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Feinberg School of Medicine

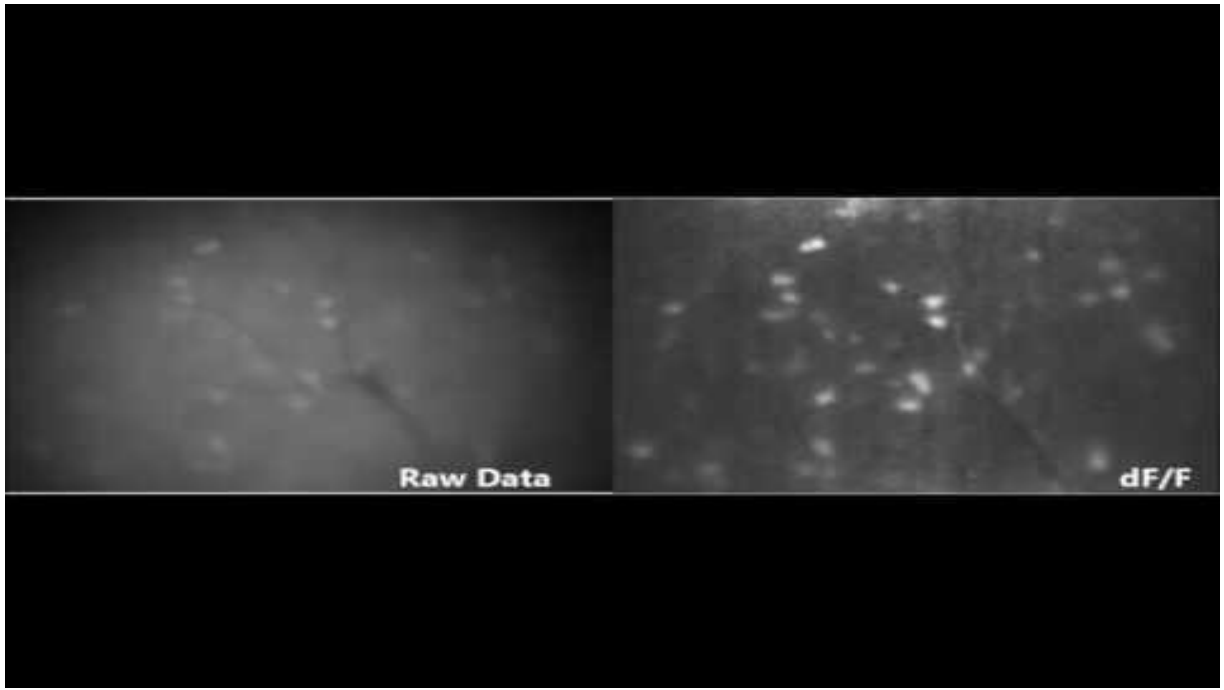
Visualizing neuronal activity during movement in mice

Presented By Santiago Chacin

With help from Dr. John Marshall
Lab of Anis Contractor

Fluorescence

Absorption/Emission

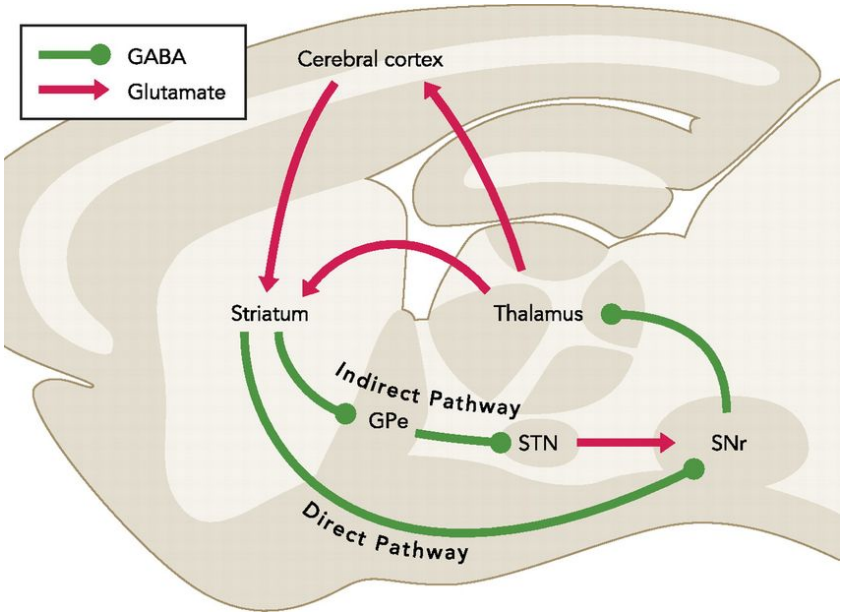


Video from UCLA Miniscope Wikipedia

The Basal Ganglia Pathway

Movement facilitation

- Parkinson's Disease
- Huntington's Disease
- Striatum
- 95% Spiny Projection Neurons

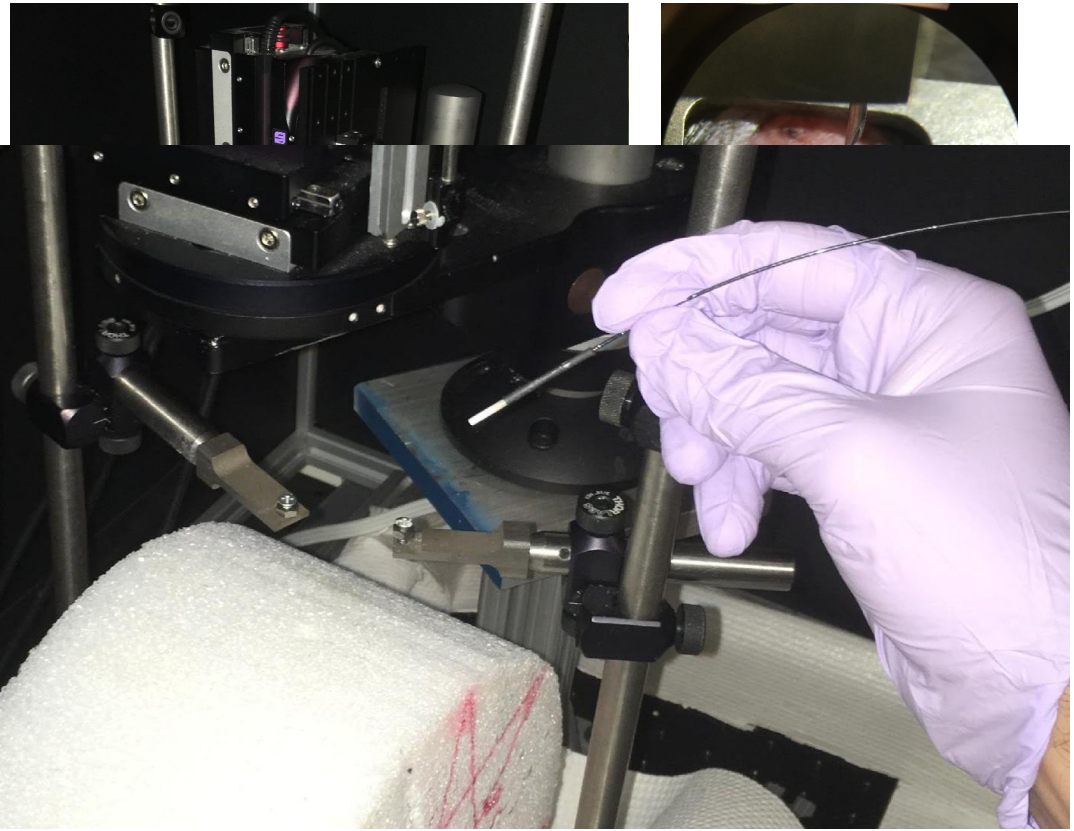


Striatum diagram from Lund University (Bekkouche, 2016)

Methodology

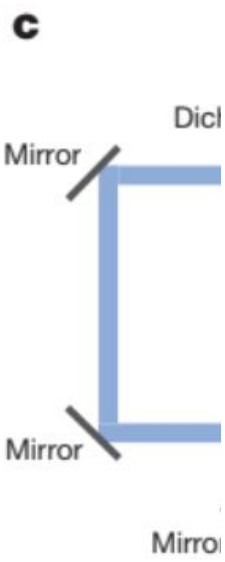
Imaging Fluorescence

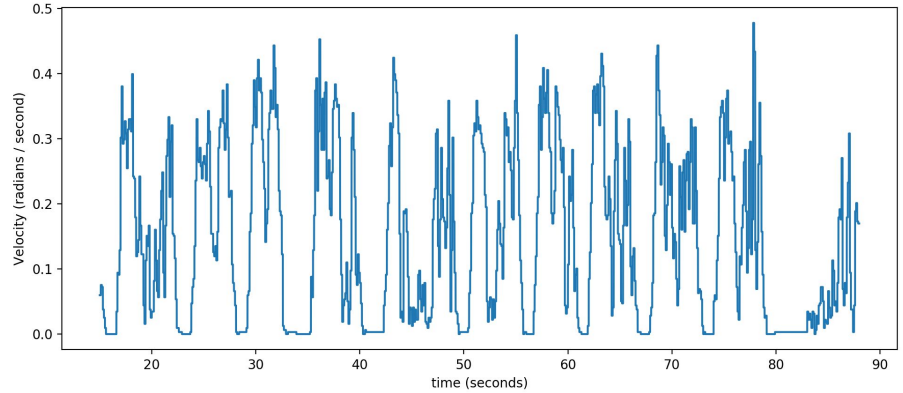
- Viral Injections
- Headplate implantation
- Photometry

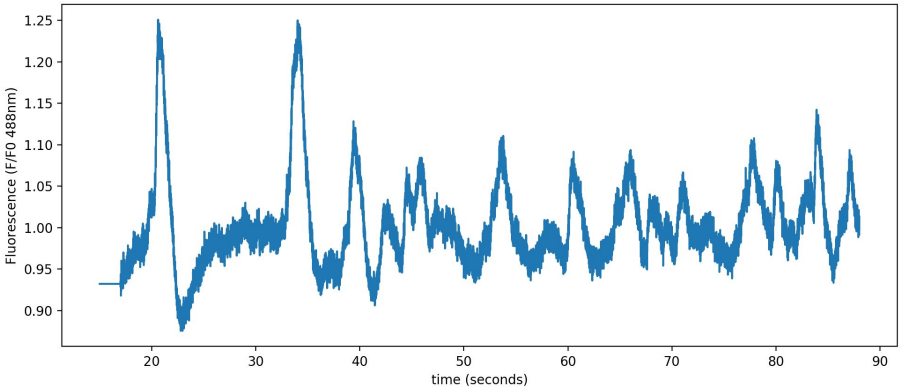


Methodology

Imaging Fluorescence



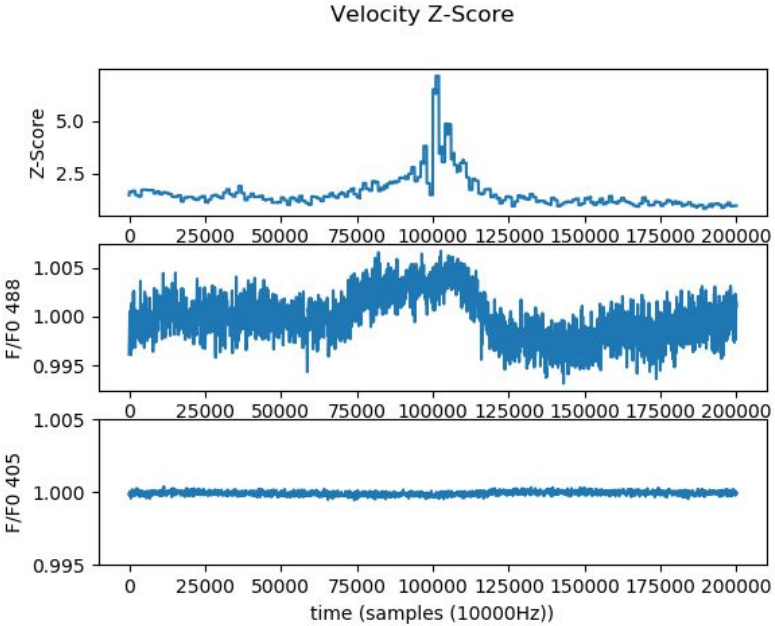


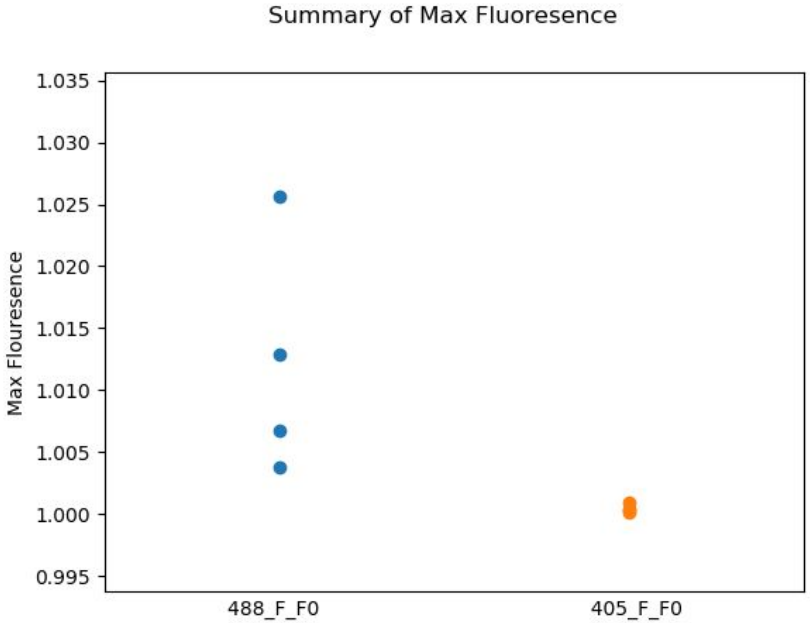


Photometry diagram from Stanford University (Zalocusky et al., 2016)

Results/Data Analysis

Graphing





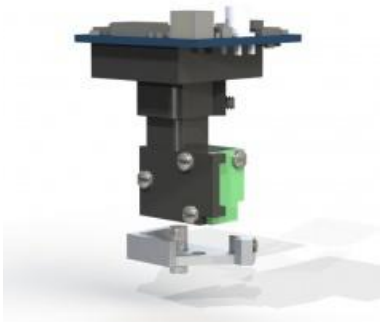
Conclusions

Spiny Projection Neurons

- Right before significant movement events there is an increase in Spiny Projection Neuron firing
- Spiny Projection Neurons are related to immediate movement events in mice

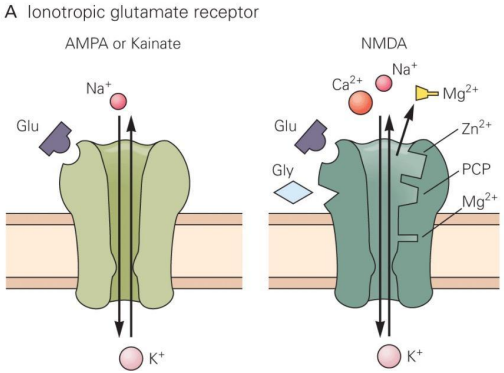
What's Next?

Miniscope/Glutamate Receptors



Miniscope Technology

- Visualizing cell population activity



Glutamate Receptors

- Important in the functioning of the basal ganglia
- Using current findings as a baseline

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Questions?

Thank You

-Santiago Chacin
Posner Fellowship