Body Temperature Monitoring 體溫檢測

1. Purpose

1.1 To detect and examine the heat radiation on the body surface of a mouse with NFC F30S or P384A.

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. Laboratory coats and gloves must be worn at all times in the work area, unless the protocol specifically describes the appropriate attire for the procedure.

3. Associated Documents

3.1 http://www.chct.com.tw/

4. Notes

4.1 The mouse must be in the control environment, like the temperature, humidity and pressure, and put no stress on the mouse whenever is possible while measuring.

4.2 The temperature of a mouse is age/sex/strain dependent. It is important to keep these parameters comparable throughout a single experiment.

4.3 The measurement of mouse body surface temperature is largely affected by feather coverage. Thus, it is important to compare the data between mice with equivalent feather coverage.

4.4 To make sure the temperature map can be precisely shoot, we only analyze the temperatures of head, truck, and eyes. We do not provide data analysis for other body regions of sub-regions. If the body surface temperature of other regions is required, please discuss with the TMC RA for a custom-made experimental design.

5. Quality Control

5.1 Warm up the NEC F30S for 15 min before experiment.

5.2 Proofread and correct the NEC F30S for 15 min before measurement.

5.3 P384A provides with automatic calibration capability

6. Equipment

6.1 NEC Infrared Thermal Imager Thermo shot F30S

6.2 P384A

6.3 IRM F30S

6.4 Thermo data Analysis System for F30S and high function data Analysis System for P384A

7. Supplies

7.1 Cap

7.2 Battery

7.3 Gloves

7.4 Mask

7.5 Ethanol 70%

7.6 paper towel

8. Procedures

■F30S procedures

8.1.1 Pack into the battery, and open the power, keep the lens cap covered at this moment.

8.1.2 Wait for five minutes, and then open the lens cap and warm up ten minutes continuously.

8.1.3 Put the mouse into the container or hold the mouse on hand to detect and examine the temperature, and NEC F30S detection distance is 34 cm.

8.1.4 Before we take the image, push shoot button twice quickly to proofread the NEC F30S.

8.1.5 When we decide the area to shoot, press the button shortly to fix the image and then press the button long enough to store the image.

8.1.6 The stored image can be analyzed with software.

■P384A procedures

8.2.1 Turn on the computer to establish the connection between the computer and P384A.

8.2.2 Choose the required function from the software

8.2.3 Put the mouse into the container or hold the mouse on hand, and then detect and examine the temperature within 1 m distance by using P384A

8.2.4 Take images of the interested area by using P384A under computer control

8.2.5 Analyze the images with software

9. Procedures of cold treatment

9.1 We take the infrared image at room temperature.

9.2 Treat the mouse with cold stress at a 4 0C cold box as requested by the users, and then take the infrared image.

9.3 We transfer the mouse into a pre-cooled beaker (on ice for 15 minutes), in which the beaker is placed in a box filled with ice cubes that height is no less than 2 centimeters from the upper flange of the beaker.

9.4 We take the infrared images of mice at the condition of step 9.3.

9.5 When we take the infrared image, we only choose head, trunk, and eyes.

9.6 We take the infrared image in 1.5 minutes, and then put the mouse back to the 4 0C cold box.

9.7 Repeat the steps of 9.2~9.6, until the total treatment period is completed.