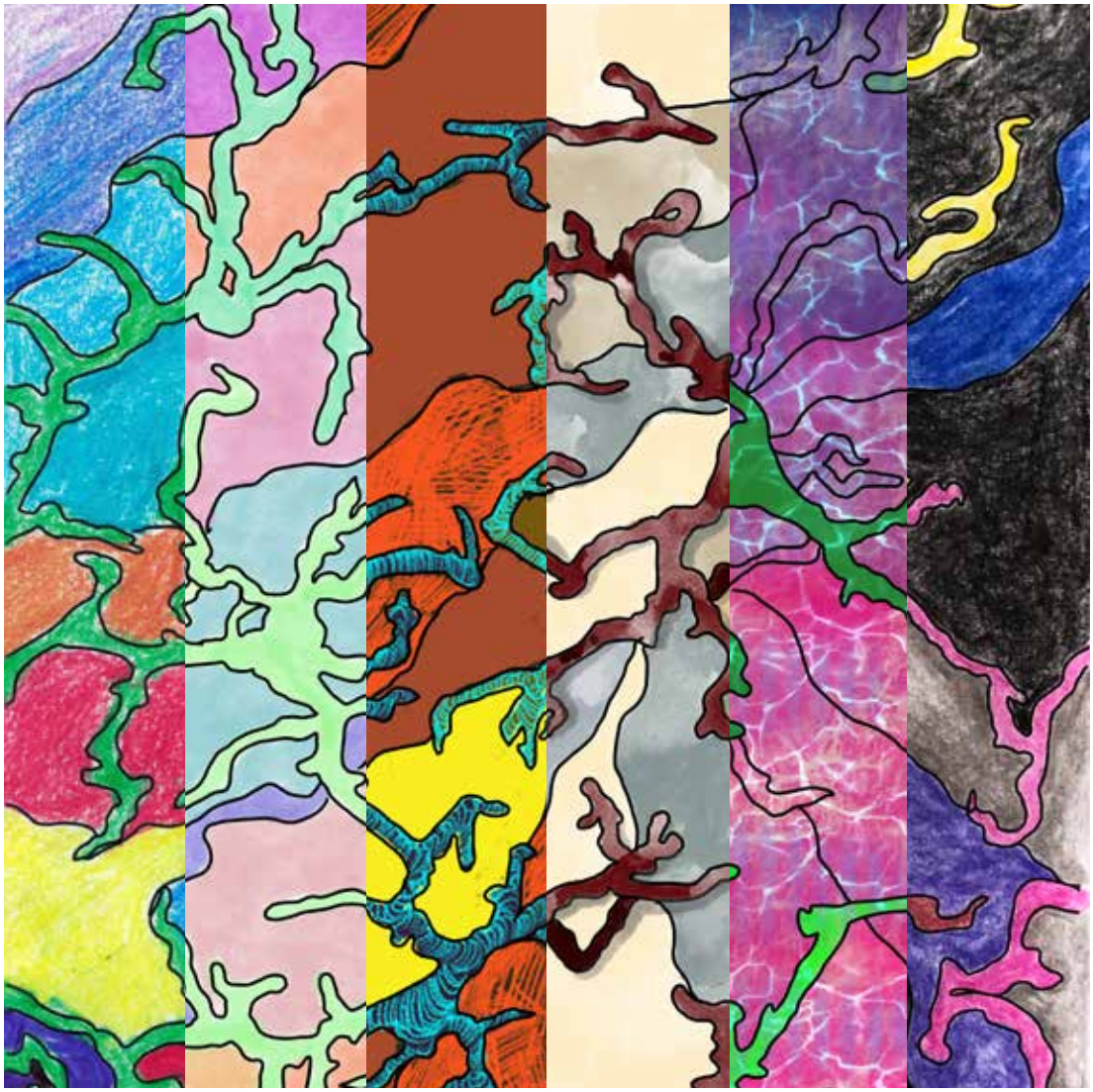
University of Minnesota

Neuroscience Coloring Book



2022

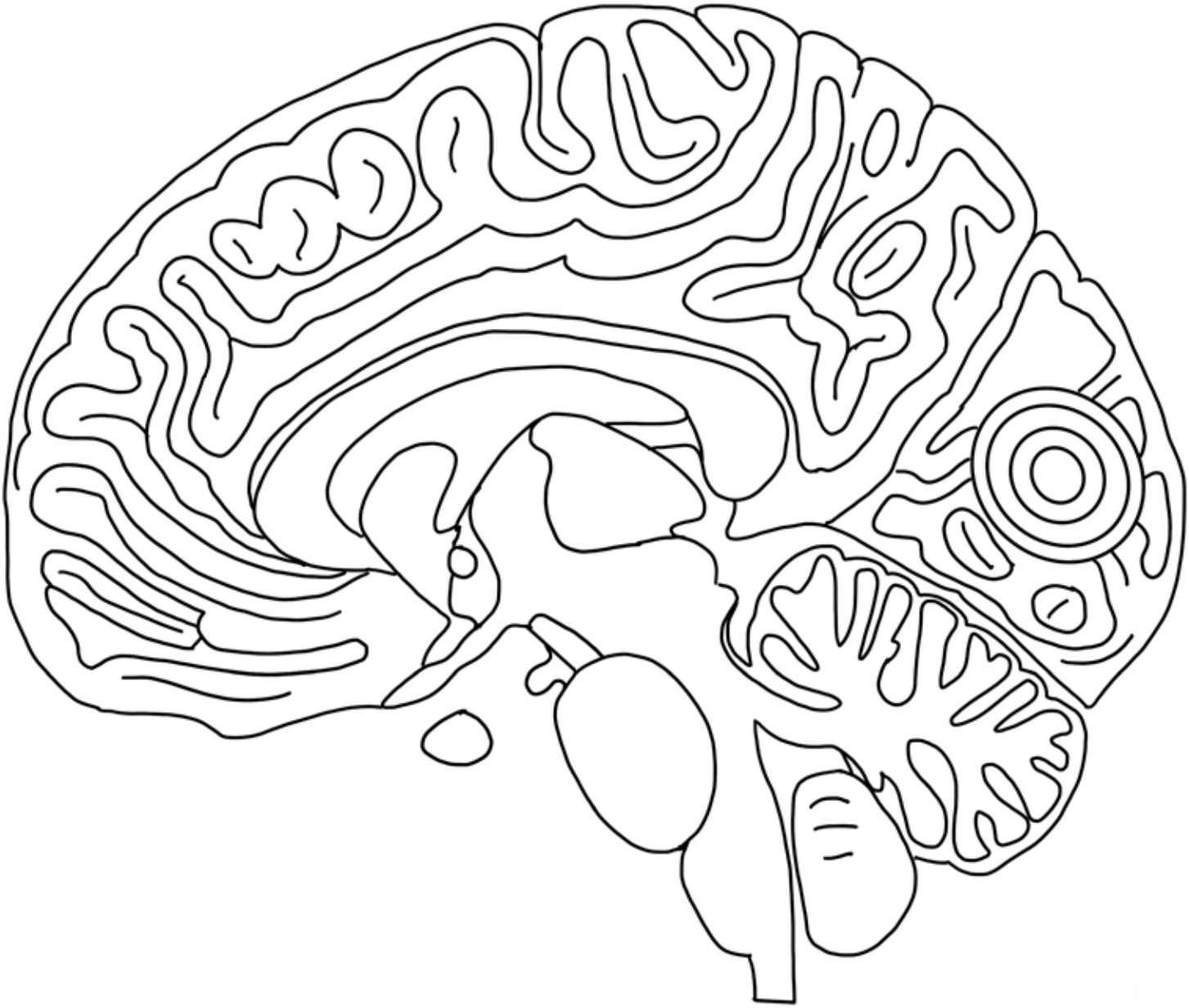
The illustrations in this coloring book are inspired by neuroscience research at the University of Minnesota.

Illustrated by Samantha Montoya

Seven Tesla MR Spectroscopy Voxel Placement in Visual Cortex

MR spectroscopy data were acquired in a 1.8 x 1.8 x 3 cm voxel within early visual cortex in human subjects, in order to quantify concentrations of neuro-metabolites including glutamate and GABA.

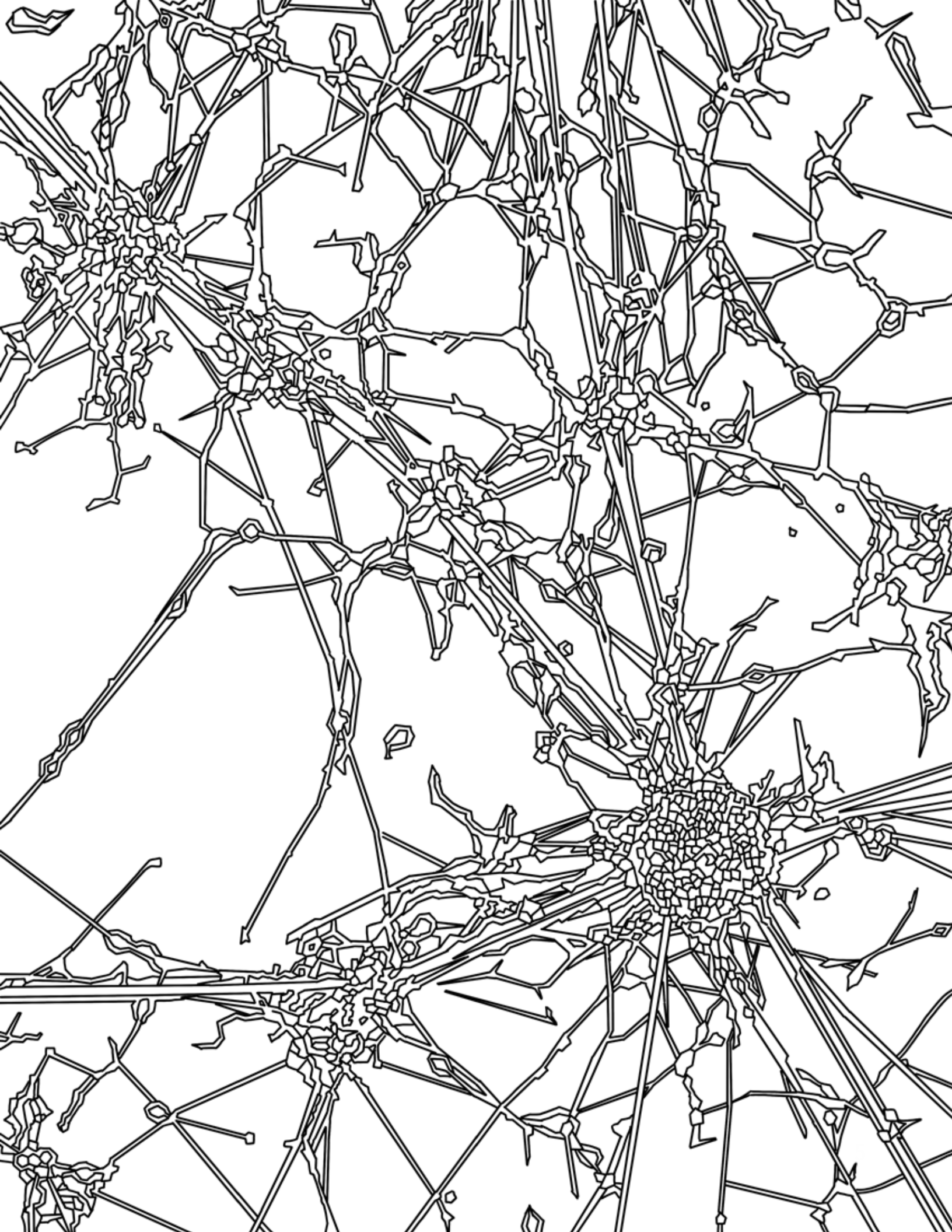
Dr. Michael-Paul Schallmo
Schallmo Lab



Induced Pluripotent Stem Cell (iPSC) Derived Neurons

Human iPSCs differentiated into excitatory neurons.

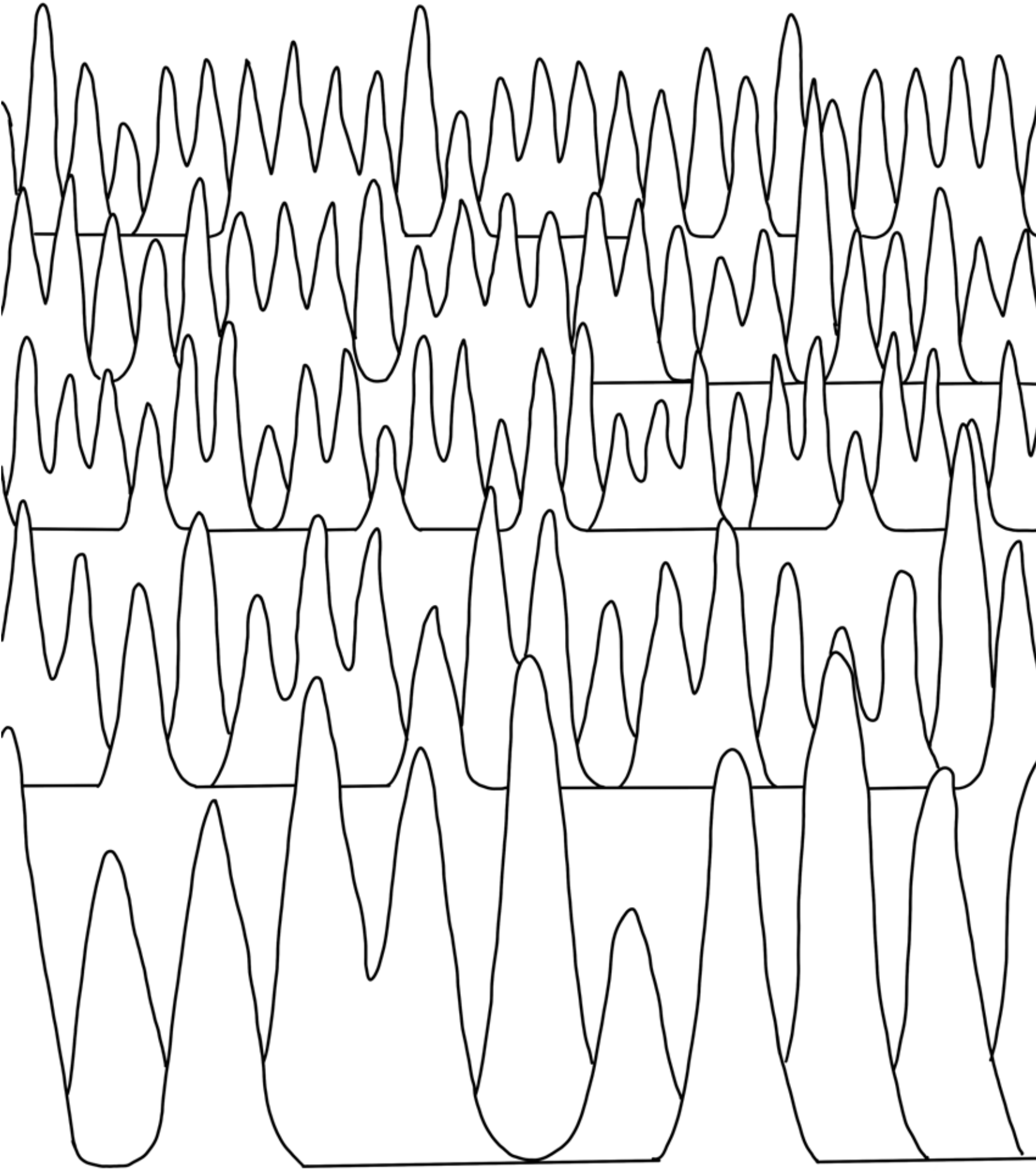
Kristina Fredriksen
Li Lab



Gene Editing of Duchenne Muscular Dystrophy (*DMD*) Gene

Chromatograph shows correct editing of exon 79 of *DMD* with removal of STOP codon, and introduction of flexible linker (GSSG).

Bayardo Garay
Perlingeiro Lab



Primary Sensory Neurons in a Dorsal Root Ganglion

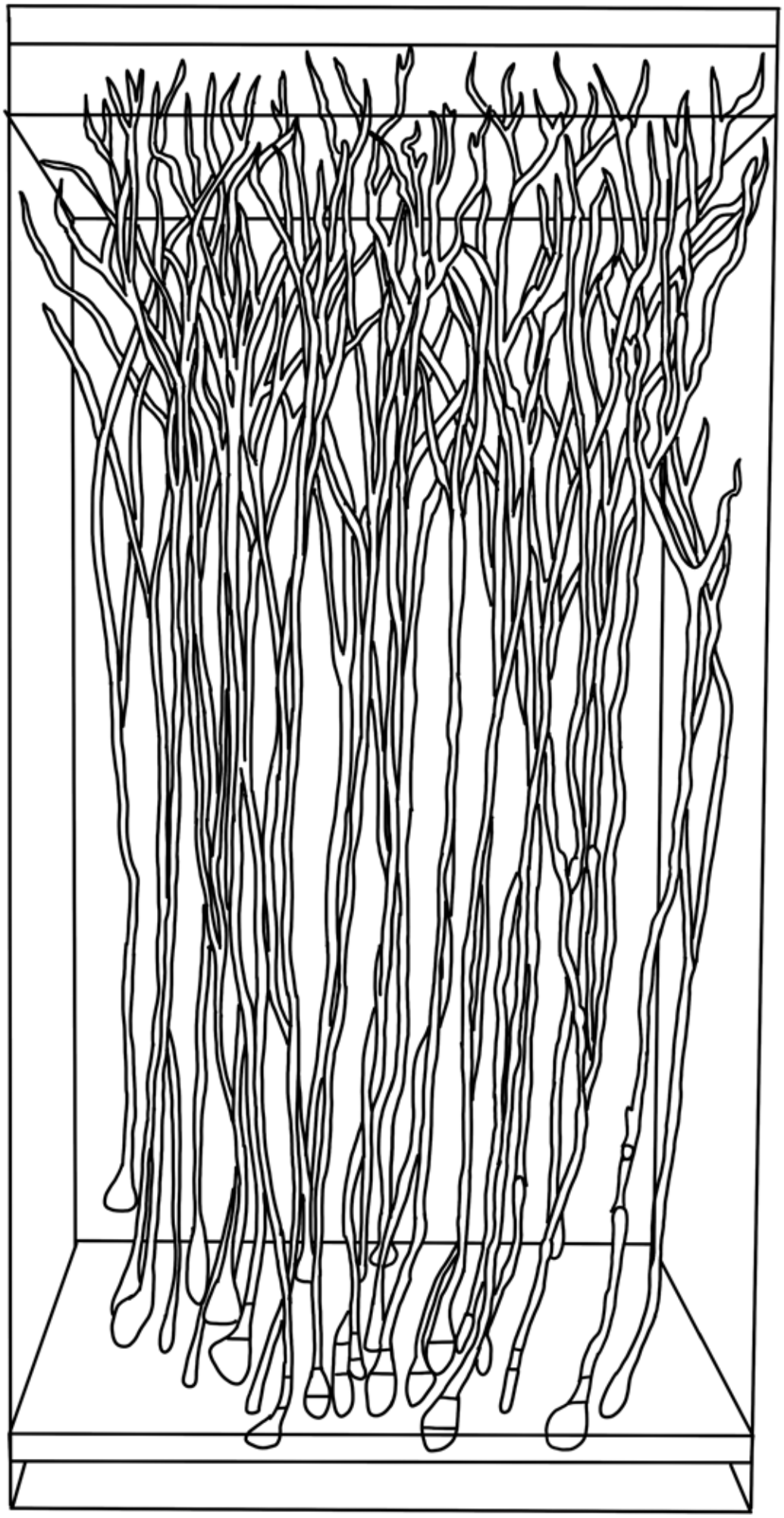
Multicolor immunofluorescence reveals the heterogeneity of sensory neurons.

Dr. Lucy Vulchanova
Vulchanova Lab

Pyramidal Cells in Cortex

Z projection of pyramidal cells in motor cortex.

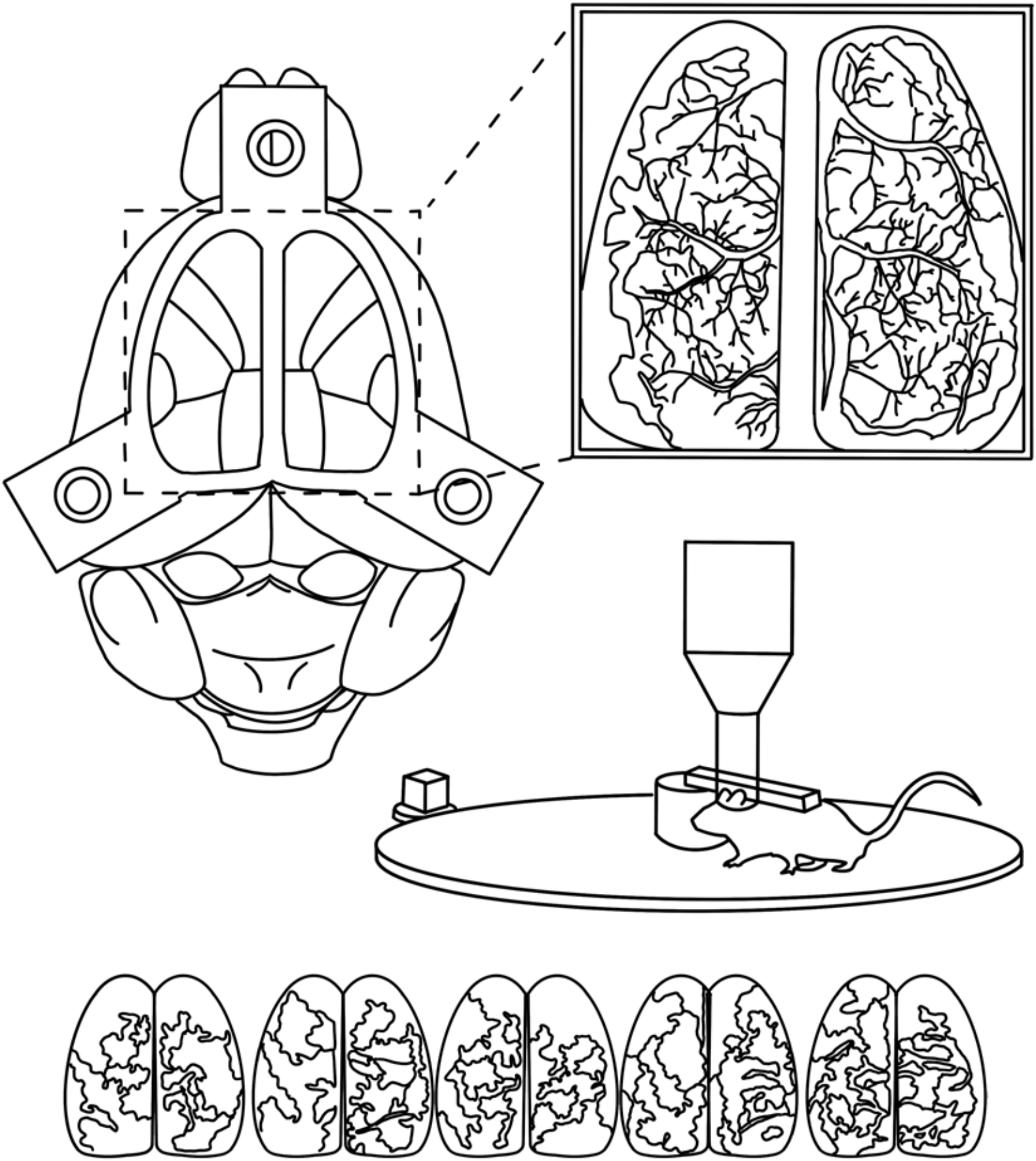
Dr. Aaron Kerlin and Dr. Zachary Newman
Kerlin lab



See-Shell Windows

Plastic polymer windows are implanted in the mouse skull, allowing for awake calcium imaging across the dorsal cerebral cortex.

Sarah West & Kate Feller
Ebner lab



A Purkinje Cell Surrounded by Interneurons

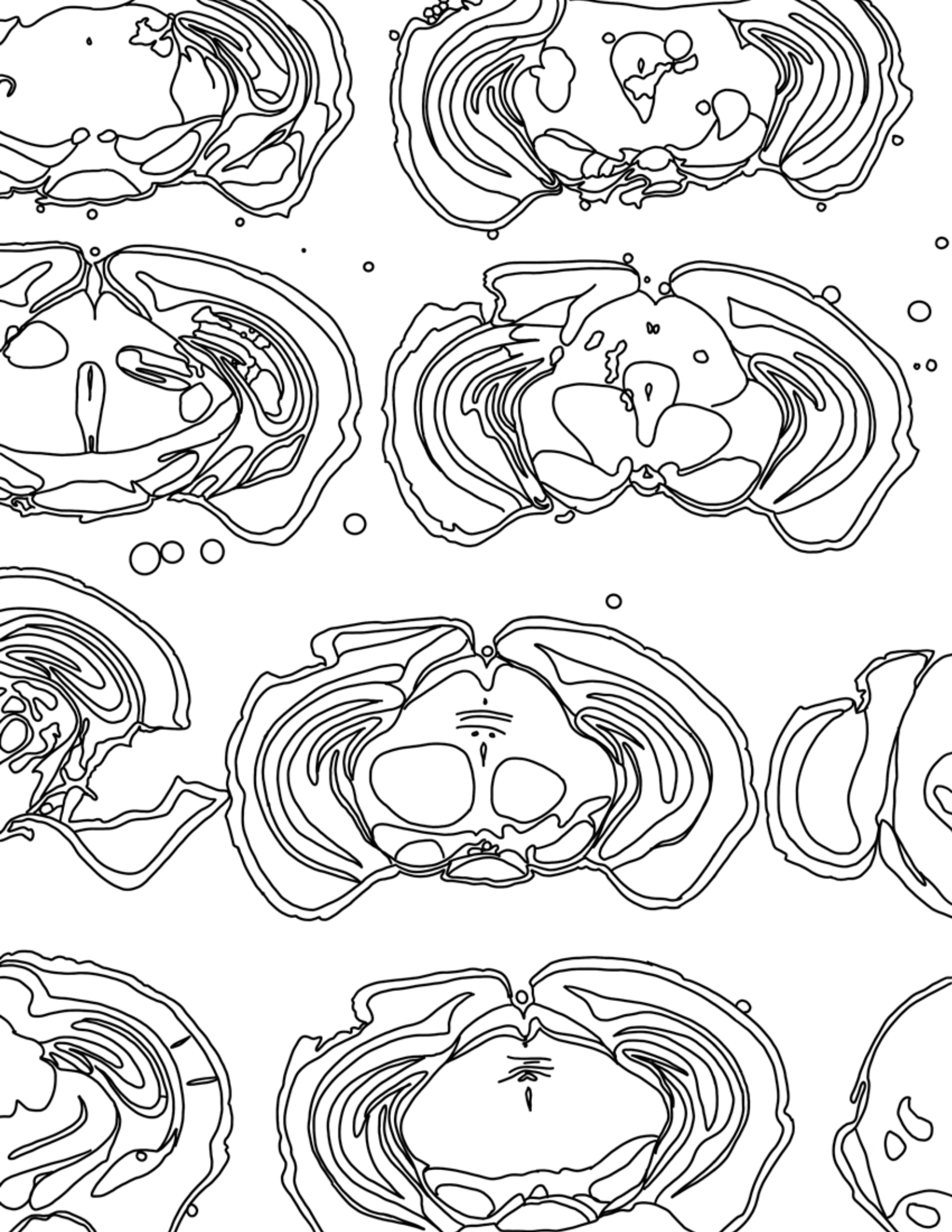
A single Purkinje receives inhibitory signals from its surrounding interneurons in the mouse cerebellum.

Dr. Owen Chao
Yang Lab

Ventral Midbrain Fluorescent Viral Targetting

Sections from the ventral midbrain of experimental mice are collected to validate fluorescent viral targeting of VTA and PPTg neurons.

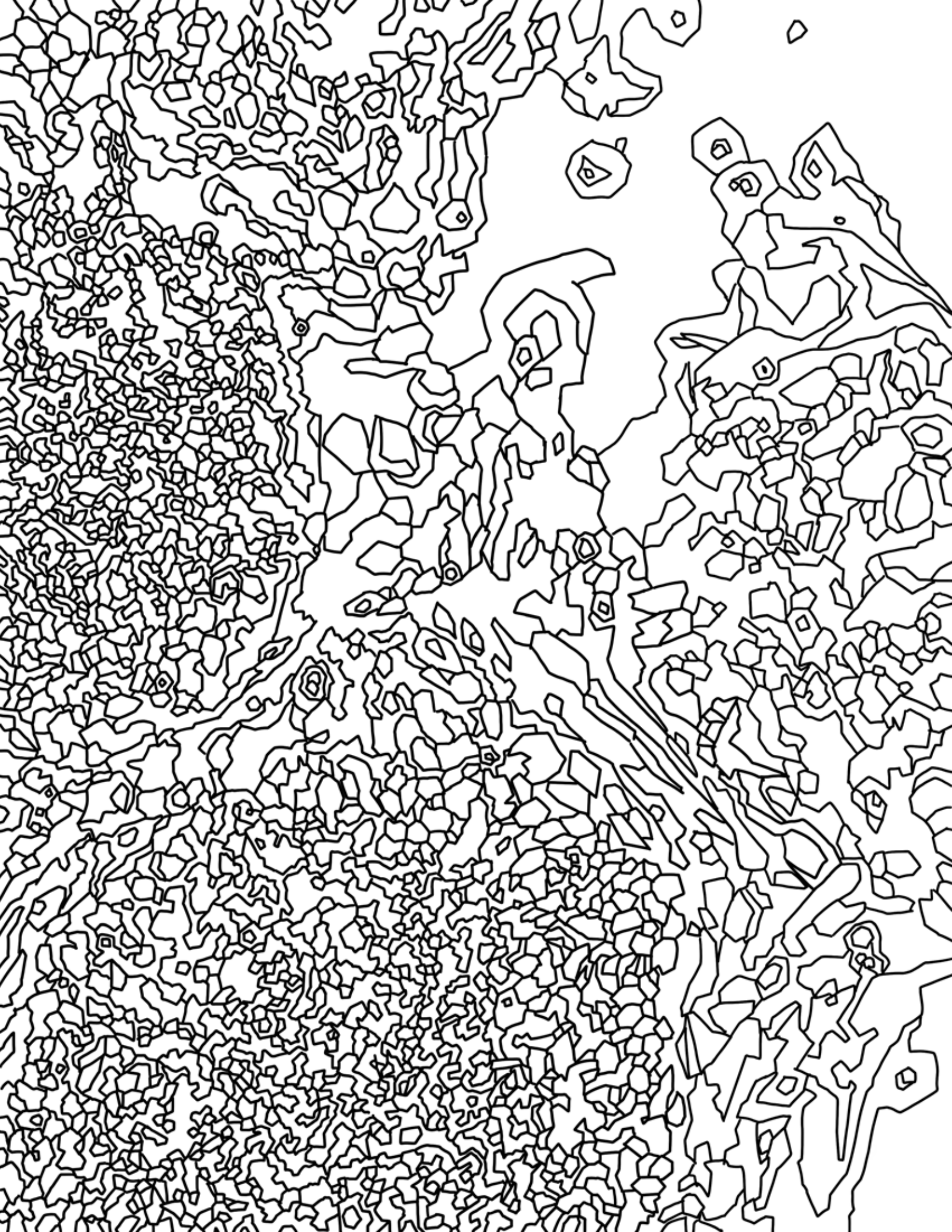
Sarah Mulloy
Anna Lee lab



Differentiating Spinal Neurons

Differentiation of ventral spinal progenitor cells derived from human induced pluripotent stem cells.

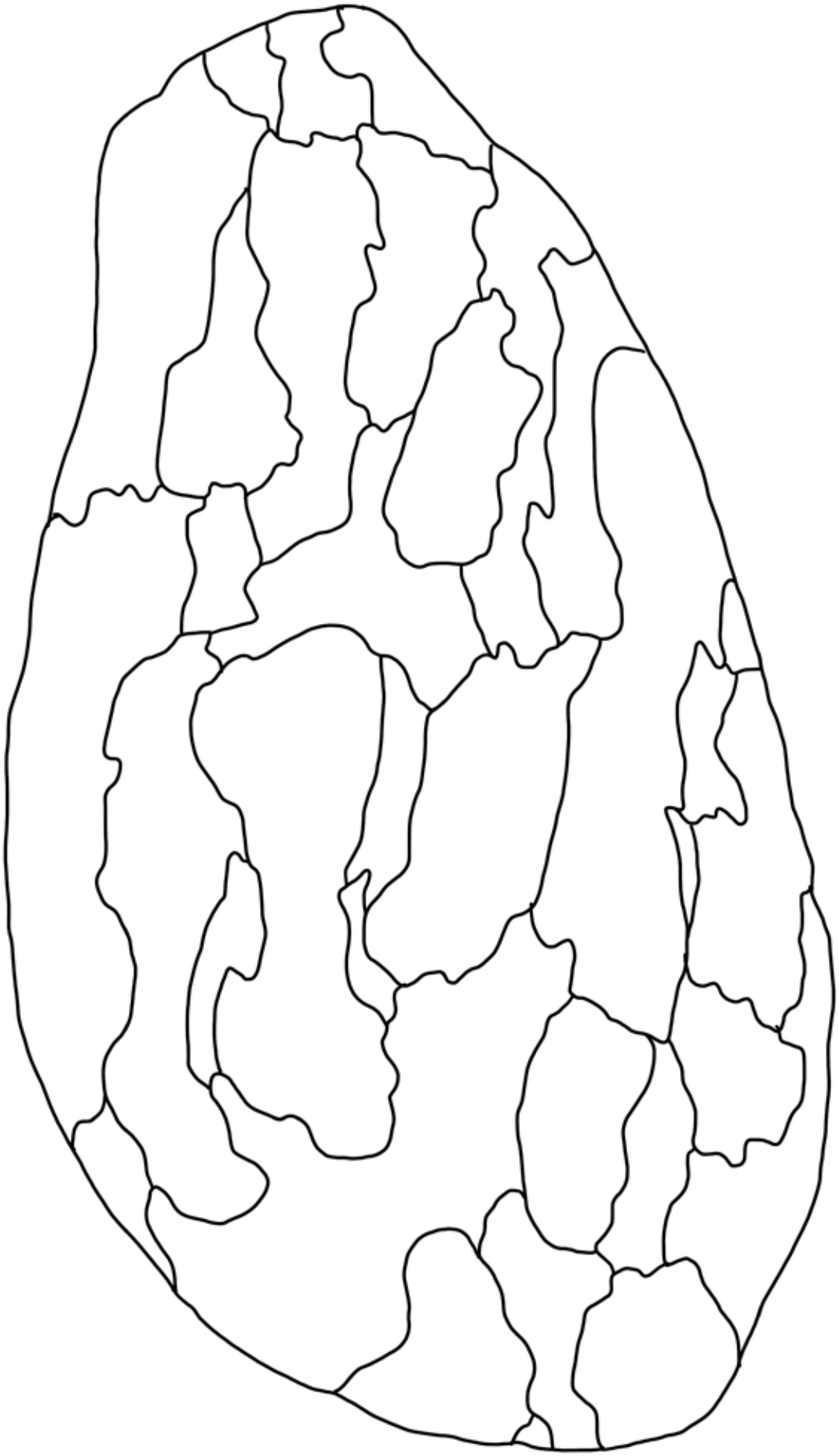
Anne Huntemer-Silveira
Parr Spinal Cord Injury Lab



Activity Clusters Primary Visual Cortex in Ferret

Taken from agglomerative clustering, pixels clustered by activity correlation.

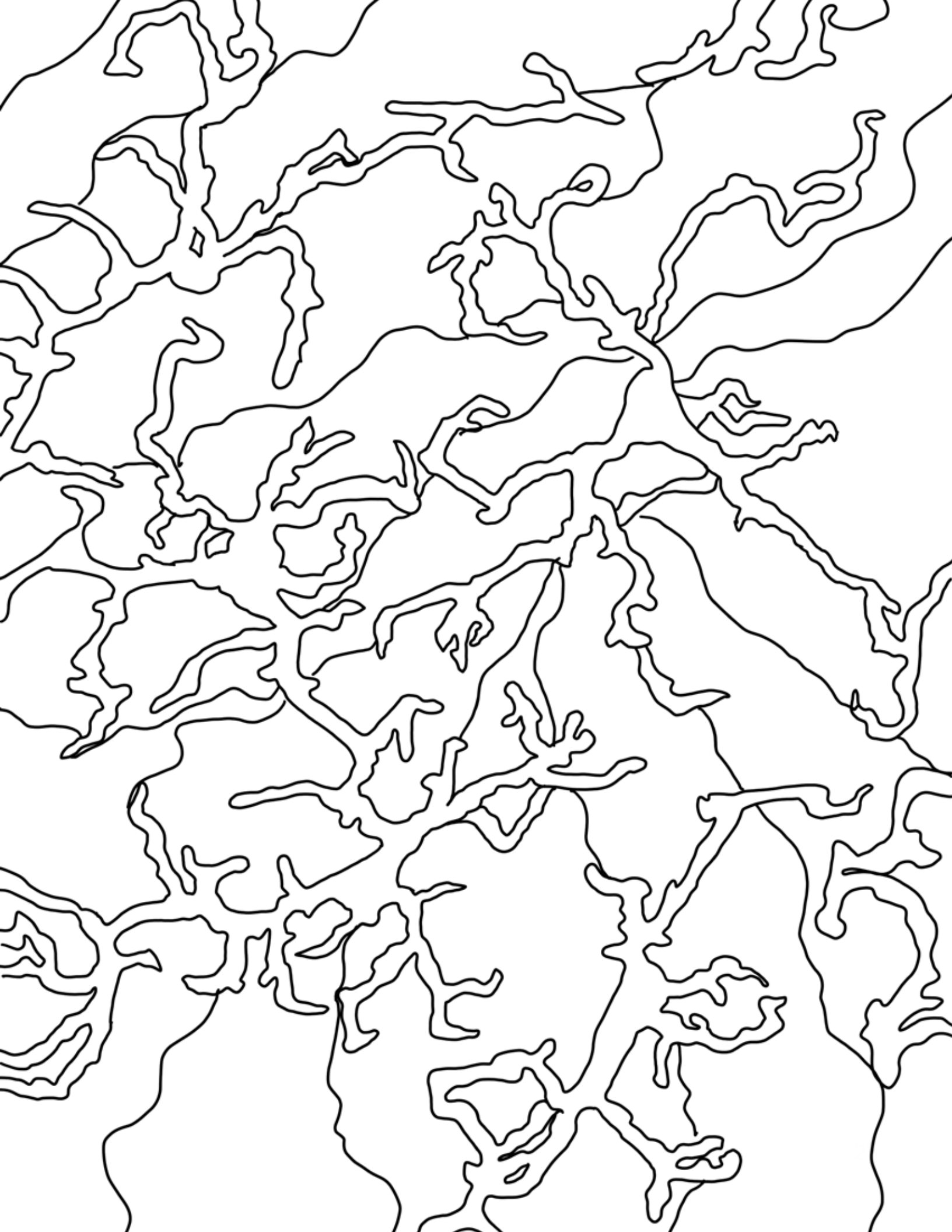
Luna Kettlewell and Dr. Gordon Smith
Smith Lab



Unraveling Microgliosis

Immunofluorescent imaging of the ventral horn of the spinal cord with labelling for Iba1, which stains macrophages. Quantification of microglial density and assessment of microglial branching are used as evidence that microglia are becoming reactive in neurodegenerative disease.

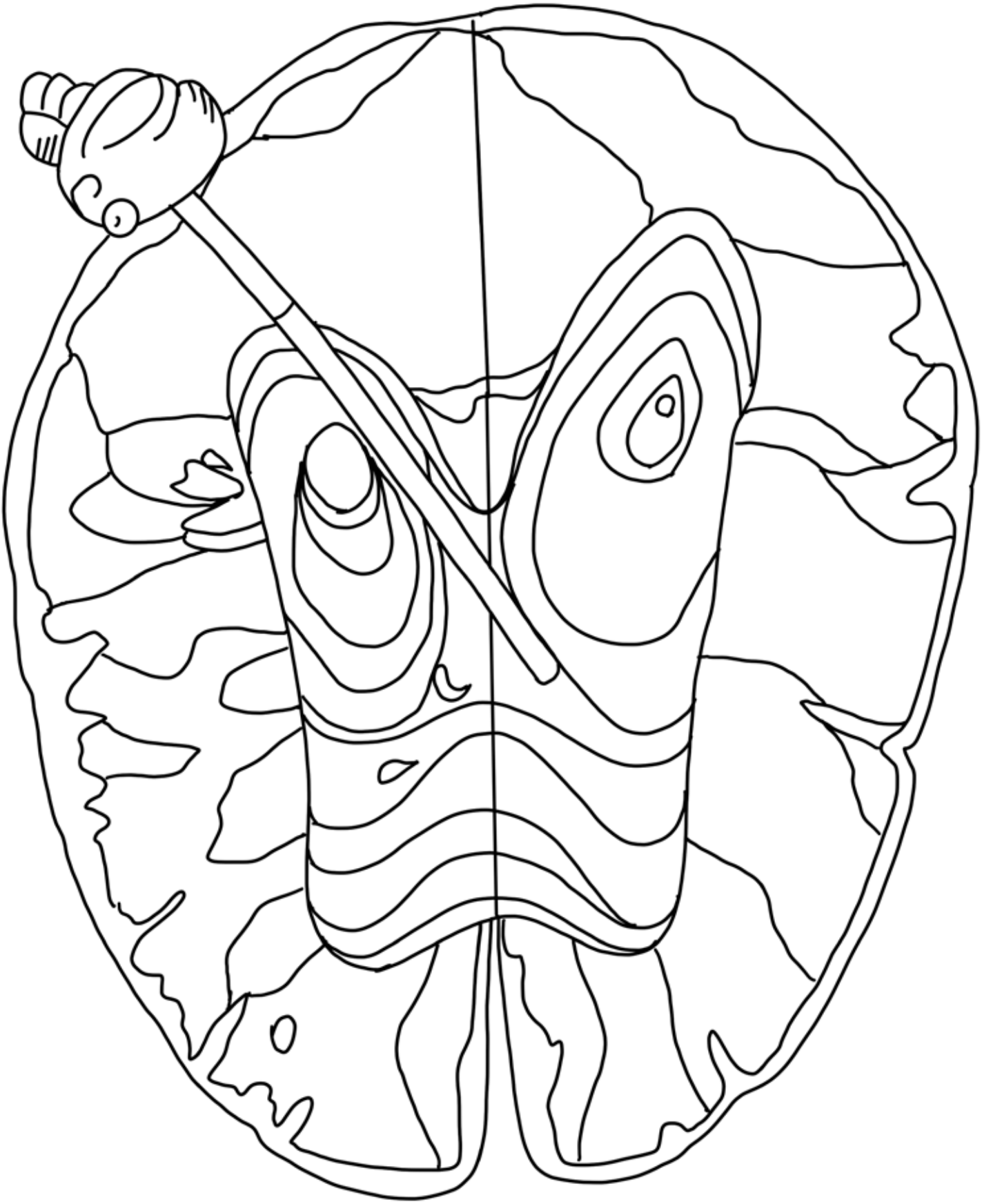
Carrie Sheeler
Cvetanovic and Orr Labs



A Weight Lifted

Lateral ventricles of a patient with normal pressure hydrocephalus after insertion of a shunt to drain excessive cerebrospinal fluid, rendered from a superior axial view of non-contrast CT image.

Sharada K. Sridhar
Uzma Samadani Neurotrauma Research Lab



Mouse Brain

Fluorescence staining of mouse brain with UNC-45A and DAPI.

Asumi Hoshino
Martina Bazzaro Lab