

肺阻力與順應性測試系統 Resistance and Compliance System

1. Purpose

- 1.1 To examine the lung resistance and compliance of a mouse by using resistance and compliance system (RC system).

2. Safety Requirements

- 2.1 General laboratory procedures should be followed, which include: no eating, no chewing gum, no drinking, and no applying of cosmetics in the work area. The researcher must wear the laboratory coat, gloves and a mask during the experiment.

3. Associated Documents

- 3.1 <https://www.datasci.com/products/buxco-respiratory-products/finepointe-resistance-and-compliance>
- 3.2 https://www.datasci.com/docs/default-source/default-document-library/rc-brochure.pdf?sfvrsn=b3371665_4

4. Notes

- 4.1 The mice must be maintained in a controlled environment with stable temperature, humidity, and air pressure. To Keeping minimal disturbing and stress on the tested mice whenever is possible.
- 4.2 The mice required to be deep anesthesia and tracheal intubation. We need to pay attention to the depth of anesthesia and tracheal intubation.
- 4.3 The tracheal intubation may cause the mice death.
- 4.4 The mice will be sacrificed after the RC system test.

5. Quality Control

- 5.1 The mouse shall be habituated in the testing room 15 min before the test.
- 5.2 To calibrate RC system before the starting of the measurement.

6. Equipment

- 6.1 A computer for RC system.
- 6.2 A calibration water bottle of RC system.
- 6.3 A stage of RC system for mice.
- 6.4 A chamber of RC system.
- 6.5 A nebulizer of RC system.
- 6.6 A controller of RC system.

7. Supplies

- 7.1 Cap.
- 7.2 Gloves.
- 7.3 Facial Mask.
- 7.4 Ethanol 70%.
- 7.5 Paper towel.
- 7.6 Kimwipes.
- 7.7 HOCl.
- 7.8 PBS
- 7.9 Methacholine

8. Procedures

- 8.1 To turn on the computer and RC system.
- 8.2 The mouse shall be habituated in the room for 15min before the test.
- 8.3 To calibrated the RC system by calibration water bottle.
- 8.4 To make mice anesthesia and tracheal intubation with special cannula.
- 8.5 To put the mice on stage of RC system with temperature control.
- 8.6 To connect the special cannula to the RC system. The RC system will control the mice breathing and experimenter needs to confirm the mice breath consistently with RC system.
- 8.7 To close the chamber and confirm the system was closed.
- 8.8 To spray aerosol of PBS or Methacholine for 15s (time can be adjusted by user requirement).
- 8.9 To record respiratory data for 3min (time can be adjusted by user requirement).
- 8.10 Allow a 5-min resting (or longer, depending on the mouse respiration condition and user experimental design) before next procedure.
- 8.11 Repeat steps 8-10. The order of neutralization is PBS 、Methacholine 5 、10 、20 、40 mg/ml for mouse inhalation (up to 4 different Methacholine concentrations).
- 8.12 To sacrifice the mice.

