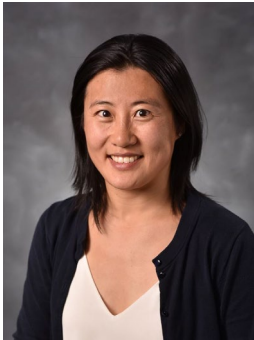


CCTSI Translational Method Pilot Award

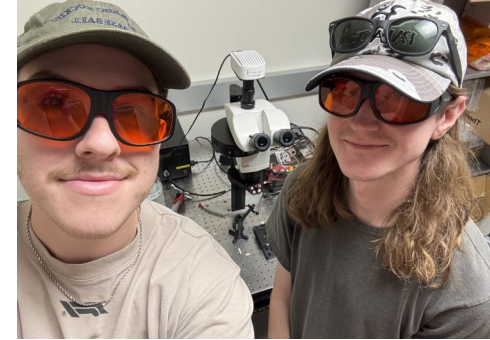
A pelvic ganglia-bladder *ex vivo* model for studying neural control of micturition



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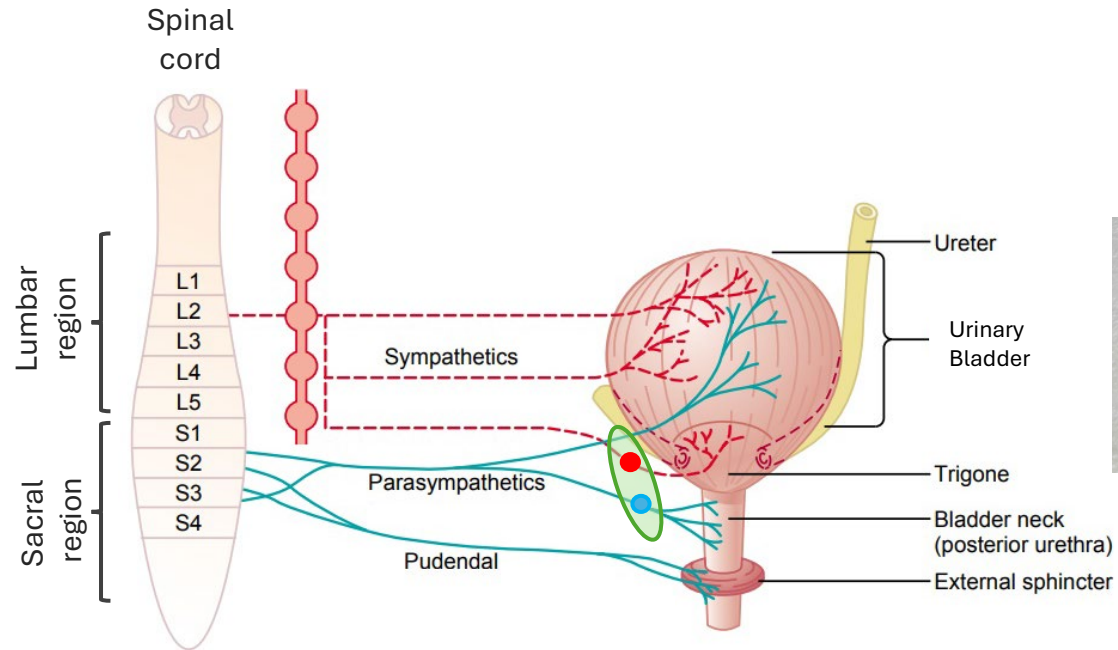
People who did the work:

Emmett Spreitzer Daniel Deuel
Xie Lab Calve lab
Undergraduate Research Assistants

Please check out their poster!

1. Neural control of micturition

Bladder functions { Micturition/voiding
Urine storage

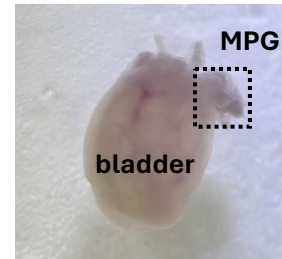


○ Pelvic plexus/Major pelvic ganglion (MPG)

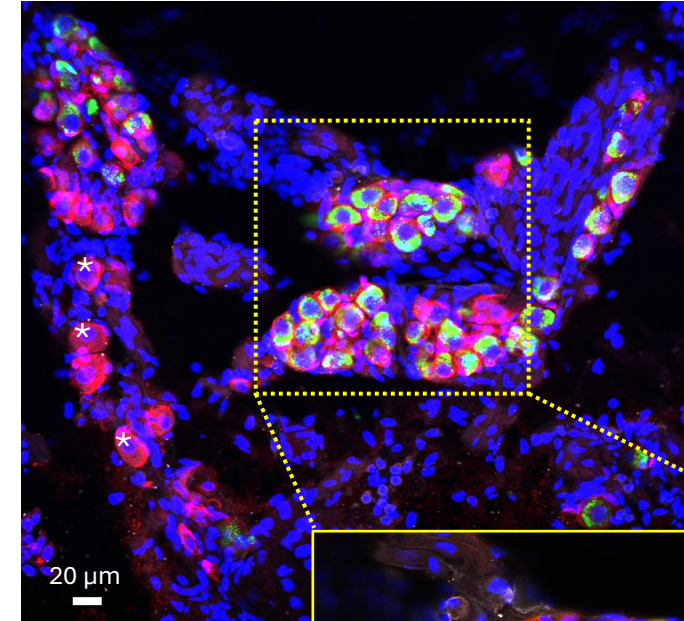
Sympathetic: hypogastric nerve

Parasympathetic: pelvic nerve

2. *Ex vivo* preparation with intact MPGs



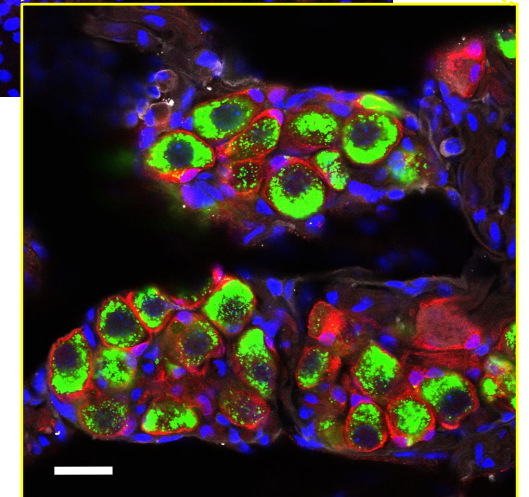
Mouse major pelvic ganglion (MPG)



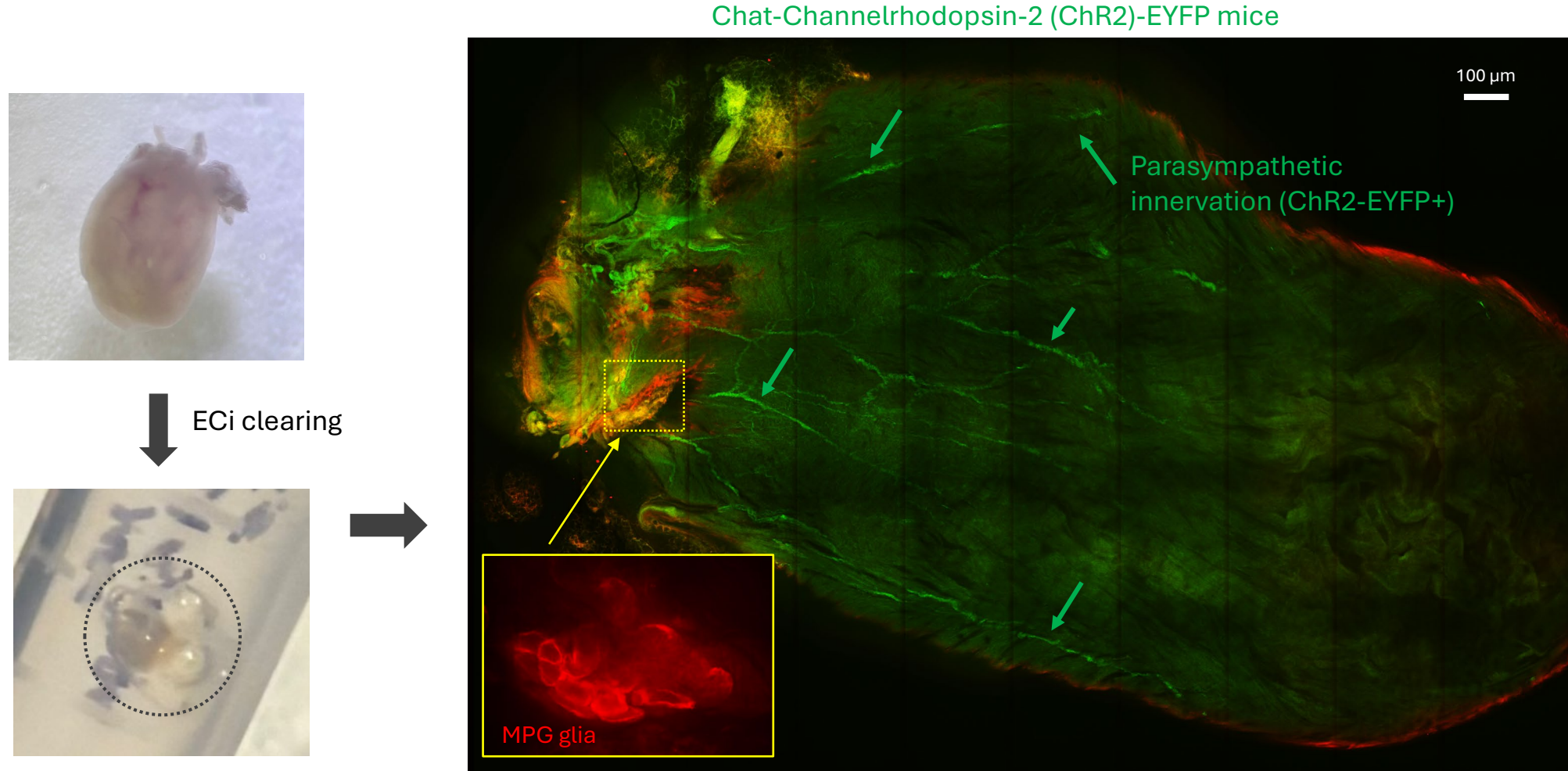
Choline acetyltransferase (Chat)+
neuron (parasympathetic)

MPG glia

★ Tyrosine hydroxylase (TH)+
neuron (sympathetic)

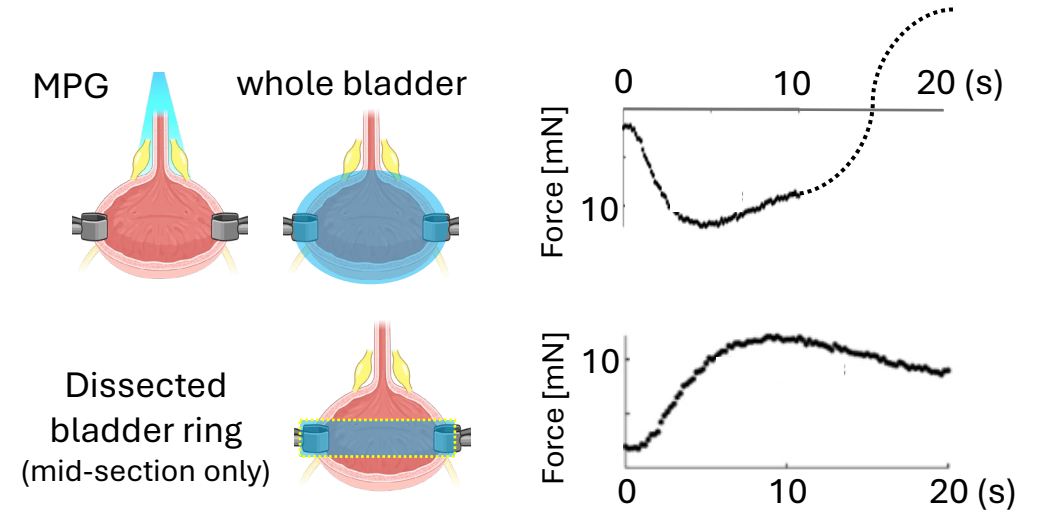
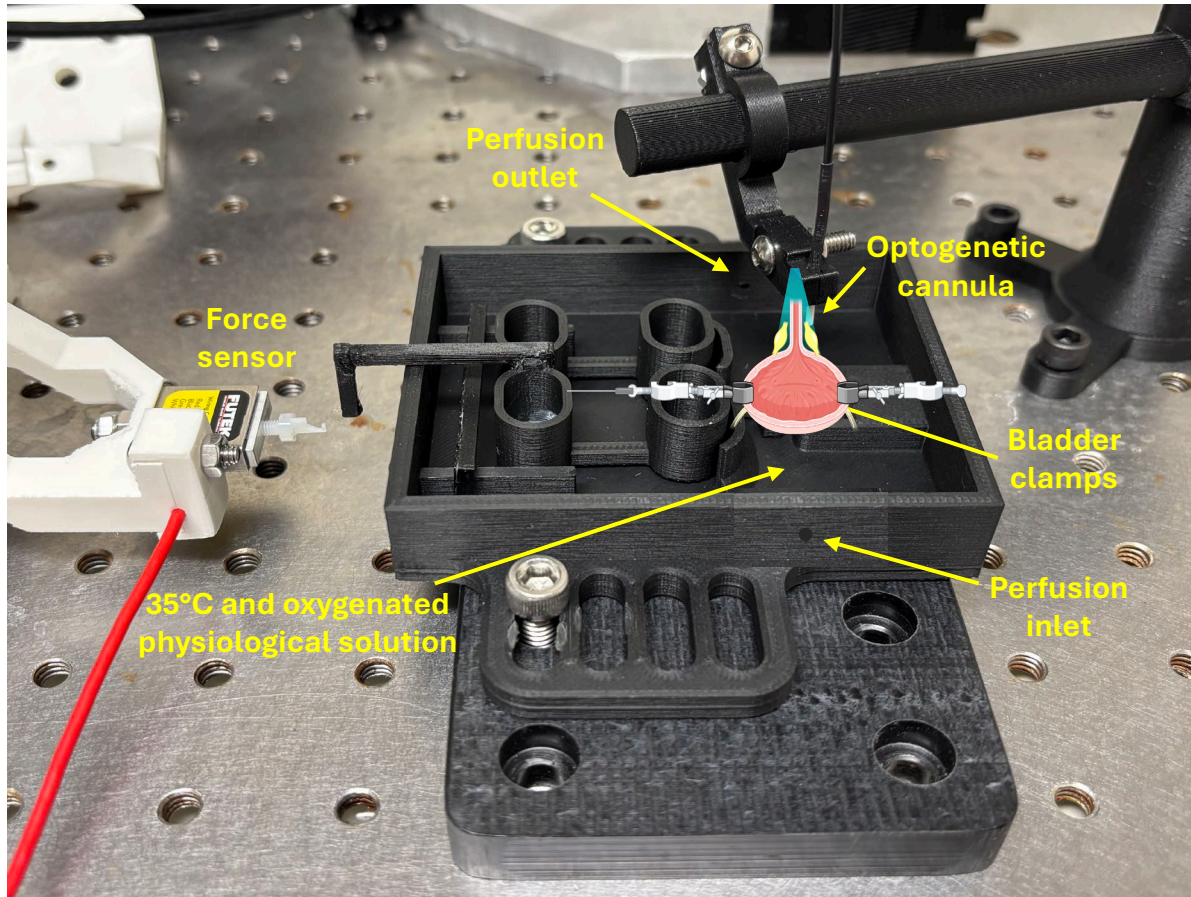


3. Additional anatomical validation of intact bladder innervation using volumetric imaging in combination with Ethyl cinnamate (ECi)-based tissue clearing



4. Functional validation: optogenetic stimulation to MPG in *ex vivo* preparations isolated from Chat-ChR2-EYFP mice showed evoked mechanical response

A custom-designed, 3D-printed bladder mechanical testing device



Ongoing: testing the two-phase contraction model

