 新的Cell type  
會出現在下拉式選單

Cellometer Auto T4 - Data Analysis Mode

File Cell Type Options Analysis Help

Display Image Count

SETUP

Cell Type  Test Viability

ADSC

ADSC

HEK293

Hela

HT-29

Initial Cell Type

Jurkat

large size cells

medium size cells

SF9

small size cells

Vero

Live / Dead Count 111 / 11

Total Cell Count 122

Mean Diameter (micron) 16.4

Viability (%) 91.0

Live Cell Concentration  $3.25 \times 10^5$

Total Cell Concentration (cells/ml)  $3.57 \times 10^5$

C:\Documents and Settings\kevin\桌面\data.txt

Save Data View Saved Data

View Image

A

1 2

3 4

Counted

Live / Dead Count In View

50 6

Manual Adjust

0 0

Enter

level Discovering new boundaries

進階生物科技 Level Biotechnology Inc.

# 主題六：細胞設定參數介紹

Cellometer Auto T4 - Data Analysis Mode

File Cell Type Options Analysis Help

Display Image Count

SETUP

Cell Type  Test Viability  
CHO-1-test

Sample ID  
SF9\_blue

Dilution 1

Live Cell Count 780

Dead Cell Count 12

Mean Diameter (micron) 15.2

Viability (%) 98.5

Live Cell Concentration (cells/ml)  $2.18 \times 10^6$

點選Edit cell type  
(調整counting protocol)

View Image  
B

1 2  
3 4

Zoom In  
 Counted

Live / Dead Count In View  
101 4

Manual Adjust  
0 0

Enter

C:\Program Files\Nexcelom\Cell Samples\dsfdg.txt

Save Data View Saved Data

# Principle of Cellometer is the image-based analysis

Cell Type

輸入細胞protocol的檔名

Cell Type Name: HEK293

Detailed Description

Cell Diameter: Minimum 6.0 micron, Maximum 29.0 micron

Roundness: 0.10

Contrast Enhancement: 0.40

Trypan Blue Viability Parameters

Sensitivity: 1.0

Uniformity: 150

Very Dim Dead Cells

Enhancement: 0.60

Decluster Parameters

Decluster Edge Factor: 0.5

Decluster Th Factor: 1.0

Print

Cancel

Save

Cell Size  
調整細胞直徑大小範圍  
5-50  $\mu$ M

Dead cell analysis

Decluster  
計算成團的細胞數

輸入細胞protocol的檔名

Save as New Cell Type  
 Lock from future editing

儲存成新的cell line之protocol  
lock 後以後不能改

Cell Roundness 參數0.1-1  
細胞圓的程度，數字越低，可計算不規則細胞

Contrast 參數0.01-0.90  
細胞對比程度，數字越低，可計算更多細胞

Sensitivity: 細胞染上Trypan blue的程度，數字越高，可計算更多輕微染色細胞  
Uniformity: 細胞染上Trypan blue的均勻度，數字越高，可計算更多染色不均細胞

Edge factor: 細胞邊緣凹陷程度，數字範圍(0-1.0)，數字越高可計算邊緣越模糊的細胞。

Th factor: 細胞間的陰影程度，數字範圍(0-1.0)，數字越高可計算與背景顏色差異越大的細胞。

記得存檔!!

\*小秘訣: 滑鼠指到該參數設定區域停留兩秒後，會出現參數設定建議值及設定範圍

若有任何問題  
歡迎與我們聯繫



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