USE OF COMPUTATIONAL METHODS FOR IMAGE VISUALIZATION AND ANALYSIS

KEPLER AND IMAGEJ

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Biological background

- EphA3 receptors are seen at high levels in various forms of cancers and tumors. At the Lackmann lab, anti-ephA3 antibodies are radiolabelled in order to visualize its efficacy in tumor targeting.

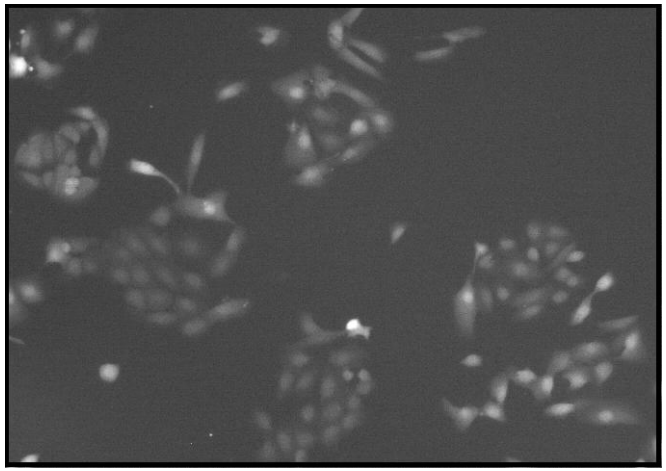


Figure 1: Fluoresced sections of image are radiolabelled tumors, while surrounding is tMSC (Vail)

Computational Background

- Images are derived through confocal imaging, and will be analyzed through the automation of data acquisition and analysis using ImageJ scripts and the Nimrod/K workflow engine. Final determination of the success of antibodies will be through calculating the ratio between islands of fluoresced tumors within the surrounding tMSC.

Progress

- Met with Dr. Vail to determine requirements of Nimrod/K and ImageJ scripts
- Began using .lif exporter with ImageJ GridJob on Kepler
  - Bio-Formats Importer unpackages .lif files into editable image files on ImageJ

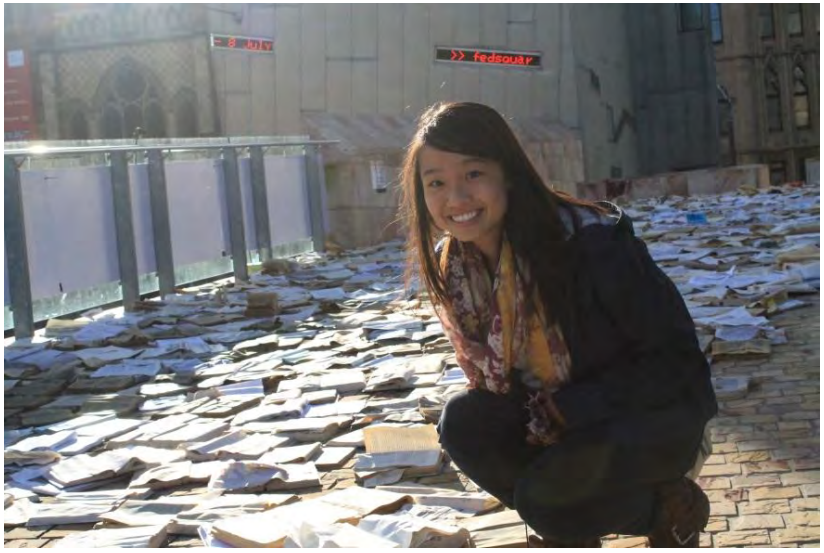
- Wrote starter ImageJ script to get rid of noise, set threshold values to determine ratio of fluorescence:tMSC
- Downloaded the OMERO.insight client and followed through tutorials

Tentative Plans

- Waiting to gain access to OMERO.insight
  - OMERO client can be used for modifying and adding description to .tif images
  - Will be used with Kepler Scientific Workflow System
- Start constructing ImageJ scripts
  - Flow from Bio-Formats import → Kepler → ImageJ script
- Study past Kepler Workflows using OMERO and ImageJ

Exploring Melbourne CBD!

UFO at Federation Square//Reading Illumination Art Exhibition//Melbourne Central Business District//State Library



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