

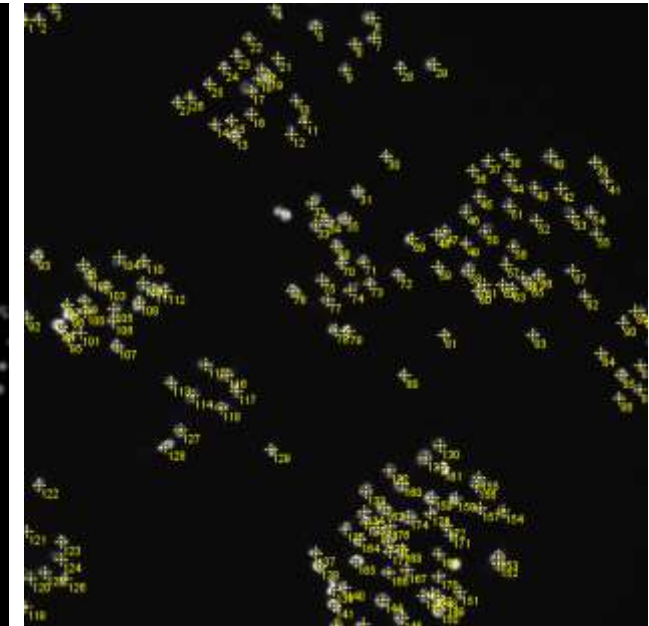
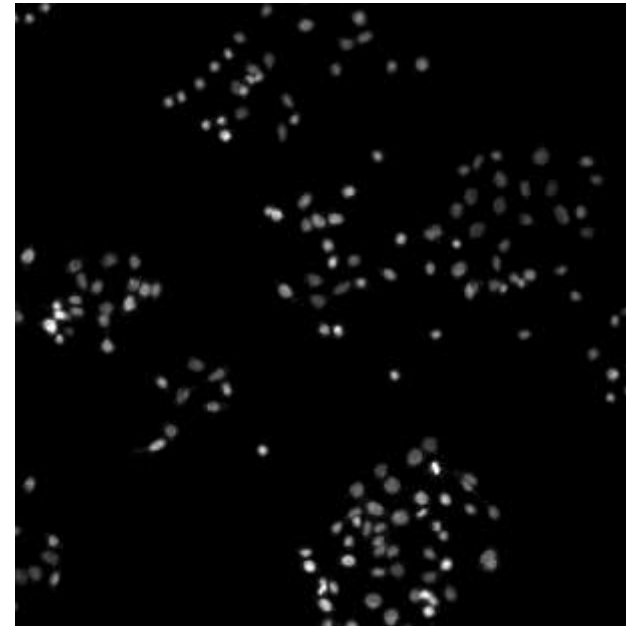
Practicals

April 2nd 2019

Cell count challenge



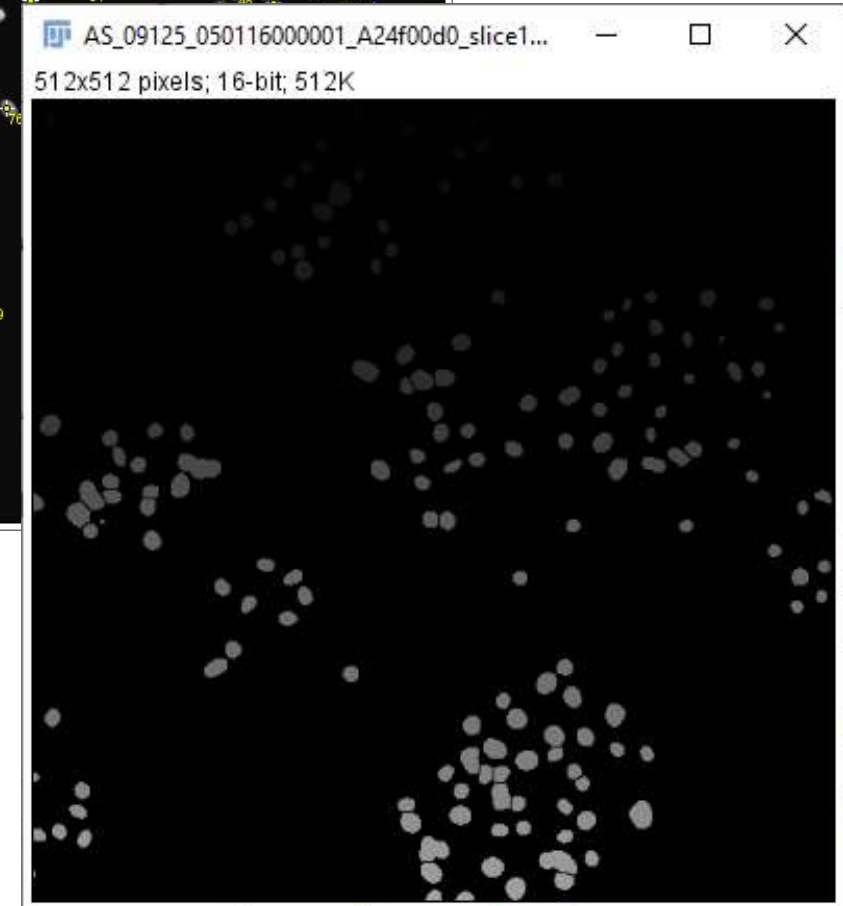
- Download [Broad Bioimage Benchmark Collection](https://data.broadinstitute.org/bbbc/BBBC008/BBBC008_v1_images.zip) from
https://data.broadinstitute.org/bbbc/BBBC008/BBBC008_v1_images.zip
- Write a script (in Python or ImageJ) which segments and counts the number of cells in the first image
AS_09125_050116000001_A24f00d0_slice1_channel1.tif
- Potential workflow:
 - Blur the image
 - Threshold it
 - Apply a watershed
 - Label the image
 - Find the maximum label ID



Cell count challenge



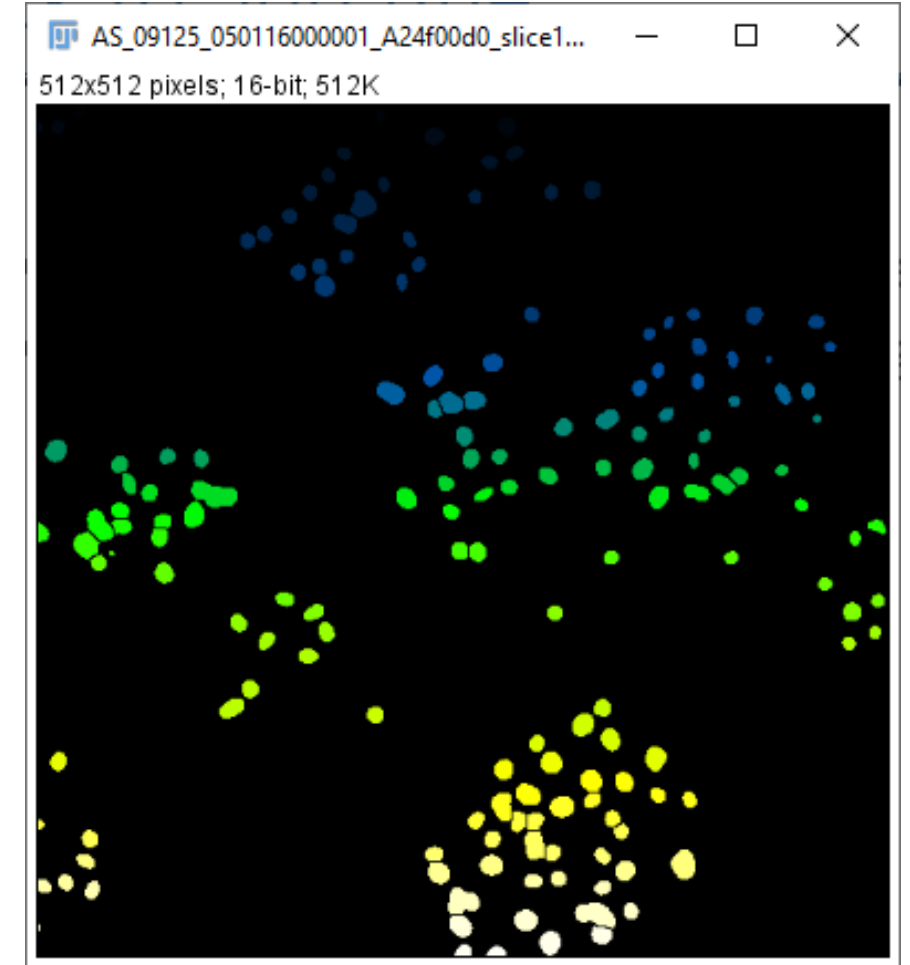
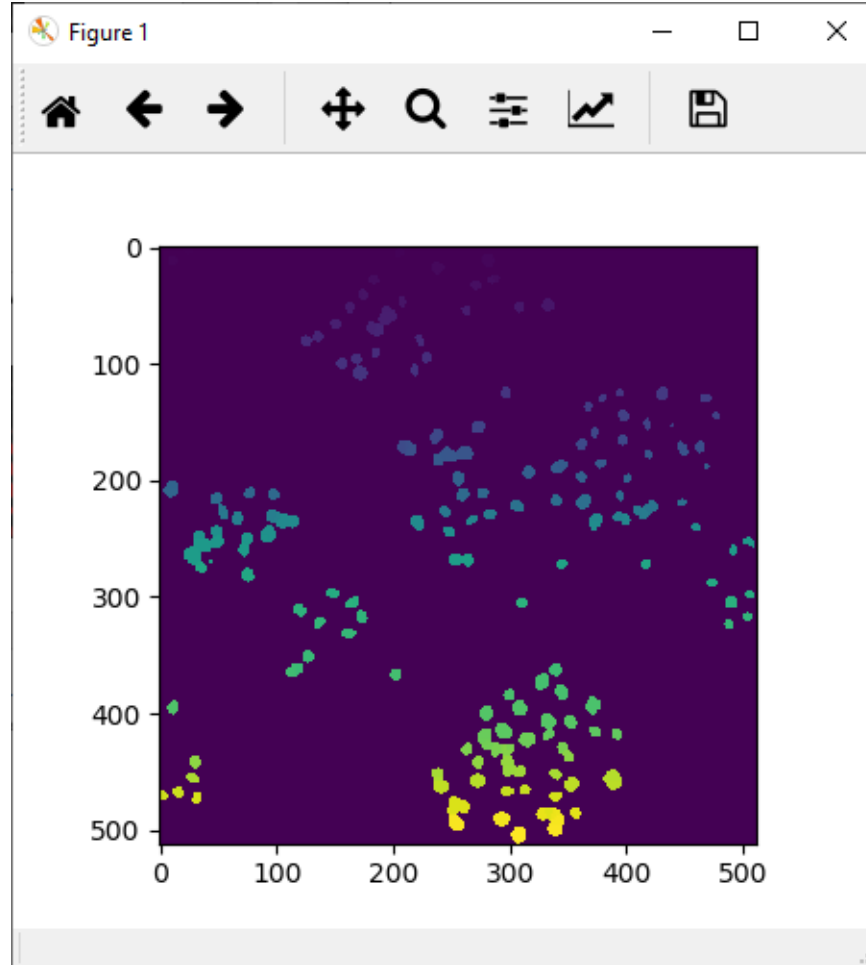
- Be a brave scientists:
 - document your script with comments,
 - output the counting result as image!
- According to manual annotation, there are 177 objects in this image. Who writes the script which comes the closest to 177, gets a beer or a chocolate bar next week!
- If several scripts achieve the same result, the shorter scripts wins (line count without comments/empty lines).
- Submit
 - your script,
 - the object count and
 - a result image fileto rhaase@mpi-cbg.de by Jan 20th 2020 24:00:00 CET



Optional extra challenge



- Implement the same workflow in ImageJ and Python
- Compare results!





Today, you learned

- *Bio-image analysis*
 - Quantitative
 - Objective
 - Reliable
 - Reproducible
 - Repeatable
- Terminology
- Filters
- Image Segmentation
- Feature extraction

Coming up next

- Machine learning in microscopy
- Weka trainable segmentation
- Random Forests
- Image segmentation and object classification with ilastik

