

Detailed Equipment List

The following is a list of materials required to complete this experiment. We are not including basic laboratory supplies (i.e. pipettes, tips, ice buckets, PPE, glassware, etc.)

*In-house constructed

Solutions

95%O₂/5%CO₂ gas mixture (carbogen), regulator (Matheson #8L-580), tubing (Tygon R-3603) & connectors

Standard fish tank bubble stones (18X30mm) for aerating solutions

Tubing clamps to control gas flow

Standard ACSF (1X)	Conc. (mM)
NaCl	119.0
KCl	2.5
NaH ₂ PO ₄	1.0
NaHCO ₃	26.2
Glucose	11.0
CaCl ₂ (2 M stock)	2.0
MgCl ₂ (2 M stock)	2.0

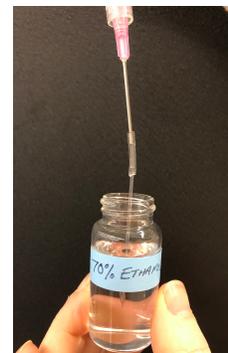
Electrodes

*Bipolar stimulating electrode (right) (modified according to Paul et al., 1997) [twisted .005" SS Teflon coated wire (A-M Systems #7915) housed in cannula & mounted inside a syringe barrel]



Recording electrodes (bubble test: right)

- Borosilicate Glass Capillaries (WPI #1B120F-4)
- Small glass container (i.e. scintillation vial or beaker) for bubble test
- 70% ethanol
- 10cc syringe
- 18 gauge needle
- Tubing (Tygon 1/32" ID; 3/32" OD) to connect syringe to electrode
- 1cc syringes and needles for backfilling electrodes and chucks



Dissection and brain preparation

Anesthesia bell jar

Isoflurane

Brain dissection tools

- Large scissors for capitation (right)
- Small scissors (right)
- Micro spring scissors (right)
- Forceps (right)
- Small weight spatula (right)
- Plastic spoon
- Petri dish
- Single edge razor blade (for blocking brain)
- Whatman paper (55mm)



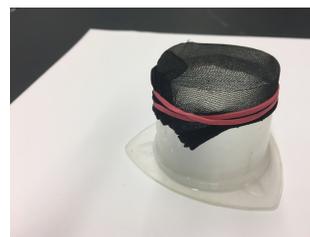
Hippocampal dissection equipment

- Stereo zoom microscope
- Petri dishes
- Micro spring scissors (FST 15070-08) (right)
- Small spatulas (right)



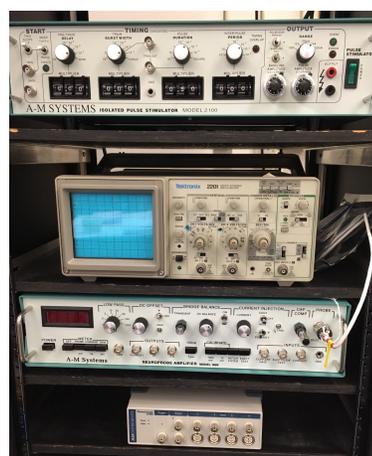
Tissue slicer (Stoelting #51425)

- Clean double edge razor blades
- Whatman paper (42.5mm)
- *Slice keeper (right; see also Fig. 1) constructed from:
 - plastic beakers (100mL) (one with bottom removed)
 - panty hose
 - rubber bands
 - glass beaker (250mL) for bubbling ACSF
- Transfer pipettes
- General purpose water bath maintained at 35-37°C



Electrophysiology Rig

- Anti-vibration table (room dependent)
- Stereo zoom microscope (ex. Nikon SMZ645) mounted boom stand
- 2 Micromanipulators (stimulating and recording electrodes)
- Isolated Pulse Stimulator (A–M Systems, Model 2100) (right, top)
- Neuroprobe Amplifier (right, 3rd down) & headstage (A–M Systems, Model 1600); electrode holder (chuck)
- Faraday cage - noise dependent. We have these, but worked without them.
- Submersible ground wire



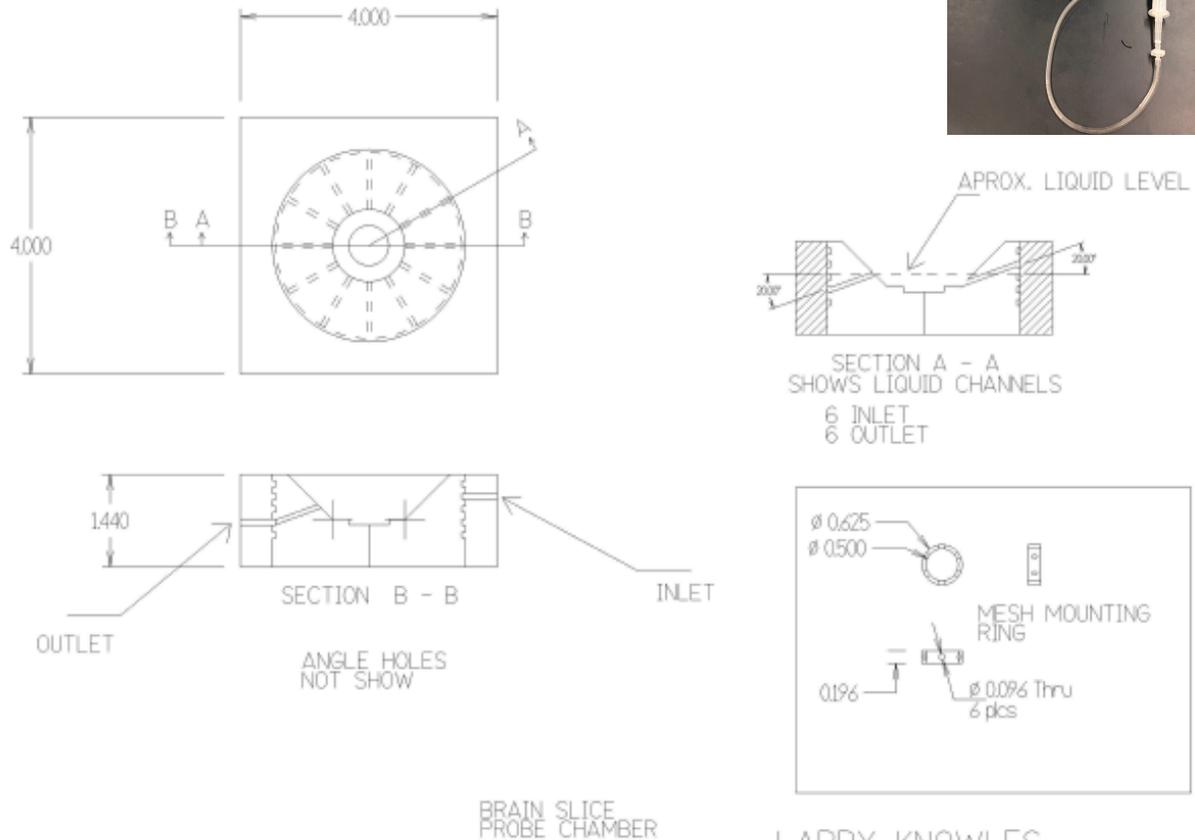
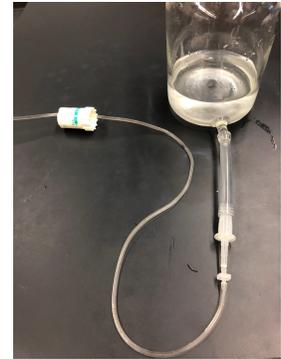
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Note: oscilloscope not used

Recording Chamber

- Gravity-fed perfusion jar connected via tubing (Bio Rad 1.6mm ID; 0.8mm wall) to I.V. flow regulator (Tuto drop-3) (right)
- Beaker for waste collection
- *Recording chamber (schematic below)



BRAIN SLICE
PROBE CHAMBER

LARRY KNOWLES
978-808-4428

Data acquisition and analysis

- PowerLab 4/26 (ADInstruments) (see electrophysiology rig photo above)
- LabChart 7 (ADInstruments)
- Computers (Mac or PC)
- Statistical software (Students choose software, but any of the following will do: JMP, STATA, SPSS, R, free online packages, etc.)