SANGER INSTITUTE
STANDARD OPERATING PROCEDURE

SUBJECT: Weigh Mice for Phenotyping Procedures - V1

SOP Number: SOP0045	To be reviewed:	
Author(s):	Signed:	Date:
Editor:	Signed:	Date:
Risk Assessor:	Signed:	Date:
Date of Implementation:		

INTRODUCTION:

The purpose of this procedure is to obtain body weight measurements from wild-type and genetically altered mice.

ABBREVIATIONS:

DCF = Data Capture Form
LAA = Laboratory Animal Allergens
NACWO = Named Animal Care and Welfare Officer
PAF = Project Authorisation Form
PIL = Procedural Individual Licence
PPE = Personal Protective Equipment
PPL = Procedure Project Licence
QC = Quality Control
RA = Risk Assessment
RSF = Research Support Facility
SMP = Sick Mouse Procedure
SOP = Standard Operating Procedure

QUALITY CONTROL (QC) DURING PROCEDURE:

Refer to the table below for approved QC fail comments steps to be used during procedures.
If a value has been collected leave on the Data Capture Form (DCF) and then apply the fail reason from below;

In-Life Procedures:

Problem / Issue	QC fail reason
At any point during the procedure the mouse is deemed sick and processed through Sick Mouse Procedure (SMP)	Fail whole DCF as 'Sick mouse' – for all tests that day

Mouse incorrectly scheduled at wrong week	Fail whole DCF as 'Scheduling Issue'
Insufficient anaesthesia level affects the whole test DCF	Fail whole DCF as 'Anaesthesia Issue'
Insufficient anaesthesia level affects specific parameter(s)	Fail parameter(s) as 'Anaesthesia issue'
A welfare issue makes it impossible to collect specific parameters	Fail parameter(s) as 'Welfare issue'
Parameters affected by delays or noise due to fire alarms	Fail parameter(s) as 'Fire alarm'
An equipment failure affecting specific parameters	Fail parameter(s) as 'Equipment failure'
A software issue affecting specific parameters	Fail parameter(s) as 'Software failure'
A procedural error which affects data collection	Fail parameter(s) as 'Manual error'
Parameter cannot be assessed	Fail parameter(s) as 'Readout not possible'
Wrong value has been entered which cannot be re-measured or accounted for	Fail parameter(s) as 'Erroneous data'
Glucose meter unable to record high blood values	Fail parameter(s) as 'Meter reading HI'
Glucose meter unable to record low blood values	Fail parameter(s) as 'Meter reading LO'
Fighting occurs prior to or during data collection	Fail parameter(s) as 'Fighting during procedure'
Parameter on the current DCF is not required for that specific test/pipeline	Fail parameter(s) as 'Not required'

<u>HEALTH & SAFETY:</u>

This procedure is covered by the following Risk Assessment (RA):

Name: WTSI-3332
Assessment Title: Basic Mouse Procedures
Assessor:
Approver:

- Appropriate Personal Protective Equipment (PPE) is to be worn at all times when handling animals. This includes:
    - Overshoes
    - Gown
    - Gloves
- In addition to the above, when sources for Laboratory Animal Allergens (LAA) (animals or soiled cages) are not contained within Local Exhaust Ventilation Systems (change stations, fume hoods or downflow tables), a respiratory mask, for which you have passed a face fit test, must be worn.
- Lone worker alarms should be used when working alone.
- This procedure can only be performed during Research Support Facility (RSF) core hours (7:30am-7:30pm).
- All electrical equipment is to be inspected for damage before use.

RESPONSIBILITIES:

All staff performing this procedure are responsible for ensuring that this Standard Operating Procedure (SOP) and accompanying Risk Assessment have been read, understood and where applicable is followed in accordance with the relevant Procedure Project License (PPL). All staff should be trained and competent to perform the procedure, where applicable they should also be licensed to perform the procedure with a valid Procedure Individual License (PIL).

For secondary phenotyping, seek confirmation with project manager for deviations from this SOP. Any deviation will be detailed in the Project Authorisation Form (PAF).

RESOURCES:

Equipment:

1. Balance
2. Weighing container
3. Techniplast Interactive Cage Change Station
4. 70% Ethanol **Hazardous substance: highly flammable.**
5. Hydrex Pink **Hazardous substance: highly flammable.**
6. Hydrex Hard Surface Spray **Hazardous substance: highly flammable.**
7. Tissues
8. One clean cage per cage of mice tested
9. One nestlet per cage of mice tested
10. Diet (as defined by pipeline)
11. Fun tunnel
12. Chew blocks

Associated SOPs/Documentation:

- **EQ18** – Use of Tecniplast Interactive Cage Change Stations
- **SOP0101** – Taking and Returning Cages for Procedures
- RSF weekly worksheet
- Weekly weight record sheet
- Equipment QC Tool excel spreadsheet

Staff: This task can be completed by 1 phenotyper.

NOTE:

The frequency of weights taken varied dependent upon which pipeline the mice were on.

On Pipelines 1 & 2, weights were recorded manually, with the software to transfer the weight to the database only coming in on Pipeline Mouse GP. The same is true for the 5 second average weight.

PROCEDURE:

Before performing any tests verify this is the correct set of procedures at this time point in the pipeline or project, by consulting the cage card(s).

1. **Prepare balance**

    1.1. Ensure balance is on a flat and level surface with the air bubble below the display screen centred within the viewing aperture. The screen should display 0.0 with ANIMAL/READY alternating below. This indicates the 5 second average measurement option has been turned on.

    1.2. Where available, connect the balance to a computer with 'CPS Plus PRO' software.

2. **Obtaining weight measurements as part of a procedure.**

    2.1. Wearing gloves, gown, overshoes, ==and where available use a Techniplast Interactive Cage Changing Station (refer to SOP EQ18 Use of Tecniplast Interactive Cage Change Stations). Where a change station is not available, wear a mask that has been face fit tested.==

    2.2. At the correct point of procedural workflow place mouse in weighing container on balance and allow the 5 second countdown to complete.

    2.3. Record weight according to current DCF or using automatic upload where available by pressing the "Print" button on the balance.

    2.4. Clean weighing container with 70% ethanol or Hydrex Hard Surface Spray before continuing with next cage.

3. **Obtaining weight measurements which are not part of a procedure.**

    3.1. Wearing gloves, gown, overshoes, ==and where available use a Techniplast Interactive Cage Changing Station (refer to SOP EQ18 Use of Tecniplast Interactive Cage Change Stations). Where a change station is not available, wear a mask that has been face fit tested.==

    3.2. Refer to the RSF weekly worksheet to identify the mice that require a weight measurement.

    3.3. If there is no network connection or you're unable to access a computer, record the cohort name, cage number and the ear marks of mice to be weighed on the Weekly Weights record sheet.

    3.4. Identify the mouse to be tested and place it in the weighing container on the balance and allow the 5 second count down to complete.

3.5. Record this read-out on the database either via the CPS plus PRO software where a connection is available or enter the weight manually. If there is no computer or network connection available record the weights on the sheet started in step 3.3.

3.6. Return the mouse to the cage.

3.7. Repeat step 3.4-3.6 for subsequent mice from the same cage.

3.8. Perform cage clean as detailed on the RSF weekly worksheet.

3.9. Clean mouse container with 70% ethanol before continuing with the next cage.

3.10. Repeat steps 3.2-3.9 for all cages to be weighed.

3.11. When all cages that require weighing on that day have been completed:
   3.11.1. Make a record of the racks that have been cleaned and topped up with food in the Day Book.
   3.11.2. Enter the weights into the database if recorded on a weight record sheet.

3.12. If a mouse has lost more than 10% of its previous body weight and the previous weight matches the weight history, re-weigh the mouse to make sure that the original read-out is correct. If the second read-out matches the first, inform a Named Animal Care and Welfare Officer (NACWO).

4. **New cohorts going onto High-Fat Diet on Pipeline 1.**

   4.1. On this pipeline, new cohorts were delivered at 3 weeks of age on chow diet. Weekly weights started at 3 weeks and the cohorts were then transferred to the Western RD diet at 4 weeks of age at the second weight.

   4.2. Perform steps 3.1-3.5 as normal.

   4.3. Place the mice into a new, clean cage with a new nestlet and the old fun tunnel, checked to be clear of food.

   4.4. Empty the cage grid of chow pellets before transferring across to the new, clean cage. Add a handful of Western RD diet.

   4.5. Place a few pellets of Western RD diet on the floor of the cage.

   4.6. Place 3 chew blocks on the floor of the new cage.

   4.7. Add the High-Fat Diet procedure to the database.

5. Once all weights have been taken and recorded on the database, clean all equipment, surfaces and the floor. **Transfer all waste to a yellow offensive waste bag or clearly labelled waste container.**

6. **Balance calibration.** Once a week all the balances currently being used must be calibrated to ensure they are reading correctly.

6.1. Collect the calibration weights (100g, 10g and 0.1g).

6.2. Prepare the balances as described in step 1.1. Ensuring they are reading 0.0 and animal mode is selected.

6.3. Place the 100g and 10g weights on the balance, one at a time, and allow the 5 second countdown to complete. The balances should read 100g and 10g for each respective calibration weight.

    6.3.1. If they are not reading the same as the calibration weight, remove the weight and reset the balance to 0.0 and repeat the process. If the balance is consistently reading different to the calibration weight, they are faulty and are in need of repair. In this case take them out of use and set aside for repair. Replace with a working spare set if available.

    6.3.2. The 4 sets of heart weight balances in Necropsy need the 0.1g calibration weight tested as well as the 100g and 10g weights.

6.4. Repeat steps 6.2-6.3 for all sets of balances.

6.5. Once all balances have been calibrated, this information needs adding to the excel spreadsheet "1) Equipment QC Tool" located on the team drive. Enter the date, each read out for 100g/10g to each balance and alias. If there is a faulty balance this also needs indicating.