In this directory you will find the textual output files to Fiji plugins currently under development at the Radboudumc. The plugins are used to identify nuclei in a 3D DAPI image and to subsequently segment the DAPI image and a matching actin image in separate nuclei and cells respectively. On the nucleus/cell segmented images, measurements on each segment are taken.

Note that parts of our results are in separate image files (i.e. the segments). These file are not included.

Also note that for clarity’s sake we have cleaned up our current output files and combined the output of different plugins into one example file. The data in the example file is in the format we are currently using, so this file is a good approximation of the total format we are striving for.

In the example files, each line contains the information for a single identified nucleus/cell segment.

Column legend:

ID | x-coordinate | y-coordinate | z-coordinate | migration mode | collective ID | ....

Our current ID is a number that corresponds with the pixel value of the segment in some of our 16-bit output images.

The coordinates are currently based on pixels, so whole numbers are used.

The migration mode tells you if the detected cell is migration and if so in what kind of grouping. It is a string out of the following options (note, this is very preliminary): NO\_PART\_OF, DUAL\_CLUSTER, SINGLE\_CELL, MULTI\_CLUSTER, STRAND, SPHEROID

The collective ID is a number used to group cell segments that belong to the same migration group.

The final ... is a list of (numerical) measurements on each segment that we are still establishing. At the moment we are using a mix of measurements already present in Fiji and standard plugins (mcib3D and MorphoLibJ). The current list is (in file order):

- Intensity features: Mean, StdDev, Max, Min, Median, Modal, Skewness, Kurtosis

- Number of voxels in the segment

- Volume in image-defined units

- Surface area in image-defined units

- Sphericity

- Euler number

- Fitted ellpsoid: Elli.Center.X, Elli.Center.Y, Elli.Center.Z, Elli.R1, Elli.R2, Elli.R3, Elli.Azim, Elli.Elev, Elli.Roll, Elli.R1/R2, Elli.R1/R3, Elli.R2/R3

- Inscribed ball: InscrBall.Center.X, InscrBall.Center.Y, InscrBall.Center.Z, InscrBall.Radius

Note that this list is easily modifiable and extendable from our perspective.