Animal User Manual

Animal and Plant Care Facility,
The Hong Kong University of Science and Technology
(Aug 2019)
About APCF

The Animal and Plant Care Facility of The Hong Kong University of Science and Technology (APCF, HKUST) was established to provide humane care and husbandry to animals selected for HKUST-approved experiments.

All animals in the facility receive high standard of health care and humane treatment. Prior to the conduct of any experiment, all protocols are reviewed by the Animal Ethics Committee (AEC), which is authorized by the university’s Vice-President for Research and Graduate Studies (VPRG).

The use of the facility should be regarded as a privilege, and any observed or suspected abuse in the use of the facility or the animals in its care will be reviewed by AEC and the Director of APCF for the appropriate action.

More information about APCF, services, practices and compliances is available from the APCF web site (http://apcf.newsletter.ust.hk/) and enquiries can be made via email (apcf@ust.hk) or phone (23588201 or 23582509).

7J facility

The 7J facility is a basic barrier houses laboratory mice, rats and rabbits for use in the university-approved experiments. An operating room is available for conducting surgical procedures and other invasive procedures.

The majority of the animals in 7J are housed in open cages. Cages are regularly changed and sanitized via an automated cage washer but sterilization is not routinely performed.

7L facility

The 7L facility is a higher barrier facility housing laboratory mice only. The barriers are protected from outside contaminants brought from personnel entry by the use of PPE protection and the appropriate entry procedures. Materials and equipment (including all caging equipment) are sterilized or disinfected via a pass-through autoclaves, a vaporized hydrogen peroxide decontamination chamber or by manual surface disinfectant treatment, whichever being compatible with the items to be disinfected and with the highest disinfection efficiency. All mice are housed in individually ventilated cages (IVCs) and manipulated inside biological safety cabinets or animal transfer stations.

The 7L facility is composed of a higher biosecure A1 barrier for breeding and production only and a medium biosecure barrier A2 for experimental mouse breeding, holding and experimentation. In both barriers, individually ventilated cage systems are used for better biocontainment and biosecurity practices. Automatic drinking watering system is used to feed the animals with purified and chlorinated water.
1. **Guide to be an animal user in HKUST**

Before a user can independently handle any laboratory animal in HKUST, the following procedures must be completed. Please visit “New & Return Animal Users” in APCF website http://apcf.infosite.ust.hk/?page_id=2085 for a detail guidance on the requirement and compliance one should meet before conducting animal experiments. The requirement and compliance include the following.

1.1. *Animal License to complying to Cap 340: Animals (Control of Experiments) Ordinance*
1.2. *Enroll to Occupational Health Assessment and Medical Surveillance*
1.3. *Animal experiment protocol approval*
1.4. APCF user training
1.5. *Animal Caring Request*

2. **Security control**

2.1. The main doors of both 7J and 7L facilities are controlled by a card/wrist band-locking system. APCF will authorize users’ staff/student card/wristband for accessing the concerned facility, after one complying to all applicable items in Section 1, including APCF user training.

2.2. ALL entries of users must be recorded by swiping the activated key cards/wrist bands even when the door has been opened by another person.

2.3. Activated staff/student card/wrist band must not be used by any person other than its official owner. The use of other’s card to get access into APCF will be considered as a serious security breach. Both the card owner and the unofficial user of the card may be suspended from entering APCF. If required, depending on the severity of the event, HKUST security office or Hong Kong Police Force will be notified.

3. **Biosecurity control on personnel facility entries**

3.1. Please find SOP O-002 for policies on facility entries (from APCF SOP webpage)

3.2. If a user must enter the facility within the separation period with justified reason and with no alternative, the user may be arranged to take a thorough shower and hair washing, and needs to put on a special set of personal protective equipment (PPE) before being permitted to enter the animal caring areas.

3.3. As a biosecurity measure, APCF staff reserves the authority to ban entry of any user found to have a doubtful thorough cleanup procedure. A user is highly recommended to seek help from his/her colleagues or any APCF staff to complete his/her task if conflict of the facility entry policy is encountered.

3.4. Research groups may, whenever possible, separate personnel entering the 7L and 7J facilities.
4. **Facility and room entering procedures**

4.1. In general, the procedures include proper disinfecting (or wrapping) items to be used in the animal caring area, handwashing, putting on PPE, putting on shoe covers, or making the use of facility provided clogs. Please follow SOP O-035 and O-015 in APCF SOP webpage strictly to minimize transmitting contaminants into the facilities.

4.2. In case of a disease outbreak, enhanced facility and room entering procedures will be implemented. Please note the current animal rooms entry sequence posted in the lobby and in circulars/emails.

5. **General practices in the vivarium**

5.1. Wearing of gloves is required within the animal rooms and in the operating room. Do not use the same pair of gloves in different rooms. Discard the used gloves on animal handling before leaving an animal room and put on a new pair of gloves when entering another animal room.

5.2. Any items in personal clothing pockets (i.e. beneath the PPE) or in disinfected plastic bag, must not be taken out. Contacting any non-disinfected items will bring contaminant into the animal caring area, thus risking the health of the animals.

5.3. Mobile phones are turned into vibration mode or low ring volume and be kept in sanitized plastic bags available in changing rooms.

5.4. Music and video entertainment are strictly not allowed.

6. **Restricted areas**

6.1. A user is welcome to work in the animal room housing his/her animals only. Animal rooms not housing a user’s animals are restricted areas for that particular user.

6.2. A user can conduct AEC approved procedures in the operating room, euthanize animals in the dedicated euthanasia areas. Other areas, such as the clean storage, bedding dispensing, diet storage cage washing rooms, decontamination room and water treatment room are limited to designated APCF staff only.

7. **Use of procedure/operation/surgery rooms**

7.1. Upon user’s request, APCF staff can provide the necessary assistance during the reserved period, including but not limited to blood drawing and giving injections. If required, anesthetics will be available upon request from APCF staff.

7.2. Materials to be used with the laboratory animals should be prepared aseptically. Handling biohazard material, e.g. viral vectors for gene delivery, must be done with the containment procedures corresponding to the classification of the materials (e.g. 3rd generation lentivirus requires procedures at Biological Safety Level 2 or 2+).

7.3. Sharp items must be disposed properly into a designated sharps container. DO NOT recap injection needles.
7.4. The working surfaces must be tidied and cleaned every time after use by users even if it has also been reserved the next morning by the same user. Please see SOP O-001 for the disinfection of working areas on APCF SOP webpage.

7.5. The operating room in 7J facility is available for performing approved surgical or other invasive procedures. Basic operating room equipment such as operating table, operating lamp, basic surgical instruments are available. Advanced booking of this room, however, is strictly required. Advanced booking of the operating room can be made via email or telephone to technicians in charge.

7.6. The critical care unit (in Room 7205) should be used for post-surgical care until the animal recovers from anesthesia.

7.7. The outer part of room 7205 may be used to perform relatively minor procedures. The use of this area is on a first-come, first-serve basis.

7.8. The facility (e.g. biosafety cabinet) in the procedure/surgery rooms in 7L facility are used on a first-come, first-served basis. No two groups can use a room at the same time when a surgery is in progress.

7.9. Procedure/surgery rooms in 7L facility supply disposable cages and plastic bags for bringing mice away from APCF to users laboratories. Users must transfer the animals to the disposable cages within the biosafety cabinet with strict biocontainment practices.

7.10. Procedure/surgery rooms in 7L facility also supply bags and provide a freezer for the disposal of animal carcasses. Users must transfer the euthanized animals into the bags within the biosafety cabinet with strict biocontainment practices.

8. Use of animal holding rooms

8.1. Cage space for each user group has to be allocated by APCF. Please fill in the Cage Space Application Form (available from “Forms & Applications” in APCF website and submit the form to Mr. William Chau (room 5488).

8.2. Cages are kept on respective designated cage racks inside the animal rooms only. Shuffling of cages between different racks is not advised due to the facility’s rack-base health monitoring program. Our technician in-charge of the room must be notified about the transfer of cage to different racks.

8.3. Animals must not be transferred between animal rooms without permission. Please consult Manager of the concerned facility (Dr. Siva Tsang for 7L and Mr. William Chau for 7J).

8.4. In 7J facility, minor procedures like ear punching can be done inside the animal rooms. Other invasive procedures cannot be done in the animal rooms without approval with justifications.

8.5. In 7L, only simple cage handlings, i.e. set mating and regrouping of animals, are done in the animal rooms. Other animal manipulations, including ear punching, are done in the procedure rooms.
8.6. Mice keeping in individually ventilated cages in 7L facility must be handled in the biological safety cabinet or the animal transfer station.

8.7. Animals that received invasive procedures should be flagged with a Request Protocol Assistance (yellow) Card indicating the corresponding AEC approved Protocol number, short procedure description, and the expected consequence on the well-being of the animals for monitoring and proper handling by the facility’s staff.

8.8. Disinfection of hands or forceps (by designated disinfectant) between handling different cages are highly recommended to reduce cross-cages contamination. Please consult any APCF staff for the use and preparation of the disinfectant.

9. **Materials available in animal rooms in 7J**

   9.1. A three-decked trolley in each room is used as a working station and shared among different users and APCF staff. Soiled disposable plastic sheets (available under the sink) should always be replaced after using the trolley.

   9.2. Clean cages, complete lid sets and water bottles are available in each animal room. If there is a shortage of any of these items, please request any APCF staff to provide those to that animal room. Users are not allowed to enter the clean storage areas. Pens, cage cards and nestlets are available from the mini-drawers on the three-decked trolley in each animal room.

10. **Materials available in animal rooms of 7L**

   10.1. Animal transfer stations (ATS) are the primary working enclosure for simple colony management procedures. Cage cards, feeds, environmental enrichments and stationaries are available from the three-decked trolleys in each rooms.

   10.2. Complete assembled cages are available in the rooms for cage management.

11. **Incidence reporting**

   11.1. The technicians will contact the user for any concerns regarding the welfare and health of the animals in a particular room. Please find details in SOP C-002 in APCF SOP web page for the proper notification and response to the incident.

   11.2. Concerns on welfare of animals should also be reported to the Director of APCF and/or the Chairman of AEC. Complaints can also be place, anonymously or not, in the securely locked boxes near the change rooms of 7J facility & in the lobby of 7L facility and in the communal area outside LIFS general office. All complaints will be handled in the strictest confidence. Please find more information in the concerned APCF web page. Please find SOP O-027 for more details in APCF SOP web page.

   11.3. Please note that APCF reserves the right to handle all animals in the facility for animal well-being consideration, including euthanizing animals in overcrowded cages and those that are in irreversible pain or distress (which are not the unavoidable consequences specified in the corresponding approved protocols) without notifying the users.
12. Euthanizing laboratory animals

12.1. All personnel must be trained to perform euthanasia.

12.2. Please refer to SOP C-010 and C-016 for rodent euthanasia procedures in APCF and SOP C-012 for that in users’ laboratory. Please see APCF SOP webpage.

12.3. For euthanasia of rabbits, assistance from APCF technicians must be requested.

13. Handling mouse escape

13.1. Users are advised to handle cages on a stable working station, like the three decked trolley and the ATS. Do not work on unstable surfaces, e.g. the top of a diet bucket. Escape mice and rats should first be calmed before picking up.

13.2. Ask assistance from any APCF technical staff once animal escape happens.

13.3. Please check APCF SOP webpage SOP O-008 for details on respective responsibility of users and APCF staff.

14. Animal bites and scratches

14.1. Degree and chance of getting hurt by laboratory animal bites and scratches can be minimized by wearing gloves and the PPE. Please note the proper restraint procedures for any animal prior to handling.

14.2. Please check APCF SOP webpage for SOP S-001 for details on respective responsibility of users and APCF staff.

15. Taking animals away from APCF

15.1. Mice taken away are to be put in disposable cages found in the vivarium.

15.2. Animals taken away from APCF should be kept in a clean, quiet, and dim place. The period of animal-keeping in the laboratory should be as short as possible. All animals should be kept away from electronic devices. Such devices, e.g. computer and florescent lamp, are very likely to emit ultrasound waves that rodents are sensitive to.

15.3. Animals taken outside the facility are exposed to a higher risk of infection. These animals must not be returned to its original animal room to avoid any spread of diseases to other animals in the facility. All animals must be kept in an appropriate holding environment (i.e. temperature, humidity, silence, and the proper light-dark cycle).

15.4. Used disposable cages needs to be double-bagged and discarded into a normal litter bin without returning to APCF for cleaning. Users are advised to wash and reuse the metal wire lids and water bottle in their satellite site. To return to APCF, items are double-bagged with autoclavable bags and returned to Door D of 7J facility for sterilization and washing.

15.5. Animal carcasses resulting from the terminal procedures in the users’ research laboratories should be returned and placed into designated freezers outside APCF facilities. Freezer security code can be obtained from the APCF staff.
16. Animal Charges

16.1. Animal holding fees for mice are charged on a per cage basis, holding fees for rats and rabbits are charged per head. Details are listed in APCF website Basic Charge. The mouse cage base-charging scheme aims at encouraging housing of mice at a density recommended by the *Guide for the Care and Use of Laboratory Animals* (8th edition, National Research Council of The National Academies).