# FIJI hands-on workshop

- Practical 1: Basics of FIJI ImageJ
- Practical 2: Cell counting and characterization
- <span style="color:red">Practical 3: Simple macros</span>

Material available from:

https://wiki.helsinki.fi/display/biu/FIJI+workshop
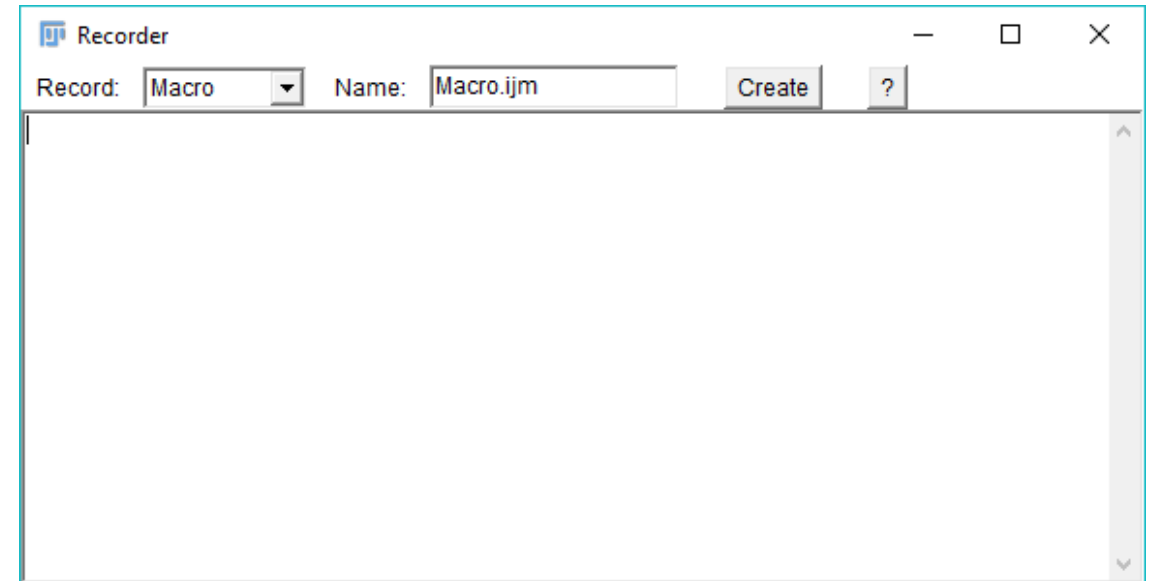
# Practical 3: Simple macros

- FIJI is not easy to use for manual processing of images
- Learn to use macros – it pays off quickly

# Outline

- Recording macros
- Batch processing
- Task 0
  - Test Batch processing
- Macro editor
- Task 1
  - Automate the steps of the Practical 2
- Task 2
  - Add opening and saving files

# Recording macros

- How to record actions in ImageJ / Fiji?
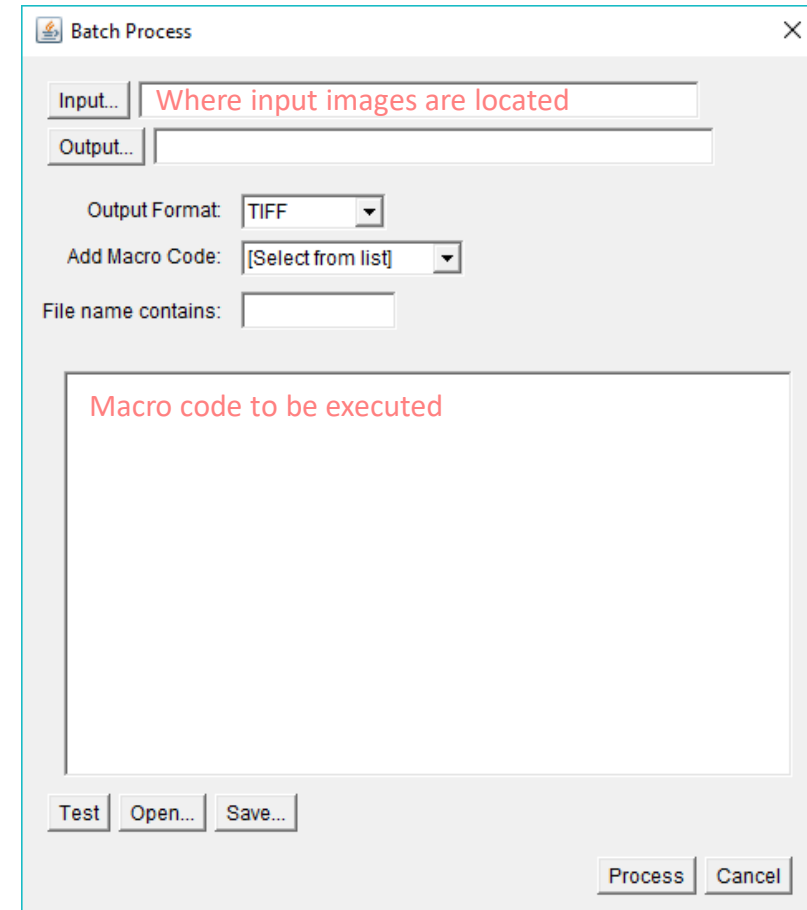- Find the recorder:
  - *Plugins ► Macros ► Record…*

# Recording macros

- Macro functions
  - https://imagej.net/ij/developer/macro/functions.html
  - *Help ► Macro Functions…*
  - Or use Command Finder / Quick search

- Note: Recorder does not show everything!
  - Some plugins  cannot be run using a simple macro command
  - (Sometimes) FIJI notices only when something is changed
    - E.g. in "Set measurements" you may need to untick and tick again the selections to get the full command recorded!
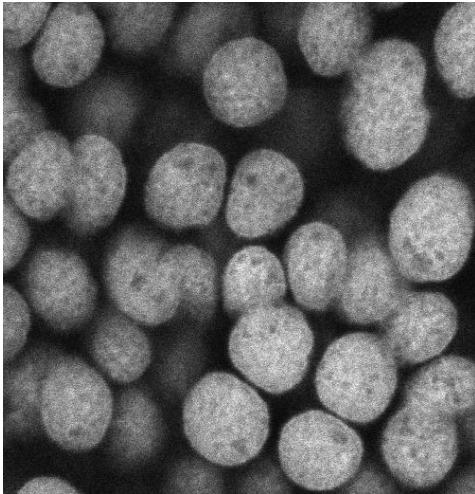
# Batch processing

- ImageJ batch module:
  - *Process ► Batch ► Macro…*


- Pros
  - Easy and fast
- Cons
  - Limited to one output (the active image)
  - No control over which files are processed
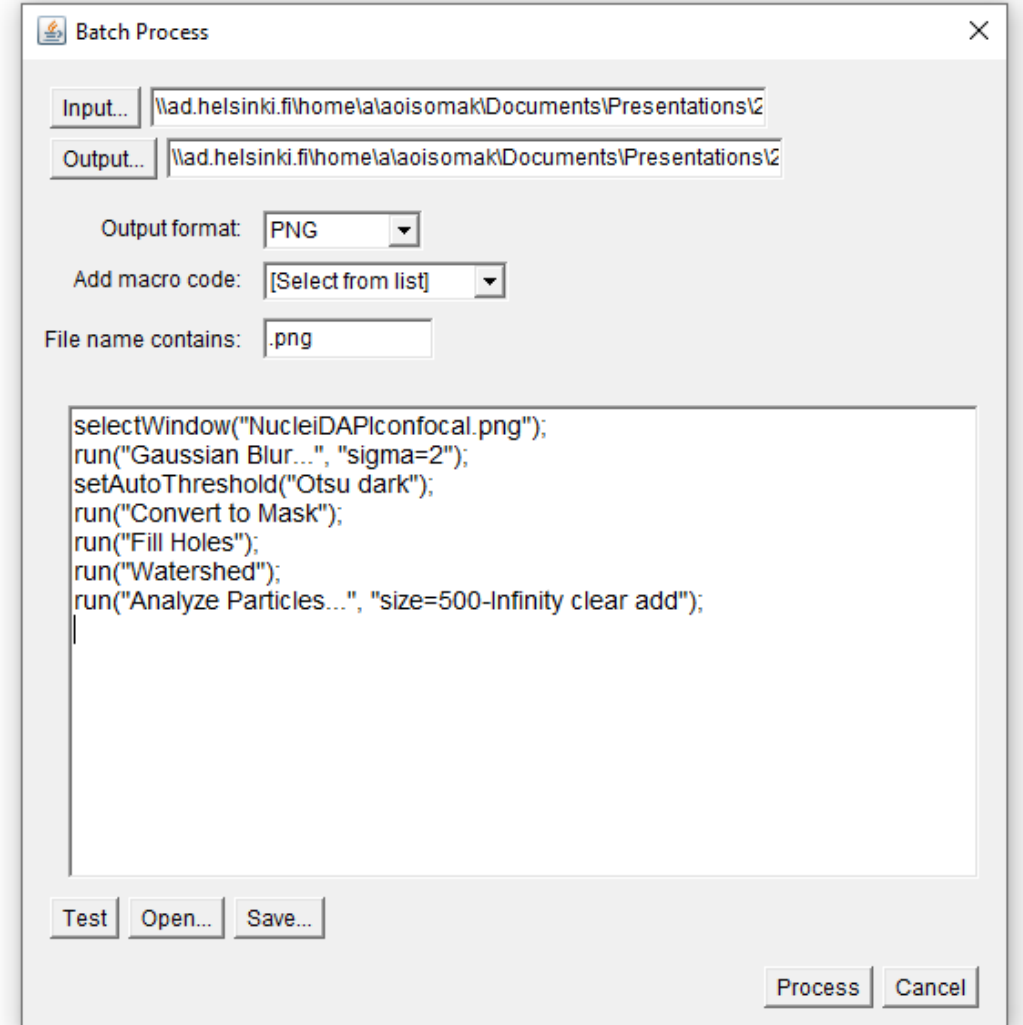  - No recursive processing
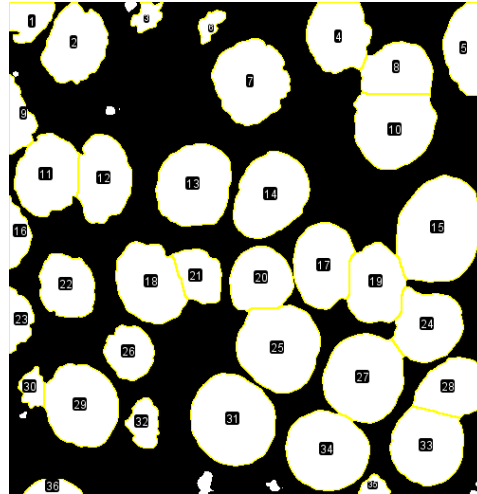  - No direct influence on file names

# Task 0: Test Batch processing
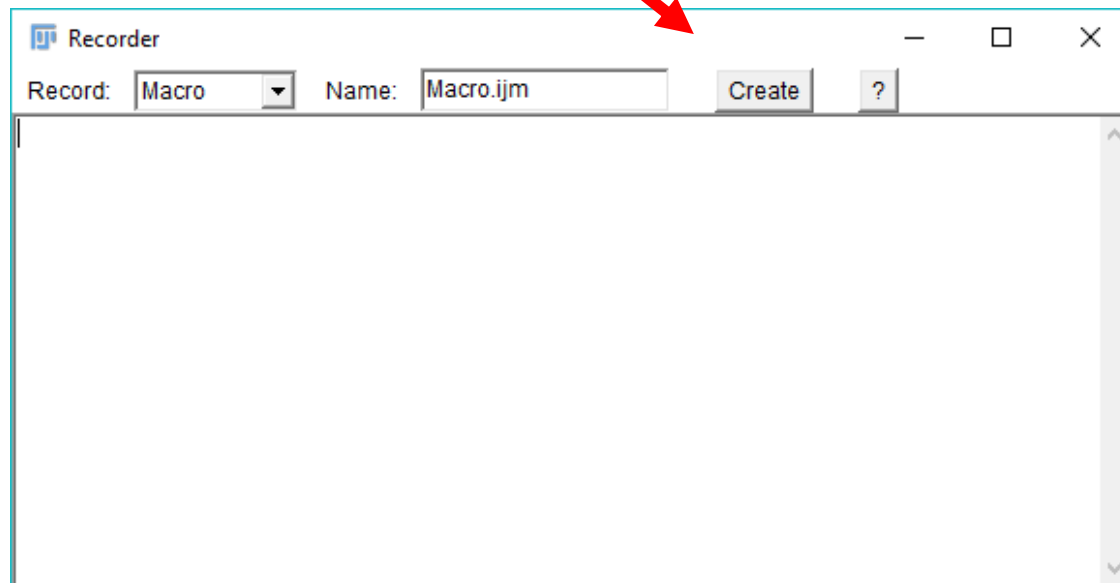
- Simple cell counting

Input

Output





Batch Process

Input... \\ad.helsinki.fi\home\a\aoisomak\Documents\Presentations\2

Output... \\ad.helsinki.fi\home\a\aoisomak\Documents\Presentations\2

Output format: PNG

Add macro code: [Select from list]

File name contains: .png

```
selectWindow("NucleiDAPIconfocal.png");
run("Gaussian Blur...", "sigma=2");
setAutoThreshold("Otsu dark");
run("Convert to Mask");
run("Fill Holes");
run("Watershed");
run("Analyze Particles...", "size=500-Infinity clear add");
```

Test   Open...   Save...

Process   Cancel
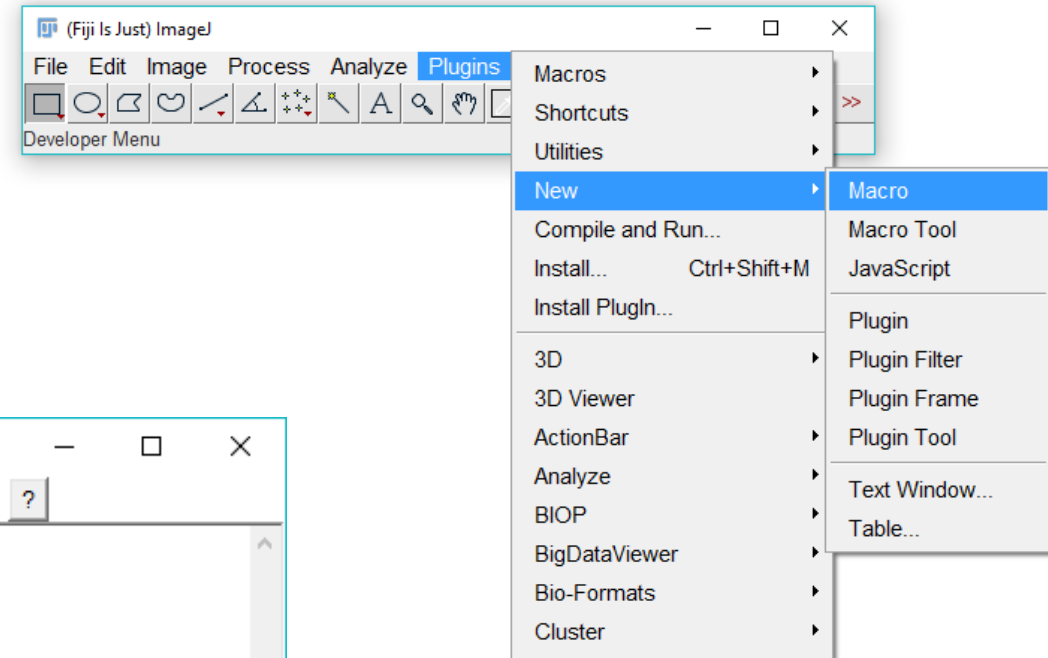
# Macro editor

- Find the macro editor
  - *Plugins* ► *New* ► *Macro*
  - *Recorder* ► *Create*

# Task 1: Macro writing

- Automate the steps of the Practical 2
- Create a macro using the recorder
  - Record commands and copy into the editor

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- Note that not all commands are recorded

# Task 1: Macro writing

# Task 2: Macro file handling

- Add saving the results in your macro

- Add loading the input image

# Task 2: Macro file handling