# CoCo User Guide

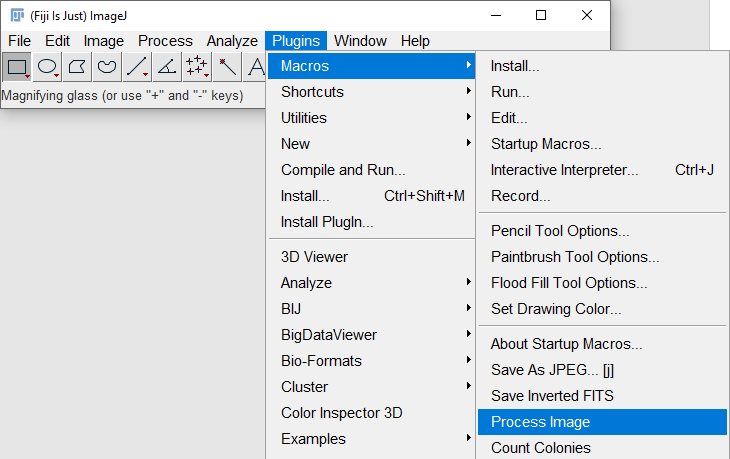
the colony counter ImageJ macro  
author: Jia Xuan Leong  
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## Image acquisition

A scanner is recommended for imaging. Resolution of 300dpi was found to be sufficient, however 720dpi is recommended especially for small colonies. Please save all image files as TIFF.

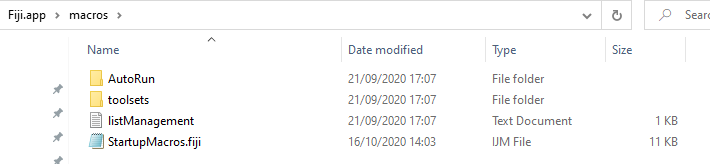
## Install the macro

**Option 1:**  
In the ImageJ toolbar, Plugins > Macros > Install > Select CoCo.ijm



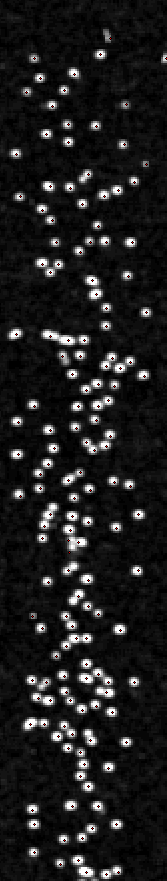
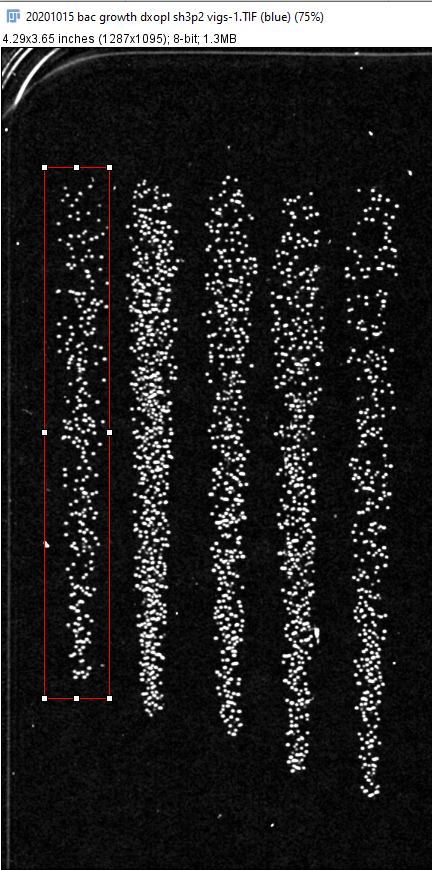
**Option 2:**

1. Find your ImageJ directory, under the macros folder, open StartupMacros.ijm in Notepad (or your word editor of choice)
2. Open CoCo.ijm in Notepad (or your word editor of choice)
3. Copy the contents of CoCo.ijm to the end of StartupMacros.ijm.



## Run the macro

1. Open your image containing colonies to be counted.
2. Locate and select the **Process Image** command.  
   Alternatively, the macro has been assigned the keyboard shortcut **F1**, simply press this key with the ImageJ toolbar in focus and the macro will run.
3. You will be given the chance to crop your image if needed
   * To crop, select relevant area then press Ctrl + Shift + X
4. Your image will now be processed to facilitate colony counting.
5. Locate and select the **Count Colonies** command, then run it.   
   Alternatively, use shortcut **F2**.
6. Select and name the area of interest when prompted. Please input a value for prominence, which is the parameter that ImageJ’s “Find Maxima” function uses to define bright spots. Typical values range from 10 – 35 for densely packed colonies, up to 100 - 120 for colonies spaced further apart.   
   To reduce background noise, increase prominence. To increase detection of small/faint colonies, decrease prominence.



1. Automatically detected colonies will be marked by a red dot.
2. You can now manually correct the detected colonies. Use the left mouse click to select more colonies, and Ctrl +Click to remove colonies. Tick the checkbox when you are done.
3. The counted colonies will be printed into your Log window. **Do not close this window until you are done!!!**
4. Run the **Count Colonies** command as many times as needed.
5. When colony counting is complete, save the Log file.
6. Import into excel as a CSV (comma-separated values) file.