

## **Metabolic Rate-CLAMS 新陳代謝率-CLAMS**

### **1. Purpose**

- 1.1 Columbus Instruments' Comprehensive Lab Animal Monitoring System (CLAMS) allow the measurement of VO<sub>2</sub> consumption, VCO<sub>2</sub> production, RER and Heat. The animals are placed in a CLAMS cage for 1day~7days with free access to food and RO sterile water.

### **2. Scope**

- 2.1 Individuals who have been trained in TMC animal room must follow this procedure.

### **3. Safety Requirements**

- 3.1 General laboratory procedures should be followed which include no eating and no drinking in the work area. Laboratory coats and gloves must be worn at all times in the work area.

### **4. Quality Control**

- 4.1 Calibrate and run the CLAMS system according to the manufacturer 's specifications (see CLAMS Hardware/ Software Operating Instructions).

### **5. Equipment**

- 5.1 Special animal cages adapted to the system configuration.
- 5.2 Animal wheel activity monitoring system.
- 5.3 A SSP pump.
- 5.4 Sensor units containing the necessary equipment for measuring O<sub>2</sub> and CO<sub>2</sub> concentrations and flow.
- 5.5 An air ventilation pump.
- 5.6 CLAMS module of the software package.
- 5.7 The temperature enclosure.

### **6. Supplies**

- 6.1 Disinfectant (70% alcohol solution and HOCL).
- 6.2 Gloves.
- 6.3 RO sterile water.
- 6.4 Chow food and high-fat diet.
- 6.5 Bedding.
- 6.6 Hand towels.
- 6.7 Weight scale.
- 6.8 Pens and Marker pens.
- 6.9 Tweezers.

### **7. Procedure**

- 7.1 Prepare and calibrate the CLAMS apparatus according to the manual.
- 7.2 Weight each mouse individually and record its weight before the start of measure.
- 7.3 Place each mouse individually in CLAMS cage with free access to food and RO sterile water.
- 7.4 Start the measurement of CLAMS. There is a 12:12 hours light/dark cycle in CLAMS cage (AM7:00/PM7:00).

TMC-M-001

7.5 At the end of the experiment, place mice in their original cages and clean up and disinfect the CLAMS system.

