**FMOS PROCEDURE**

**General Practices**

1. Always handle mice with gloves on
2. Turn on main and local air and N2 for entirety of training period
3. Keep subject under observation – check for irregularities in behavior or performance periodically
4. Copy and paste python errors into a text file on the desktop (labeled “Python Errors”) & report in lab notebook and to supervisor
5. Keep neat lab notebook (see previous sessions for reference) and careful notes.
6. Work slowly and methodically – think about each step you are going through.

**Training Procedure** *– do this for each subject*

1. Update preferences in fmos\_preferences\_bonsai.py & lab notebook
2. Make sure main & local air are on (leave on for entirety of training period)
3. Make sure tank, main switch, & local switch N2 are on for entirety of training period
4. ODOR VIALS: Check olfactometer vials before running mice to make sure they are correct. All experiments should have odor vials in the following configuration unless otherwise specified: vial #6 = CONTROL, vial #7 = 1% pinene, vial #8 = 0.1% pinene, vial #9 = DUMMY
5. Inspect mouse (brief health check) and weigh in beaker on scale
6. Flip on laminarizer switch (labeled, far right above the rig) – do this before putting in mouse to reduce stress. This delivers constant airflow across the behavioral assay.
7. RECORDING SNIFFING: if recording sniffing, place head restraint platform in box and plug in thermistor pins. (see below)
   1. Gently scruff mouse below the nape of the neck
   2. Restrain by inserting headbar into slots of the platform holding down head and body
   3. Gently plug wire hanging from commutator into mouse’s headpins
   4. Make sure pins are aligned and check for signal on oscilloscope before releasing mouse
8. NOSTRIL OCCLUSIONS: if running a nostril-occlusion experiment, you will need to test the nostril stitch using the following procedure.
   1. Fill a blunt-tipped needle and syringe with chlorinated water from the mouse facility
   2. Gently scruff mouse below the nape of the neck
   3. Note which nostril is stitched and whether it is a sham (nostril still open) or stitch
   4. If stitched shut, place small bubble of water on top of stitch using the syringe
   5. If water seeps or bubbles, stitch is not sealed, do not run mouse and notify supervisor.
9. Place subject in behavior box, close and secure doors to behavior box, close rig door, and run appropriate program (please ensure rig doors shut evenly) – note ‘start time’ in lab notebook
   1. Trainer #1: trainer#1\_alternation.py
   2. Trainer #2: trainer#2\_odorassociation.py
   3. All other programs: fmos\_mastercode\_bonsai.py
10. Once python program says “Initializing Data Collection…” in the command console, go to your open bonsai program and press the green ‘play’ arrow
11. Use Bonsai video to monitor subject – if there are behavioral irregularities, see supervisor
    1. Sessions can be manually ended by selecting external window and pressing ‘q’

ENDING SESSION

1. Turn off the laminarizer air valve first to indicate to the subject that the session has ended.
2. Report notes in python command console. Write in full sentences, inside quotation marks, with no spaces at the end. Press enter.
3. Press ‘stop’ button (red square) in Bonsai program.
4. Record session statistics in the lab notebook (they should be reported in the command console of python)
5. Weigh subject and record final weight and approximate session end time in lab notebook.
6. Return subject to home cage and clean out rig box with bleach and then ethanol thoroughly.
   1. Paper towels and cleaning supplies are to your right on window sill
   2. Carefully clean nosepokes and walls
7. Update subject information in lab notebook & fmos\_preferences\_bonsai.py before putting in a new subject
8. Restart at Step #1 with next subject

**System Shutdown**

After you have run all subjects for the day, power down rig in the following order:

1. Carefully clean out rig with bleach and ethanol
2. Turn off laminarizer, local air, and main air
3. Turn of local N2, main N2, and N2 tank (first check with other rigs to ensure they are not using the N2)
4. Turn off lamps/behavior board, THEN teensies, THEN power strip (always turn off local before global)
5. Unplug camera (blue USB cable) from back of computer
6. Power off computer (except when running data backup)

\*\*BEFORE LEAVING LAB\*\*

**mice should be watered/inspected/returned to facility**

**\*\***

**boards should all be switched off (both locally and globally)**

**\*\***

**nitrogen tank should be CLOSED**

**\*\***

**lab lights turned off & door locked**