## Mouse Tail Cuff Blood Pressure

This is a protocol for the measurement of systolic and diastolic blood pressure in conscious mice. Published in Krege et al., *Hypertension.* 1995;25:1111-1115. Up to 4 mice can be tested at a time. For each mouse the machine will perform 5 preliminary inflation cycles followed by 10 measurements. Mice should undergo 5-7 consecutive days of training at the same time each day. Once the standard deviation of the 10 blood pressures recorded is lower than 5 it is ok to start proper measurements. Proper measurements should be recorded on 10 consecutive days at the same time each day.

1. The equipment is located in Jordan Hall Animal House, room B043.
2. Turn on computer and blood pressure MC 4000 power unit, password: Pwd4Mouse!
3. Open MC4000 software located on the desktop and enter the information in the specimen log (S icon) experiment log (E icon) and personnel log (P icon).
4. Check there are no leaks or punctures in the cuff using the pressure test (hammer icon). Increase the pressure of tail cuffs to 150mmHg click "hold" and wait for a couple of seconds to make sure the pressure is maintained and then release the cuff pressure.
5. Click "Analysis Parameters" and select the following settings: Preliminary cycles = 5; measurement cycles = 10; minimum pulse amplitude = 20%; number of consecutive peaks = 70; ignore peaks smaller than = 0.5%; maximum pressure = 210mmHg; pulse timeout = 30s; time between measurements = 3.0s; systolic threshold = 20%; diastolic threshold = 50%; systolic signal criterion = 90%, 0.5s; diastolic signal criterion = 90%, 0.5s; platform temperature = 100F. Click "OK".
6. Place the mice onto the platform at the appropriate position so the tail is aligned with the tail cuff and place the black box gently over the mouse so to expose the entire tail and insert the tail through the tail cuff up and tape the tail firmly at the end.
7. Click on "go" (green circle at top left). Select the appropriate study, investigator and technician. Specify the identity of each mouse being measured. If there are empty channels select "none 1," "none 2" etc. Click "Done". This will start the measurements.
8. Check that the pulse pressure is being detected for each mouse. The pulse pressure will appear as a red line in a waveform. Make appropriate adjustments if necessary.
9. At the end of the recording session the computer will automatically generate a report of the data. You can select individual mice and click "Details" to view the raw data.
10. Select "Save all" and you can access the data from the computer for analysis later.
11. Return the mice to their appropriate boxes and wash the platform and boxes of any feces and urine.
12. Repeat steps 7-14 for the next four mice.
13. To extract/export data from the software click on "report generator" and enter/select the technician and any other details you need to define your data.

Select the date and time range during which the data was collected and click "show data."

14. At the top left of the data sheet select "file" and "export CSV." Save data in the appropriate folder.
15. You can now exit the MC400 data sheet and program and find the data sheet in excel format where you saved it.