May 14, 2019

Working

UC Davis - Blood Pressure by Tail Cuff

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dx.doi.org/10.17504/protocols.io.yetften

Mouse Metabolic Phenotyping Centers
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ABSTRACT

Summary:

This technique has been used routinely for the non-invasive measurement of blood pressure in rats, and more recently in mice. The technique provides a good estimate of actual systolic pressure. Hypertension major risk factor for stroke myocardial infarction, heart failure, aneurysm of the arteries, peripheral artery disease and is a cause of chronic kidney disease and erectile dysfunction (ED)

Modified from: UC Davis MBP SOP-CODA Blood Pressure, Todd Tolentino 11/02/2012

EXTERNAL LINK

https://mmpc.org/shared/document.aspx?id=110&docType=Protocol

MATERIALS TEXT

Reagents and Materials:

- Rodent holders
- Warming plate
- High throughput controller (8 channel)
- PC equipped with the CODA v3.0 software from Kent Scientific, Inc
- Gloves
- Paper towels
- Lab coat
- 10% Nolvasan disinfectant
- Coverage Plus working solution
- Log sheet and pen

BEFORE STARTING

1. Transfer mice from room V115 (vivarium) to room 114 prior to testing for acclimation.

2. Turn on warming pad to level 3 and set timer for 9.5 hours.

1 Mouse configuration:

1. Place mouse into an appropriate sized restrainer.

2. Place the tail through the groove of the back of the restrainer and tighten screw.

3. Feed the tail through the occlusion cuff first and then through the VPR cuff second. Ensure a snug fit but do not force the tail through either cuff as this will cause constriction and yield false pressure readings.

4. Allow mouse to sit on the warming pad until a body temp of 32-35ºC is achieved. Use the infrared thermometer at the base of the tail to read the subject's body temperature.

5. Make sure the body temperature does not exceed 39ºC.

2 Computer Setup

1. Click on the CODA icon on the supplied laptop.

2. A window will appear with a line that reads: "CODA 8 – Channels 1-8 (8)" in red letters.
   Highlight this line and click on "Use these devices."

3. Click on File>New>Experiment and a "Begin New Experiment" window will appear.

4. Type in the name of the experiment and click next.

5. A window labeled "Basic Session Info" will appear.

6. Enter the session name and set the following parameters:
   - Number of Sets: 1
   - Time Between Sets: 00:00:30
   - Cycles per Set: 20
   - Time Between Cycles: 00:00:05

7. Click next and a "Specimen Selection" window will appear.

8. Click "Manage Specimens" and enter the animal IDs. Use the + button to add additional mice.

9. Type in your name under the technician section.

10. Save this information and close the window when completed.

11. Under the "Specimen Pool" highlight each animal and click the right arrow to assign them to a channel on the right side of the screen.

12. Click next and a window labeled "Session Parameters" will appear.

13. Set the following session parameters:
    - Max Occlusion Pressure: 250
    - Deflation Time: 20
    - Min Volume: 15

14. Under the "Display Style" function, choose one channel per graph.

15. Click next and a window labeled "Session Script" will appear.

16. Make sure the occlusion wait time is set at 5000.

17. Ensure all cuffs are properly secured and that the mice have reached a temperature of 32-35ºC.

18. Click next, then finish to start the experiment.

19. Change gloves between groups of mice.

20. Once the experiment is over, remove mice and wipe off each restraint 10% Nolvasan before adding more mice.

21. Once all experiments have completed, use 10% Nolvasan to clean equipment (do not use alcohol) and wipe the surrounding bench top with Coverage Plus working solution (diluted to 1/256 in water).