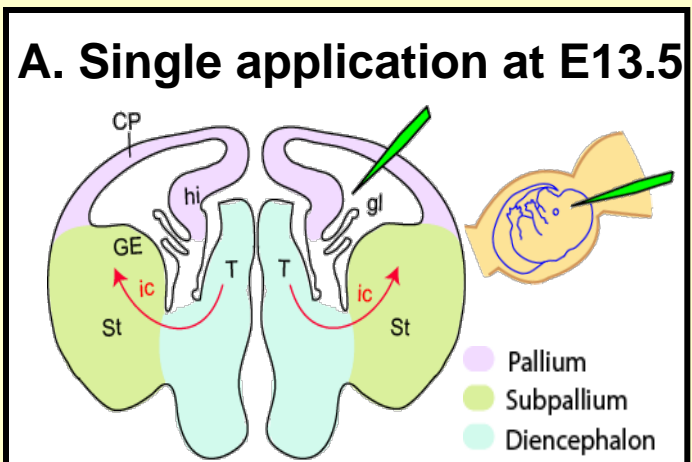
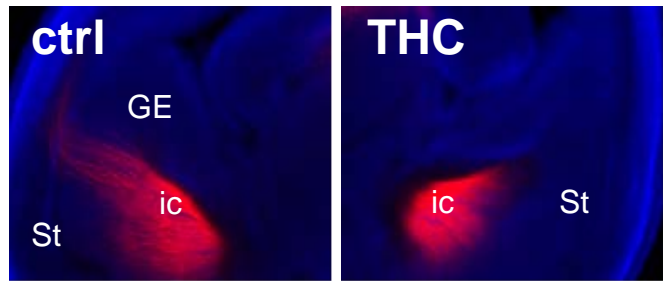


Prenatal cannabis exposure leads to defective axonal outgrowth

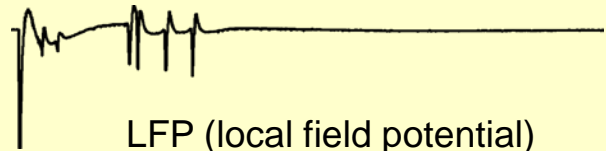
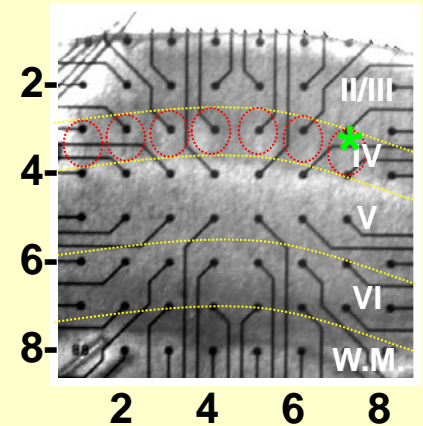
Data
Morphology
Electrophysiology



TCA at E16.5



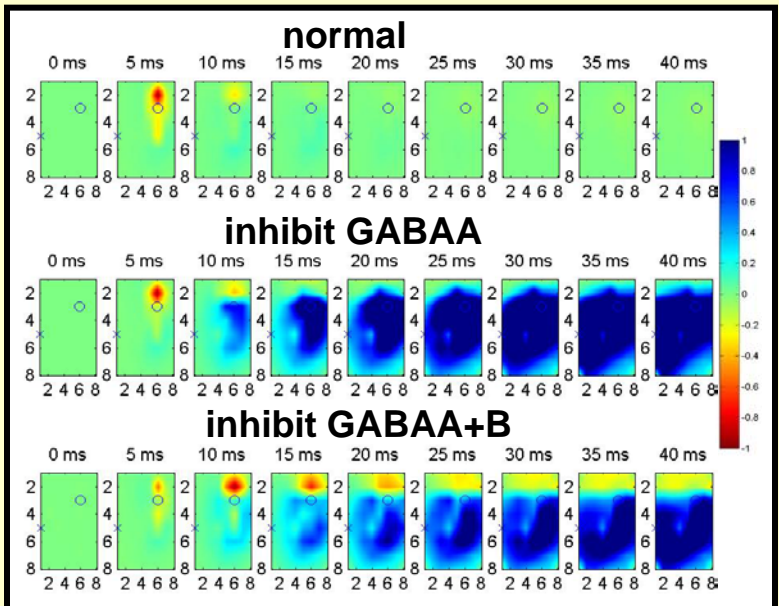
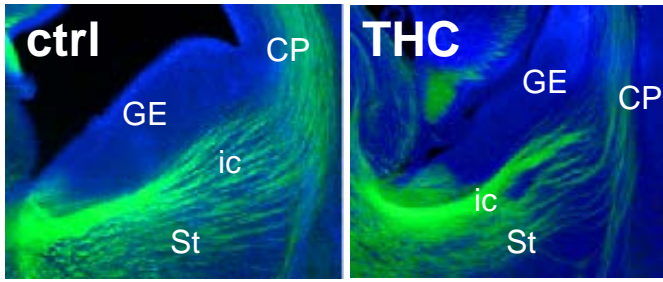
Multiple Electrode Array



Hui-Chen Lu, PhD



B. Chronic treatment from E13.5 to E16.5



Currently, we are using the following databases (very traditional) to acquire external information.

PubMed www.ncbi.nlm.nih.gov/sites/entrez

EMBL-EBI www.ebi.ac.uk/

genepaint.org

Allen Brain Atlas mouse.brain-map.org/

GENSAT <http://www.gensat.org/index.html>

Q: In conducting analyses, how do you relate your own data and resources to those generated or used by other members of your research community?

When others have done similar measurements, we will use similar methods to quantify data to compare to other's data.

Standard software: Image J, pClamp, Axograph, etc.
Paxinos Mouse Atlas is used for annotating brain regions.

For morphological data, we use Image J or programs written up by collaborators to quantify our data.

For electrophysiology data, we use Clamp-fit and custom-made programs written in the MatLab environment.

Problems:

The original data usually aren't available to the scientific community. In publications, only a small fraction of acquired data will be presented. It would be good to allow public access to the original data in a standardized format for other investigators who might want to re-analyze for different parameters or using different methods.



Q: What steps do you currently take to enable others to discover data and resources generated from your work, and any associated workflows associated with their generation?

We share tangible tools, e.g., cDNAs / shRNA clones, tissue, and transgenic mice with large number of scientists. We also train other scientists in the experimental procedures established in my laboratory.

Currently, we only share data upon request. Most the data files are stored on external hard drives and organized chronologically and in separate folders for each individual lab member.

We have been asked by NeuroMorpho.org for the data of digitally reconstructed neurons. This task was difficult for us because our data were not collected with this request in mind and the person who generated the data had already left my lab at the time of the request. In addition, there were no financial resources available to hire someone to input all the data into the database.



Q: What are the biggest technical and community obstacles which make it difficult for you to discover and share data and information about resources?

1. Most laboratories have different kinds of equipment and procedures for data acquisition. For example, in electrophysiology experiments, the solution content and temperatures might be different. In addition, the data is often acquired at different frequencies and filtered differently, making direct comparisons difficult.
2. Data validity. For morphological data, the NA value of the objective and the quality of microscope and camera can make huge differences in image quality. In addition, technical errors during histological procedures may compromise the validity of data. How are “bad data” eliminated?
3. Standard and easy-to-follow methods for uploading data directly from popular data acquisition programs aren’t available for many databases. There is no strong incentive for uploading original data into the public domain after getting a paper published.
4. Small laboratories don’t have the capability/resources to maintain a web site to share large numbers of large files.