

# Stanford TTD: Next-Gen Genomic Imaging

Beckman Center B437, Lokey G3120B



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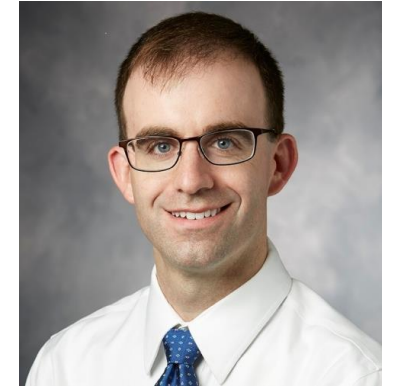
Monica Nagendran\*



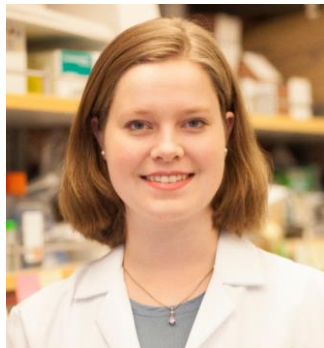
Scott Berger\*



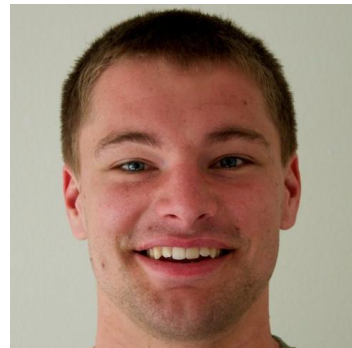
Peter Rosston



Adam Andruska



Courtney Stockman



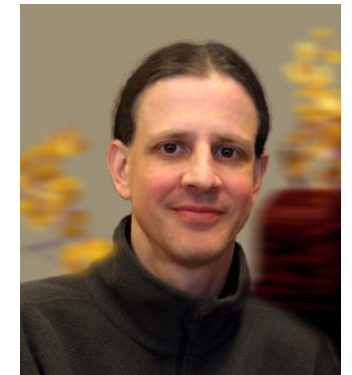
Josh Guild



Jay Mulye



Tushar Desai



P. Harbury

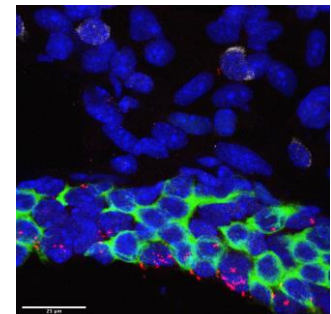
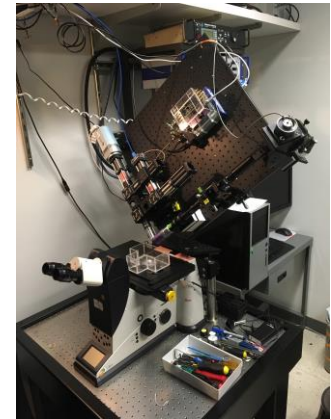
# Enable autofluorescence-free 3D imaging

## Goals:

- Family of lumiphores that populate color and lifetime channels
- 3D luminescence (time-resolved) microscope
- Rapid electrophoretic *eStain* and *eErase* pipeline

## Cool results:

- Luminescence light-sheet microscope live
- Deep 3D images with RNA defined cellular shapes



# Next year's prospectus

## 2020 deliverables:

- Accessible luminescence imaging (lumiphores and simple hardware)
- *e*lmaging pipeline and illustrative Ab/RNA mini-maps

## Information exchange mechanisms:

- Hosting HuBMAP scientists for hands-on tech transfer
- Workshops?

# Electro-SABER collaboration

## Activities:

- Six SABER channels set up and tested at Stanford
- Single-site labeling of Fc chains in hamster, rat & human
- RNA mini-map POC complete and probe acquisition underway

## Challenges:

- Time!
- Co-localization of scientists

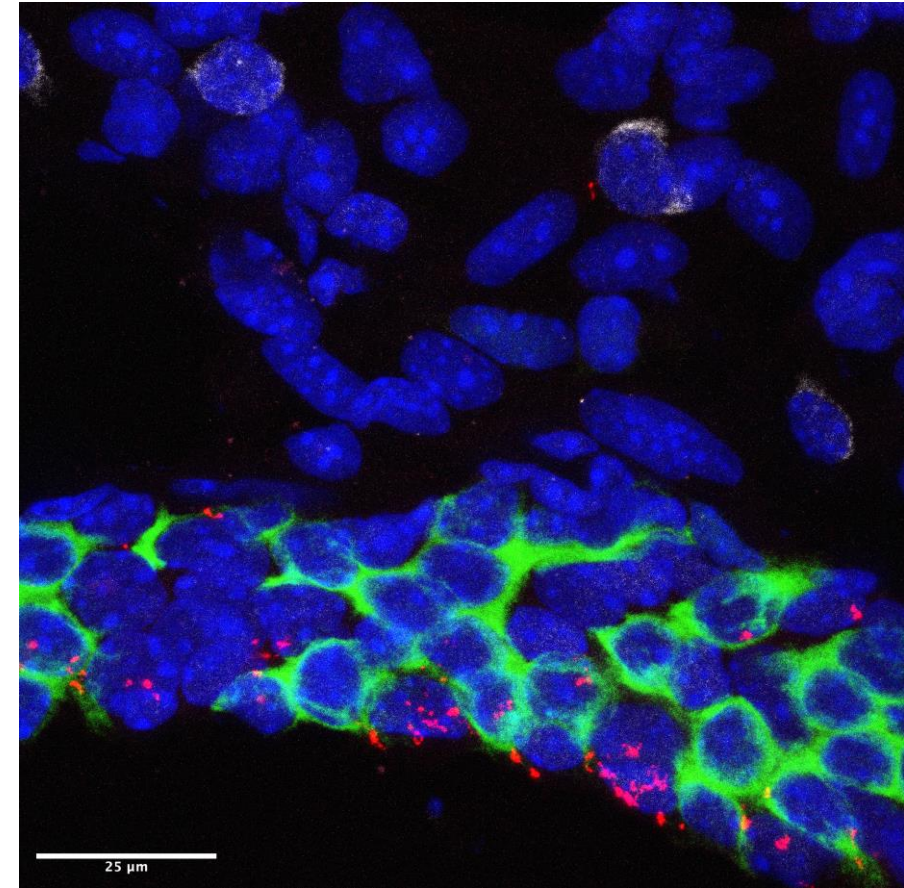
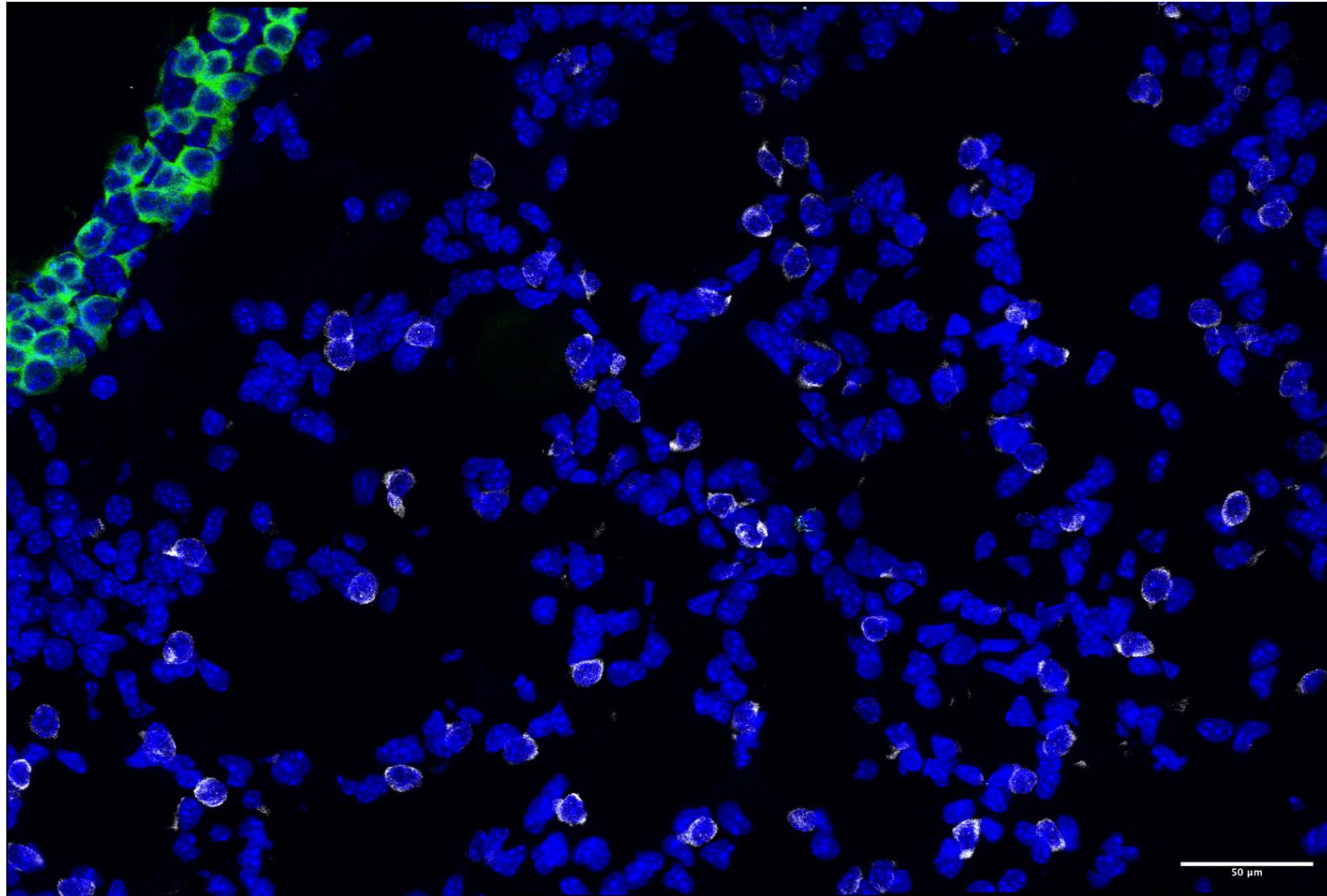
# What should HuBMAP do ?

## HuBMAP Priorities:

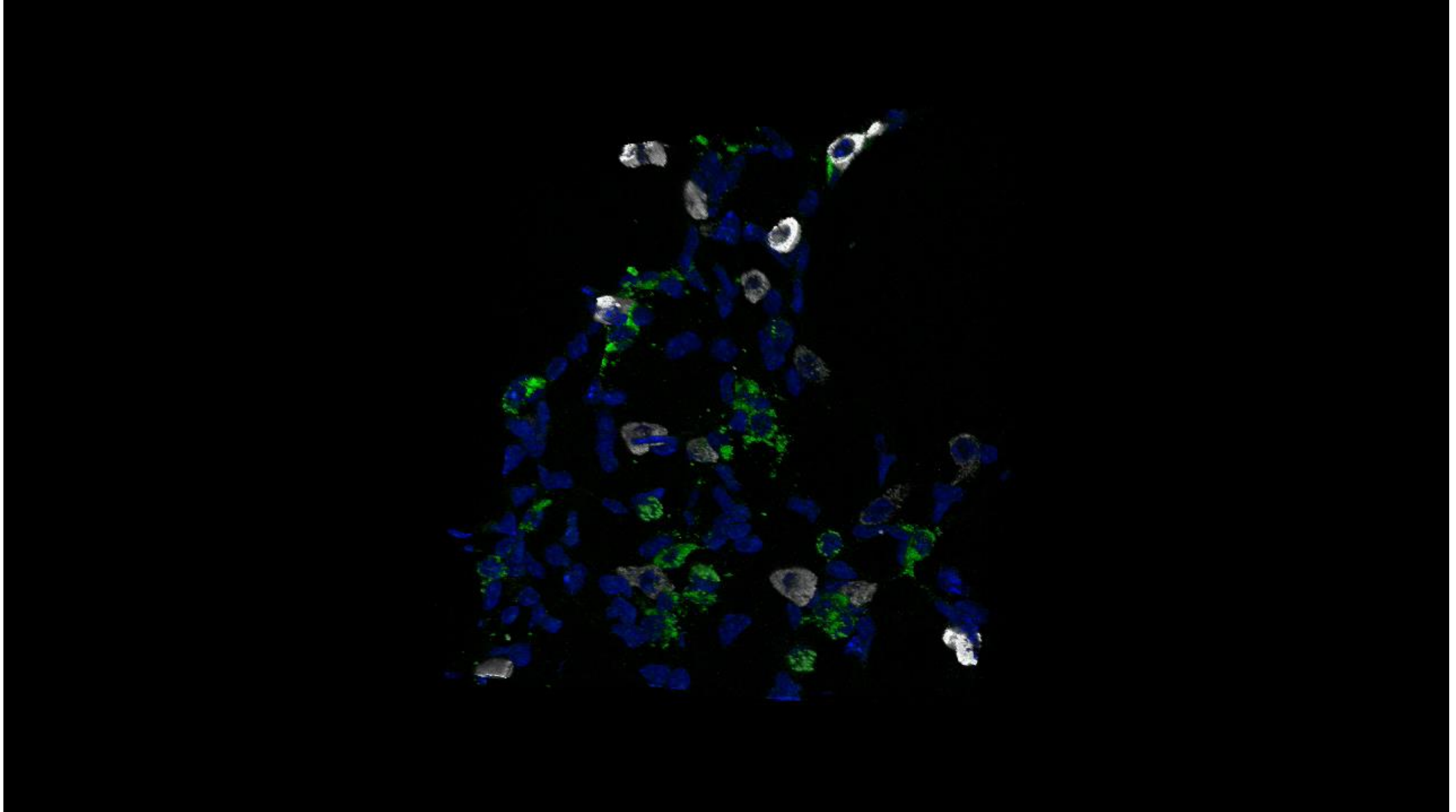
- Cell-type comprehensive spatial maps for human organs with deep RNAseq data
- Easy/intuitive access for bioscience community
- Distribute methods to bioscience community; move beyond cell-type mapping
- Biologist – technologist integration



# Large tissue blocks (3 X 3 X 3 mm)



# Example 3D data





# Enzymatic, site-specific Fc labeling

