Matrix-Assisted Laser Desorption/Ionization Time-Of-Flight (MALDI-TOF)
Mass Spectrometer Standard Operating Procedure

Starting Procedure:

1. Turn on the small television with the power button on the bottom right.
2. Examine the bottom of the computer screen to make sure the pressure is in the green. If it is yellow or red, please contact the CBIC staff immediately.
3. Click the menu bar “Sample Plate” —> “Eject” —> “Eject”
   - Note: this takes a little while.
4. The sample plate has tiny holes on the edge. Slide it into the holder from the right, lining up the holes with the raised balls on the holder, and pushing it until it clicks.
5. Back on the computer, click “Sample Plate” —> “Load”
   - Under “Plate ID” choose the type of plate you have. This isn’t super critical, but it will help you locate where your samples are on the plate.
   - Click “Load”. Again, this should take a little while.
6. Note: If your plate has too much solvent or the system is wet for whatever reason, the pressure at the bottom may dip into yellow or red and a window might pop up saying that the pressure is too high. Don’t worry, just wait a minute for the system to pump further, then click “reset”. Only do this once or twice, really be patient and let it pump down. If the pressure is still too much, please contact the CBIC staff.
7. Next, we need to move to where our sample is loaded on the plate.
8. If you click on a location on the plate diagram on the bottom left of the computer screen, the plate will move close to there, which you can watch on the television.
   - Note: the arrow on the television indicates where the MALDI laser is aimed. That’s the part of your sample that will be detected.
9. More precisely move around the plate using the white joystick, and navigate to your plate.
10. On the computer, turn on the “High Voltage” by clicking on the lightning bolt icon.
11. On the left side of the screen, click on the small gray square by the directory and locate the folder where you want to store your data. Type in your filename for your data.
12. On the right side of the screen, set your preferences, paying attention to the Grid percentage, Delay Time, Mass Range, and Shots per Spectrum. Depending on your mass range, you’ll need to adjust the Grid and Delay Time. These two parameters will vary from sample to sample, and you may need to try a number of different settings to get optimum data collection.
    - Note: To get the best signal-to-noise ratio, remember to use fresh matrix for your sample, and properly mix them.
13. At the bottom of the preferences panel you can select a calibration file depending on the matrix you’re using.
14. To collect data, on the joystick press the fire button (the leftmost big square button). You will see flashing of the laser where it’s firing. While it’s firing, you typically do want to move the laser around the sample. If the laser is left in one place, all of the sample in that area will oblate, and you will lose signal.

Shutting Off:

15. Click the lightning bolt icon to turn off the “High Voltage.”
16. Click “Sample Plate” in the menu bar, then “Eject”, then “Eject” again. This process takes a minute.
17. After the machine has extended the sample plate, take your plate out.
18. On the computer, click “Sample Plate” —> “Load” —> “Load No Plate”. This tells the system to retract the arm but that there is no plate on it.
19. Lastly, turn off the television monitor.