Comprehensive Neuroscience Center (CNC) cores

(Shelby Biomed. Res. Bldg., Zeigler Res. Bldg.)

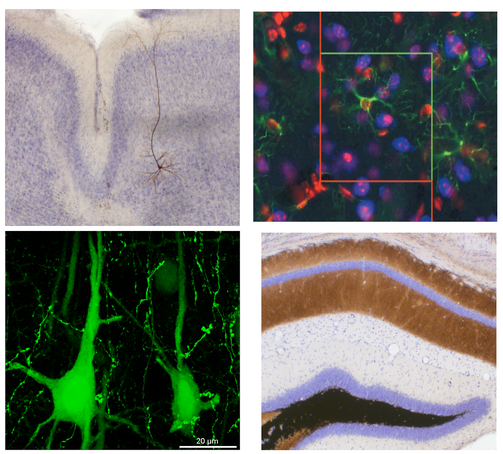
UAB COMPREHENSIVE NEUROSCIENCE CENTER
University of Alabama at Birmingham

The objective of the CNC Core is to provide state-of-the-art equipment and technical support for experimental projects using animal models in neuroscience research. By sharing technical expertise, equipment, facilities, and professional staff, this Core facilitates cross-project collaborations among different CNC laboratories.

Shelby 962

- **Microm Cryo-Star HM560V cryostat** for obtaining frozen semi-thin sections. An electronic, motorized cryostat with retraction that incorporates a unique refrigeration system for independent specimen and knife cooling.

- **Zeiss AxioImager upright brightfield and fluorescence microscope for automated Stereology**. Filters include: DAPI, GFP, CY3/rhodamine, and Texas Red. Dry and oil-immersion objectives. Equipped with a 5 megapixel Zeiss mRc5 camera along with Zeiss AxioVision software, and a Dell personal computer. Stereo Investigator software allows unbiased estimate of cell populations, and morphometric properties of biological structures.

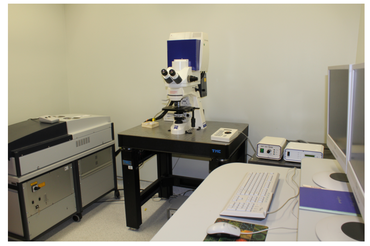


Shelby 1062

Image Analysis Workstations with *StereoInvestigator*, *Imaris*, and *NeuroLucida* for quantitative image analyses, including neuron tracing, 3D Sholl dendritic complexity/branching analysis, automated dendritic spine detection and morphological categorization, co-localization, and particle tracking, and unbiased stereological cell counting.

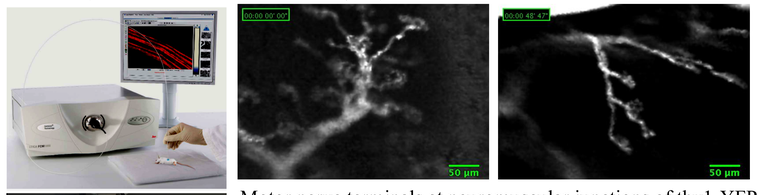
Shelby 972A

- **Zeiss Spectral 510-META Confocal** on a Zeiss Axioskop2 wide field fluorescence microscope equipped with a multi-line argon laser (458, 477, 488, 514nm) and two HeNe lasers (543 and 633nm), It is equipped with 2 PMTs and 1 META detector. The "Meta" detector allows for the discrimination between fluorophores with closely spaced or overlapping emission spectra.

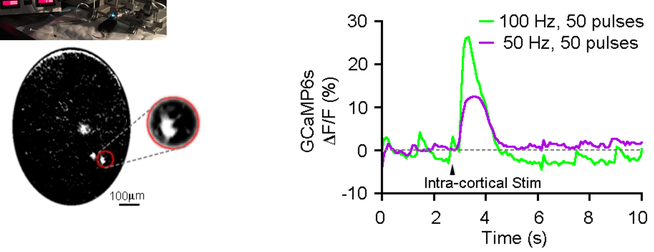


Shelby 1075C1

- **Leica FCM1000 *In vivo* Fiber-Optic Confocal system** designed to access virtually anywhere in a living animal, e.g. imaging deep brain regions and peripheral nervous system. Single-line excitation wavelength: 488nm. Fluorescence emission bandwidth: 505-700nm. Frame rate: 11 frames/second. Imaging resolution: 3.3µm. Probes: S300/B (diameter 300µm, field-of-view 300µm), S1500 (diameter 1.5mm, field-of-view 600x500µm).



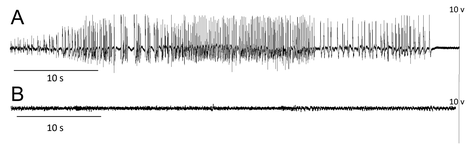
Motor nerve terminals at neuromuscular junctions of thy1-YFP mice (Scott Wilson lab)



mPFC neurons expressing GCaMP6s, responding to vHIP stimulation (Wei Li, Pozzo-Miller lab)

Zeigler 935

- **Video-EEG monitoring laboratory**. Rodent EEG, long-term and short-term, simultaneous in several rodents; funded by CNC, HSF, CIRC, and Neurobiology (contact Farah Lubin, Neurobiology, flubin@uab.edu)



A, Representative EEG of a seizure in a mouse intracranially-implanted with human glioma cells, 15 d post-implantation. B, Baseline recording from the same animal

Molecular Biology (Shelby 9th floor)

- BioRad "Gene-Gun" for biolistic transfection and fluorescence labeling of adherent cells and slices (neurons, glia)
- Amaxa electroporation for transfection of cells in suspension
- Tissue culture room, cDNA plasmid expansion

Optogenetics

- Plexon Blue and Yellow LEDs with bare fiber optic for *in vitro* slices
- Plexon Blue and Yellow LEDs with fiber optic launch for cannulas and commutator for *in vivo* behaving rodents

Coming soon! *In vivo* imaging in freely moving rodents and and automated behavioral testing

- Inscopix *In Vivo* Calcium Imaging system
- Tecniplast Digital Ventilated Caging system

Fees per service

• Confocal microscope	$10/hour
• Stereology microscope	$10/hour
• Image analysis workstations	$5/hour
• Initial training	$20/hour

Billing quarterly to Oracle account. Fees waived to undergraduate students performing formal research projects (e.g. UNP, PREP, Science & Technology)

Contact Information

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Online booking in qReserve: "CNC Cores"