

Results Tables

Image Processing & Analysis for Life Scientists

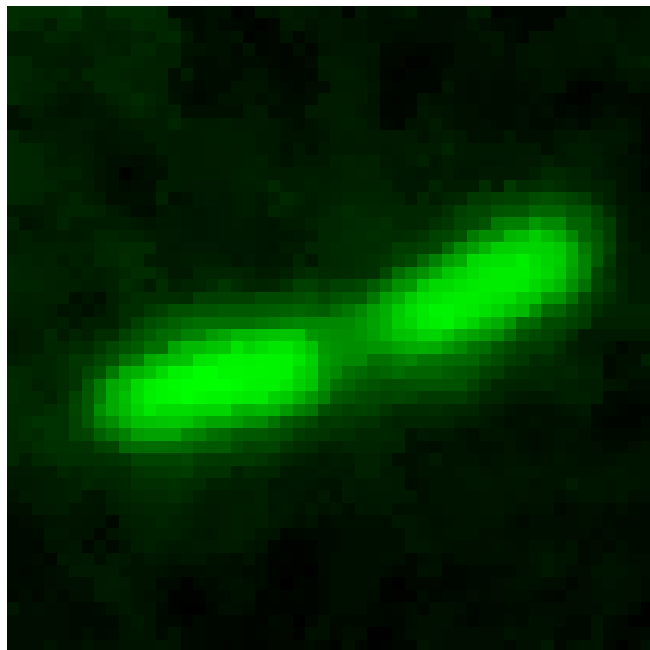
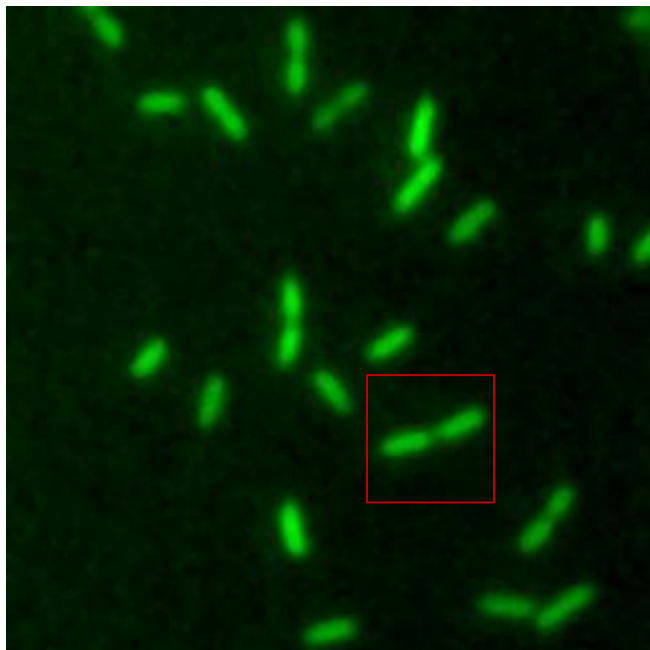
Olivier Burri, Romain Guiet & Arne Seitz

Results Tables

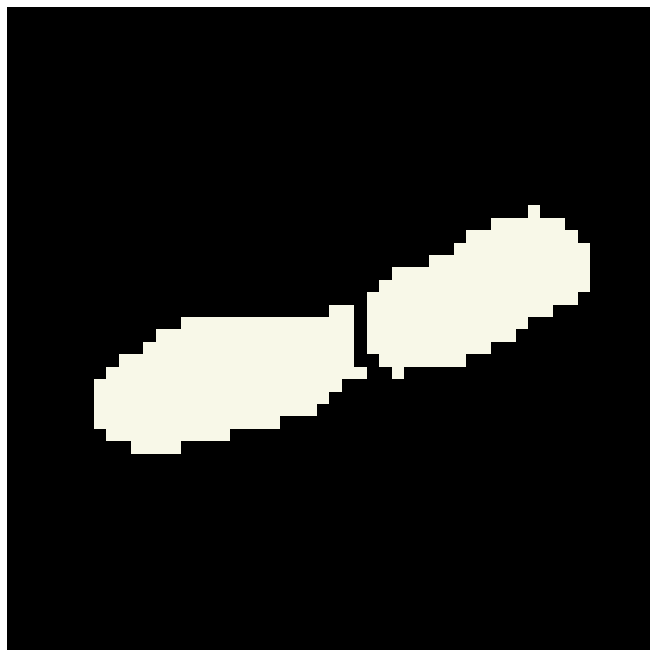
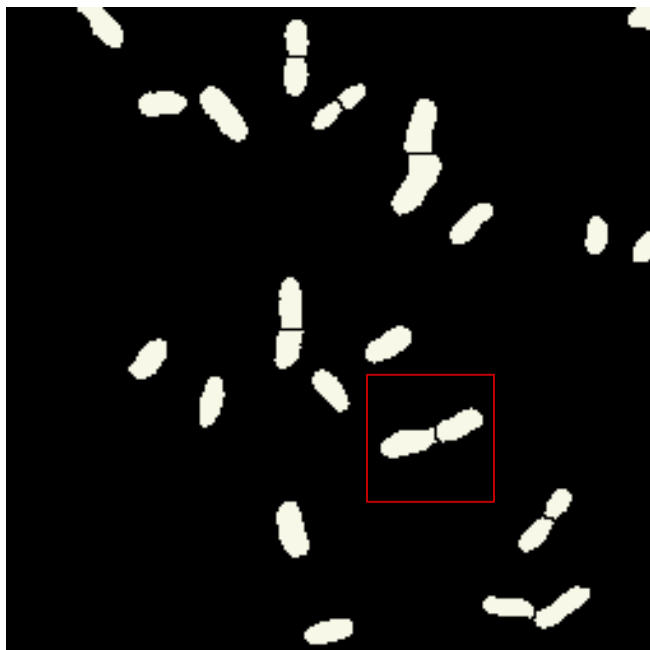
- Setting Measurements
- Getting/Setting Results
- Saving Results

From Images to Data

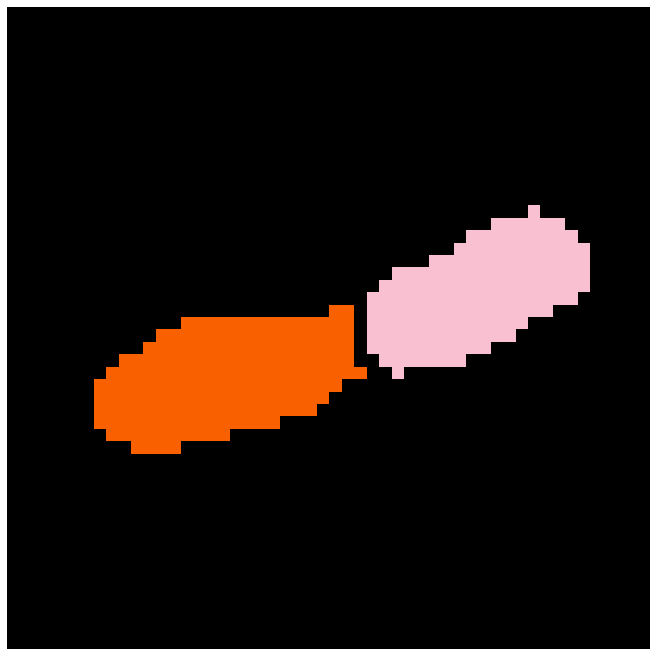
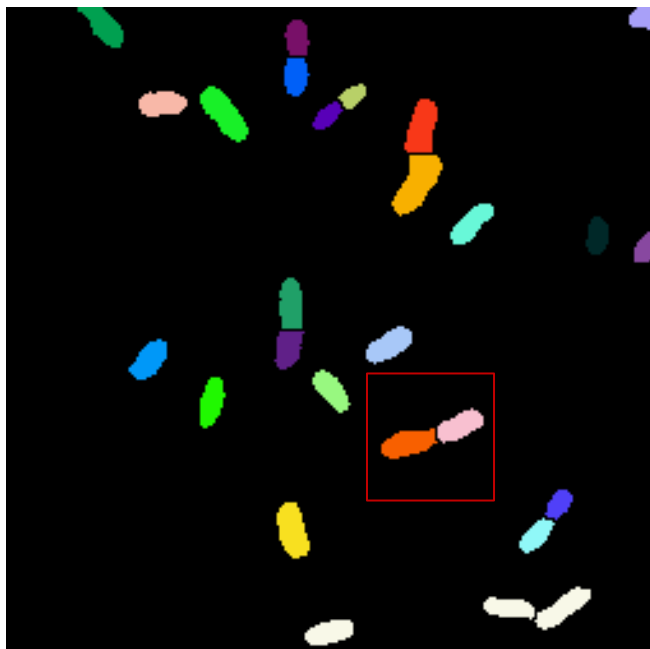
Image
Filtered



Mask
Watershed

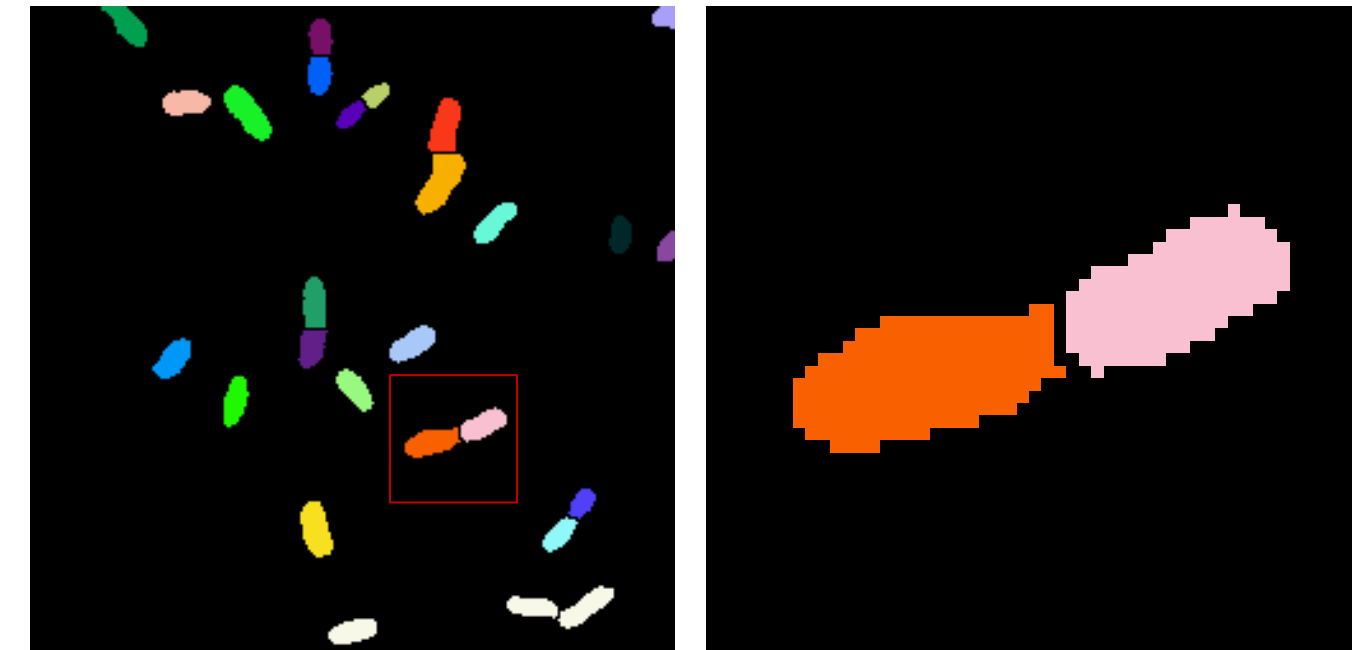


Object



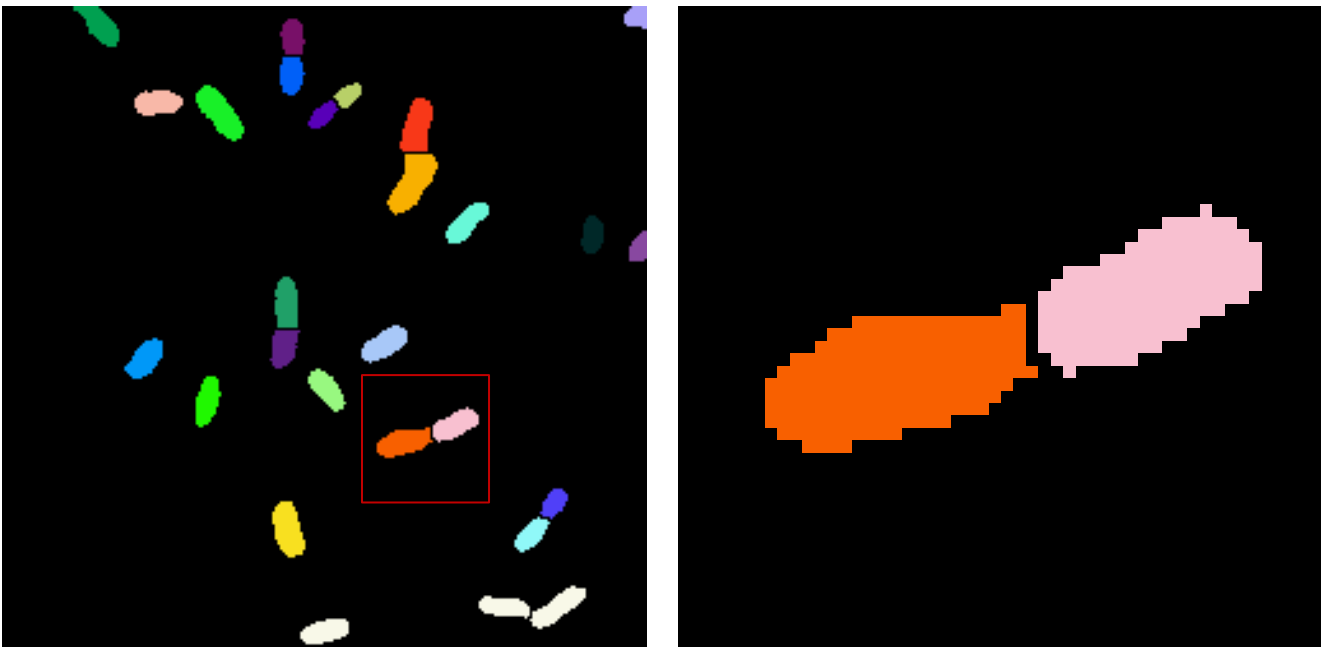
From Images to Data

Object



From Images to Data

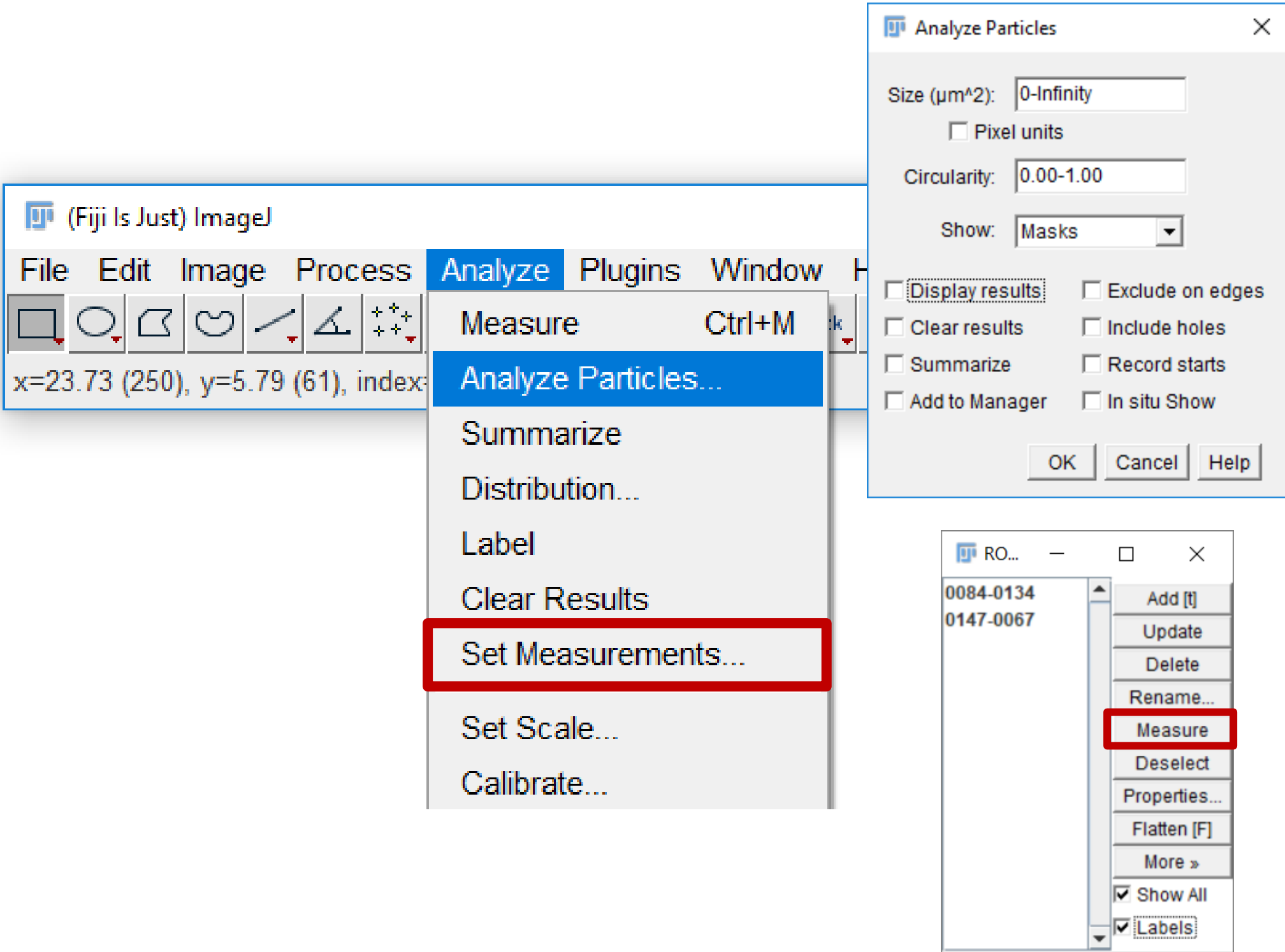
Object




Measurements

Results		
File Edit Font Results		
	Label	Area
1	bacteria_crop-3.tif	1.432
2	bacteria_crop-3.tif	0.676
3	bacteria_crop-3.tif	0.982
4	bacteria_crop-3.tif	1.117
5	bacteria_crop-3.tif	0.604
6	bacteria_crop-3.tif	2.000
7	bacteria_crop-3.tif	1.396
8	bacteria_crop-3.tif	1.856

Setting Measurements



Setting Measurements

 Set Measurements ✕

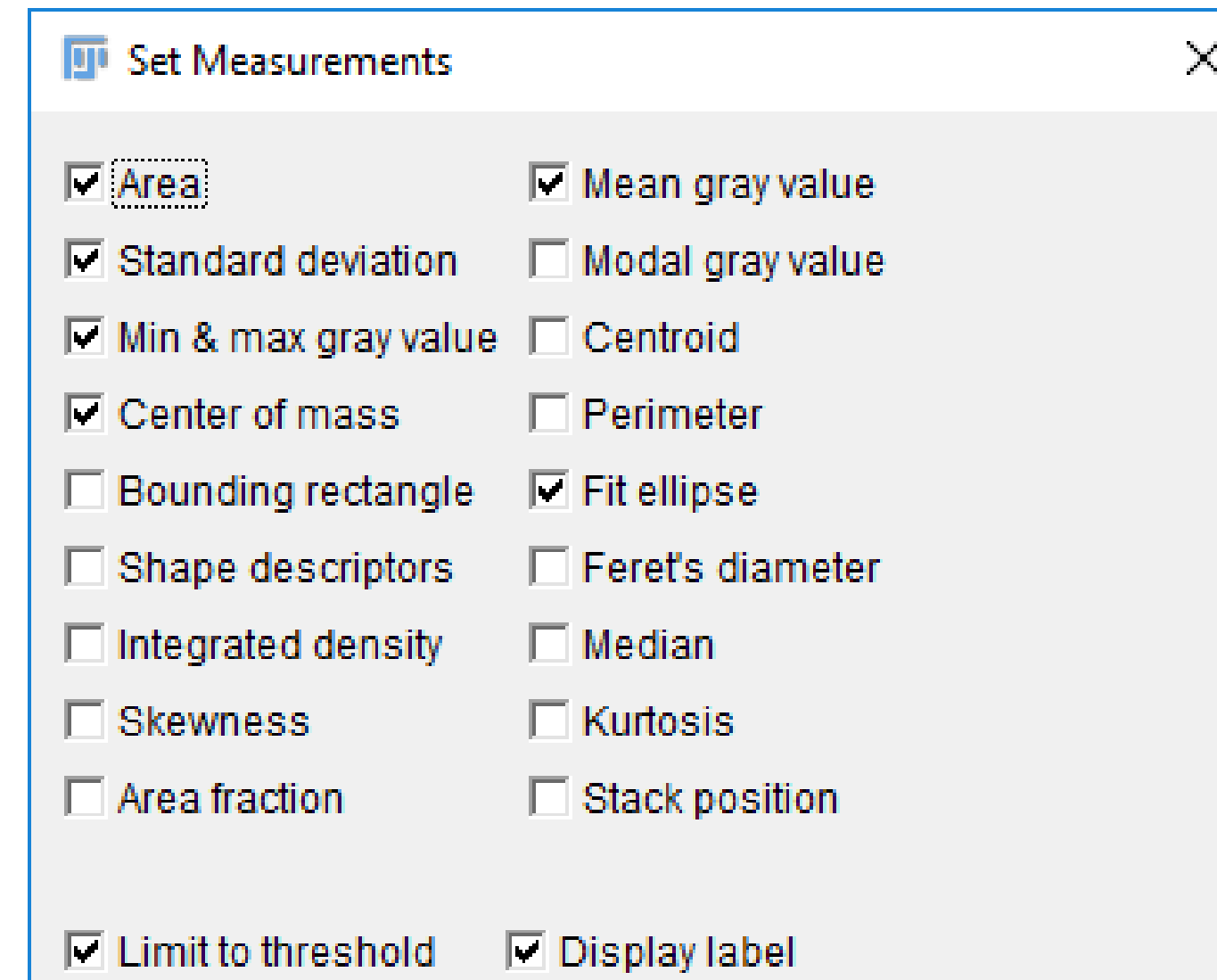
<input checked="" type="checkbox"/> Area	<input checked="" type="checkbox"/> Mean gray value
<input checked="" type="checkbox"/> Standard deviation	<input type="checkbox"/> Modal gray value
<input checked="" type="checkbox"/> Min & max gray value	<input type="checkbox"/> Centroid
<input checked="" type="checkbox"/> Center of mass	<input type="checkbox"/> Perimeter
<input type="checkbox"/> Bounding rectangle	<input checked="" type="checkbox"/> Fit ellipse
<input type="checkbox"/> Shape descriptors	<input type="checkbox"/> Feret's diameter
<input type="checkbox"/> Integrated density	<input type="checkbox"/> Median
<input type="checkbox"/> Skewness	<input type="checkbox"/> Kurtosis
<input type="checkbox"/> Area fraction	<input type="checkbox"/> Stack position
<input checked="" type="checkbox"/> Limit to threshold	<input checked="" type="checkbox"/> Display label
<input type="checkbox"/> Invert Y coordinates	<input type="checkbox"/> Scientific notation
<input type="checkbox"/> Add to overlay	<input type="checkbox"/> NaN empty cells

Redirect to: None

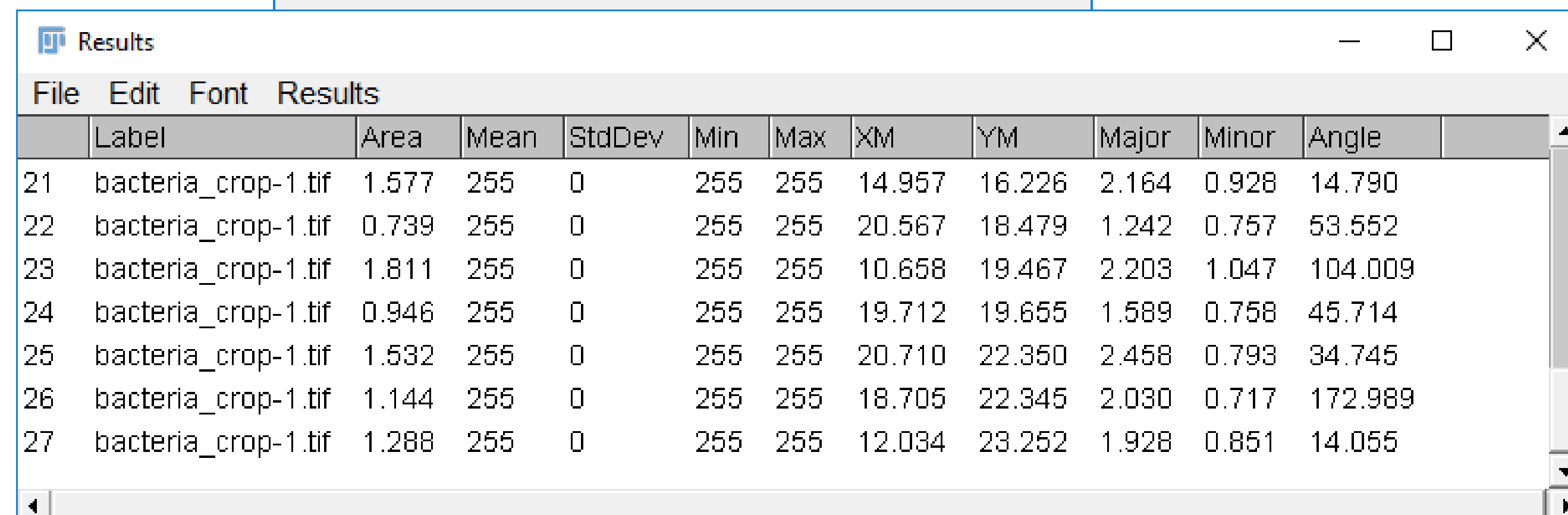
Decimal places (0-9): 3

OK Cancel Help

Setting Measurements

A dialog box titled "Set Measurements" with a close button (X) in the top right corner. It contains a list of measurement options, each with a checkbox. The options are arranged in two columns. The first column includes: Area (checked), Standard deviation (checked), Min & max gray value (checked), Center of mass (checked), Bounding rectangle (unchecked), Shape descriptors (unchecked), Integrated density (unchecked), Skewness (unchecked), Area fraction (unchecked), and Limit to threshold (checked). The second column includes: Mean gray value (checked), Modal gray value (unchecked), Centroid (unchecked), Perimeter (unchecked), Fit ellipse (checked), Feret's diameter (unchecked), Median (unchecked), Kurtosis (unchecked), Stack position (unchecked), and Display label (checked).

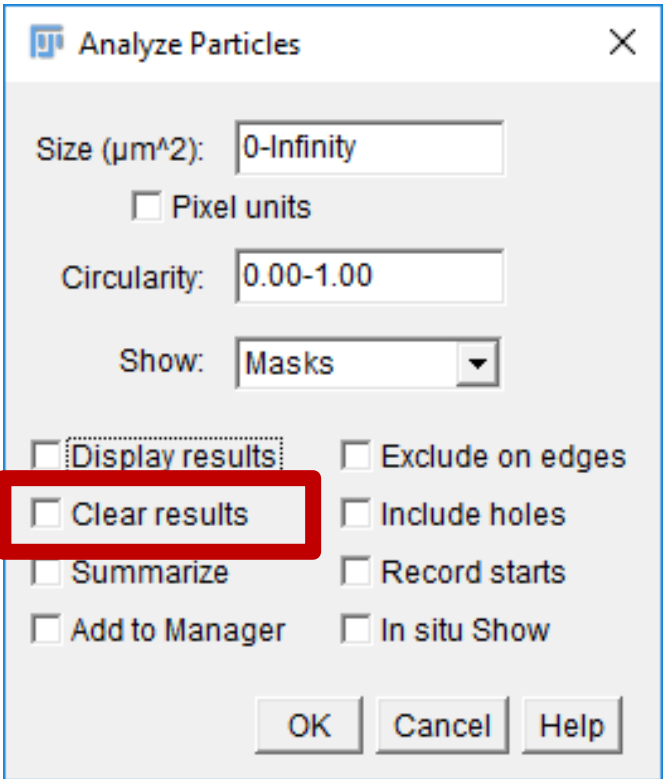
<input checked="" type="checkbox"/> Area	<input checked="" type="checkbox"/> Mean gray value
<input checked="" type="checkbox"/> Standard deviation	<input type="checkbox"/> Modal gray value
<input checked="" type="checkbox"/> Min & max gray value	<input type="checkbox"/> Centroid
<input checked="" type="checkbox"/> Center of mass	<input type="checkbox"/> Perimeter
<input type="checkbox"/> Bounding rectangle	<input checked="" type="checkbox"/> Fit ellipse
<input type="checkbox"/> Shape descriptors	<input type="checkbox"/> Feret's diameter
<input type="checkbox"/> Integrated density	<input type="checkbox"/> Median
<input type="checkbox"/> Skewness	<input type="checkbox"/> Kurtosis
<input type="checkbox"/> Area fraction	<input type="checkbox"/> Stack position
<input checked="" type="checkbox"/> Limit to threshold	<input checked="" type="checkbox"/> Display label

A window titled "Results" with a menu bar (File, Edit, Font, Results) and a table of measurement data. The table has 12 columns: an index column, a Label column, and columns for Area, Mean, StdDev, Min, Max, XM, YM, Major, Minor, and Angle. There are 7 rows of data, all for the file "bacteria_crop-1.tif".

	Label	Area	Mean	StdDev	Min	Max	XM	YM	Major	Minor	Angle
21	bacteria_crop-1.tif	1.577	255	0	255	255	14.957	16.226	2.164	0.928	14.790
22	bacteria_crop-1.tif	0.739	255	0	255	255	20.567	18.479	1.242	0.757	53.552
23	bacteria_crop-1.tif	1.811	255	0	255	255	10.658	19.467	2.203	1.047	104.009
24	bacteria_crop-1.tif	0.946	255	0	255	255	19.712	19.655	1.589	0.758	45.714
25	bacteria_crop-1.tif	1.532	255	0	255	255	20.710	22.350	2.458	0.793	34.745
26	bacteria_crop-1.tif	1.144	255	0	255	255	18.705	22.345	2.030	0.717	172.989
27	bacteria_crop-1.tif	1.288	255	0	255	255	12.034	23.252	1.928	0.851	14.055

Managing Results

- If Results Table Exists
 - Appends to Results
 - Close or Clear Results to get new table



The screenshot shows a software window titled "Results". The menu bar includes "File", "Edit", "Font", and "Results". The "Results" menu is open, displaying the following options: "Clear Results" (highlighted with a red rectangle), "Summarize", "Distribution...", "Set Measurements...", and "Options...".

The background displays a table of particle data. The table has the following columns: "Label", "Dev", "Min", "Max", "XM", "YM", "Major", "Minor", "Angle", and an empty column. The data rows are numbered 21 to 27.

	Label	Dev	Min	Max	XM	YM	Major	Minor	Angle		
21	bacteria_crop		255	255	14.957	16.226	2.164	0.928	14.790		
22	bacteria_crop		255	255	20.567	18.479	1.242	0.757	53.552		
23	bacteria_crop		255	255	10.658	19.467	2.203	1.047	104.009		
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27	bacteria_crop-1.tif	1.288	255	0	255	255	12.034	23.252	1.928	0.851	14.055

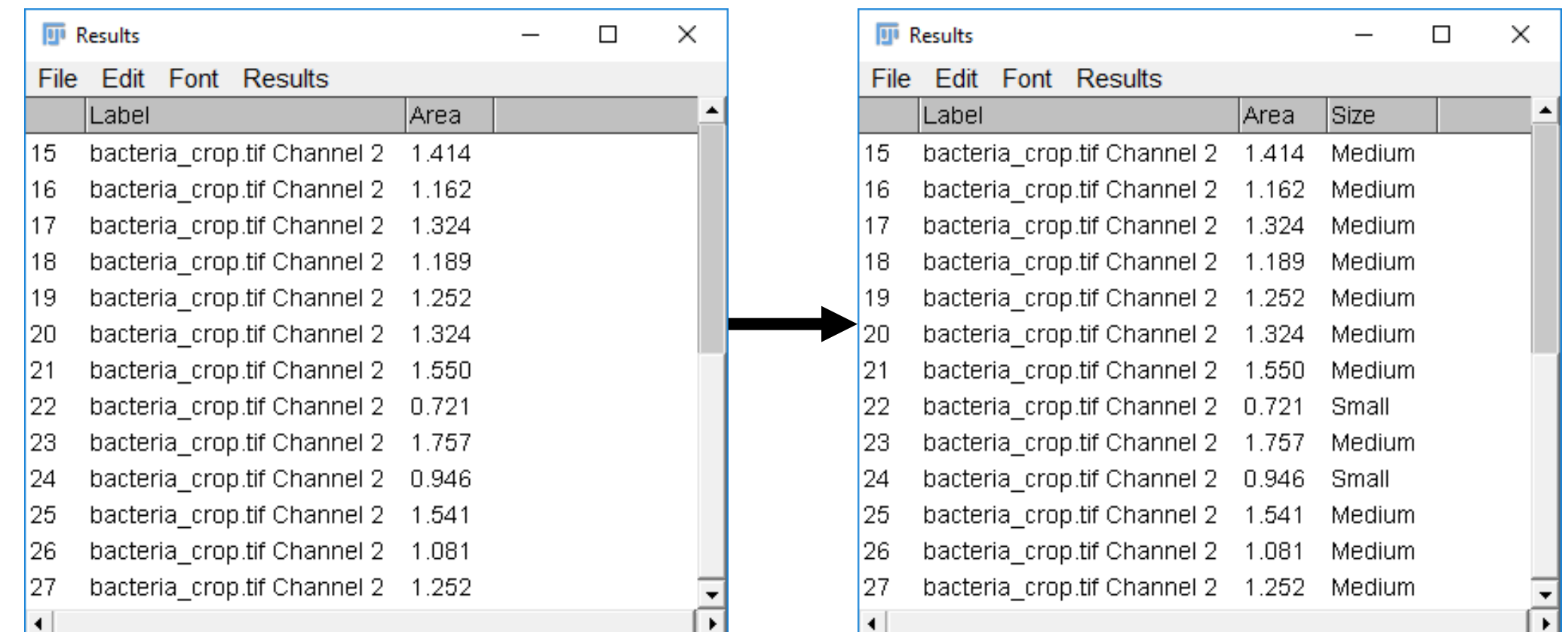
What if we Need More?

- Macro Language Results Functions

- Example: Binning by size

```
value = getResult("Column Name", row);
```

```
setResult("Column Name", row, value);
```

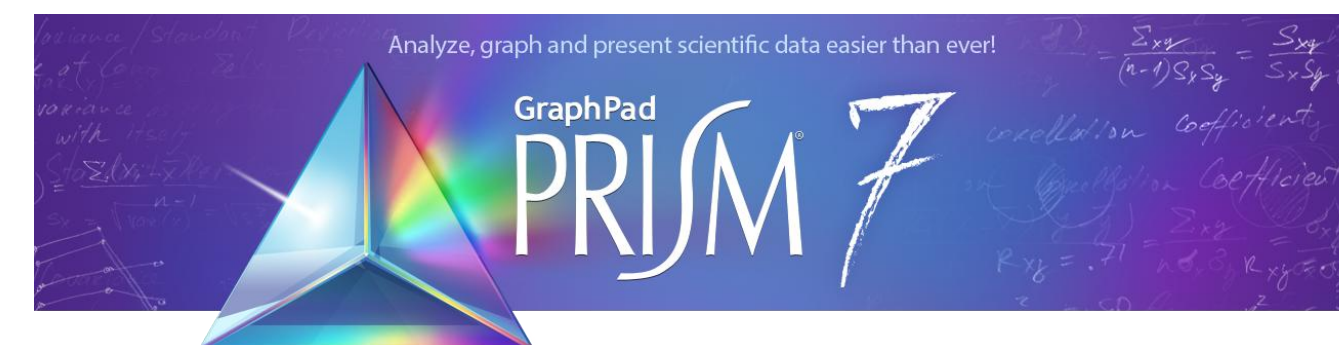
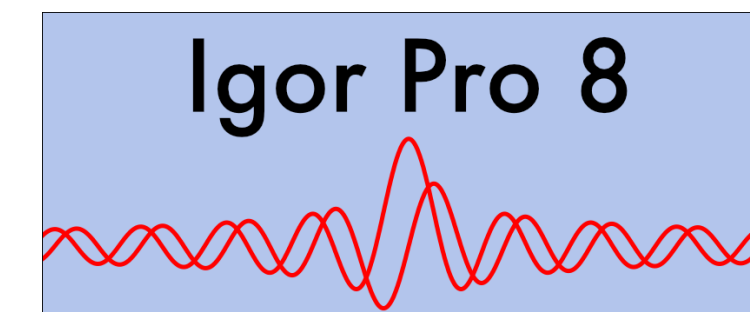


	Label	Area
15	bacteria_crop.tif Channel 2	1.414
16	bacteria_crop.tif Channel 2	1.162
17	bacteria_crop.tif Channel 2	1.324
18	bacteria_crop.tif Channel 2	1.189
19	bacteria_crop.tif Channel 2	1.252
20	bacteria_crop.tif Channel 2	1.324
21	bacteria_crop.tif Channel 2	1.550
22	bacteria_crop.tif Channel 2	0.721
23	bacteria_crop.tif Channel 2	1.757
24	bacteria_crop.tif Channel 2	0.946
25	bacteria_crop.tif Channel 2	1.541
26	bacteria_crop.tif Channel 2	1.081
27	bacteria_crop.tif Channel 2	1.252

	Label	Area	Size
15	bacteria_crop.tif Channel 2	1.414	Medium
16	bacteria_crop.tif Channel 2	1.162	Medium
17	bacteria_crop.tif Channel 2	1.324	Medium
18	bacteria_crop.tif Channel 2	1.189	Medium
19	bacteria_crop.tif Channel 2	1.252	Medium
20	bacteria_crop.tif Channel 2	1.324	Medium
21	bacteria_crop.tif Channel 2	1.550	Medium
22	bacteria_crop.tif Channel 2	0.721	Small
23	bacteria_crop.tif Channel 2	1.757	Medium
24	bacteria_crop.tif Channel 2	0.946	Small
25	bacteria_crop.tif Channel 2	1.541	Medium
26	bacteria_crop.tif Channel 2	1.081	Medium
27	bacteria_crop.tif Channel 2	1.252	Medium

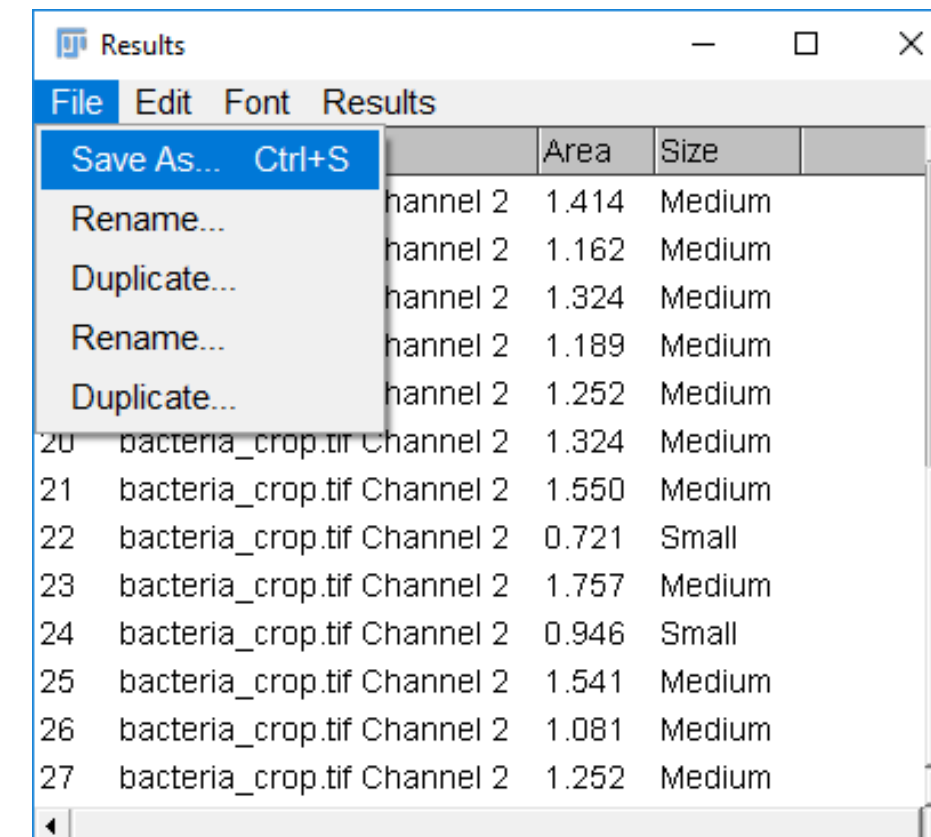
Getting Statistics

- Fiji is not a Data Analysis Tool
 - Use your favorite software




Saving Results

- Saved as CSV Files
 - Can be easily imported into any software



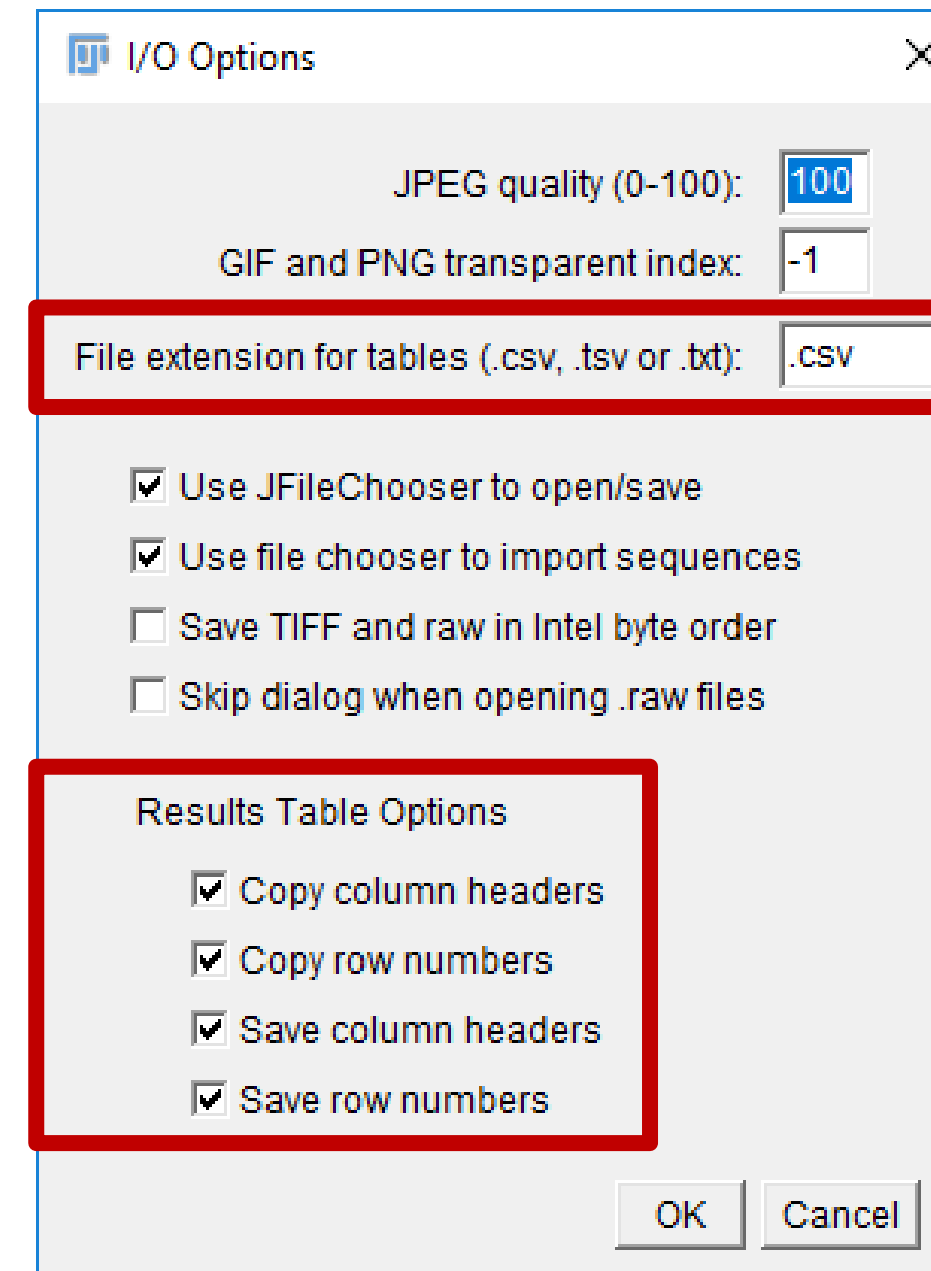
The screenshot shows a window titled 'Results' with a menu bar containing 'File', 'Edit', 'Font', and 'Results'. The 'File' menu is open, showing options: 'Save As... Ctrl+S', 'Rename...', 'Duplicate...', 'Rename...', and 'Duplicate...'. The table below has columns for an index, a file path, a channel, an area, and a size.

			Area	Size
	channel 2		1.414	Medium
	channel 2		1.162	Medium
	channel 2		1.324	Medium
	channel 2		1.189	Medium
	channel 2		1.252	Medium
20	bacteria_crop.tif Channel 2		1.324	Medium
21	bacteria_crop.tif Channel 2		1.550	Medium
22	bacteria_crop.tif Channel 2		0.721	Small
23	bacteria_crop.tif Channel 2		1.757	Medium
24	bacteria_crop.tif Channel 2		0.946	Small
25	bacteria_crop.tif Channel 2		1.541	Medium
26	bacteria_crop.tif Channel 2		1.081	Medium
27	bacteria_crop.tif Channel 2		1.252	Medium



```
16,bacteria_crop.tif Channel 2,1.162,Medium
17,bacteria_crop.tif Channel 2,1.324,Medium
18,bacteria_crop.tif Channel 2,1.189,Medium
19,bacteria_crop.tif Channel 2,1.252,Medium
20,bacteria_crop.tif Channel 2,1.324,Medium
21,bacteria_crop.tif Channel 2,1.550,Medium
22,bacteria_crop.tif Channel 2,0.721,Small
23,bacteria_crop.tif Channel 2,1.757,Medium
24,bacteria_crop.tif Channel 2,0.946,Small
25,bacteria_crop.tif Channel 2,1.541,Medium
26,bacteria_crop.tif Channel 2,1.081,Medium
27,bacteria_crop.tif Channel 2,1.252,Medium
```

- **Saved as CSV Files**
 - Can be easily imported into any software
 - Table Options: *Edit > Options > Input/Output*



- How to Set Measurements
 - Need to run measurement after setting
- Getting/Setting Results
 - getResult() setResult()
- Saving Results
 - Result Options