Dr. Bossy-Weztel Lab Notes

Mitochondria Imaging Information

- Each layer separated by .2um
- Mitochondria length ranges from 1um to 5um
- Speed in axon ranges from 1-5um/s in neuron
- Speed in dendrite <100um/min
- 60-70% of mitochondria are stationary
- Fragmented mitochondria are considered to be of length less than or equal to .8um

What we need to do?

- Time Lapse
- Calculate Average Intensity within a region
- Calculate Length and Volume in 3D
- Look at change in volume and length overtime with fusion and fission
- Reduce run time
- Find a way to take multiple pictures and put them together and track the mitochondria all at once
- Look at intensity and length for fusion

Problems

- Neurons move so a selected region might have another axon moving into that region causing a problem with calculation. Possible solution is a tracking box.
- Metamorph only tracks the number in region not individual mitochondria
- When mitochondria move their morphology changes
- Determining whether mitochondria are actually being fused or just sitting next to one another
- With tracking, when a mitochondria is passing through/behind another mitochondria, Metamorph counts that as a completely separate mitochondria when they are still two separate mitochondria

Do not need help filtering.