



香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

實驗動物中心 (清水灣)
LABORATORY ANIMAL
FACILITY (CWB)

Animal User Manual

Laboratory Animal Facility,

The Hong Kong University of Science and
Technology

(2021)

About LAF

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

All animals in the facility receive high standard of health care and humane treatment, meeting the standard of the Code of Practice for Care and Use of Animals for Experimental Purposes (AFCD, HK Gov). Prior to conduction of any experiment, all animal use Protocols are reviewed by the Animal Ethics Committee (AEC), which is authorized by the university's Office of the Vice-President for Research and Development (VP-RDO).

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

Animal Facilities

The 7J facility is a basic barrier houses laboratory mice, rats and rabbits for use in the university-approved experiments. Operating/procedure rooms are available for conducting invasive or major procedures. The majority of the animals in 7J are housed in open cages. Cages are regularly changed and sanitized.

The 7L facility is a higher barrier facility housing laboratory mice only. The barriers are protected from outside contaminants by the use of PPE 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 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 biosecured A1 barrier for breeding and production only and a medium biosecured 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.

Services

Besides animal holding and maintaining facilities for animal research, LAF provide a wide range of services including animal breeding and supply, animal importation, quarantine, colony management procedures, genetic modifications, experimentation assistance and drug prescription according to the approved Protocols, etc. Service details is available in the [LAF Service Manual](#). Requisition can be made via the [LAF Service Request Form](#).

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 [Guide For New Users](#) in LAF website 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 Use Protocol approval
- 1.4. LAF user training

2. User training

- 2.1. It is the Principle Investigator's obligation to ensure the personnel being competent in performing animal procedures.
- 2.2. LAF provides basic hands-on training during facility orientation before granting facility access to a new user.
- 2.3. Training on project-specific techniques should be arranged by the Principle Investigators. Competency of the trainees on performing such animal procedures should be documented in the laboratory and declared in the animal use Protocol application.
- 2.4. If available, training on special techniques may be provided by LAF upon request.
- 2.5. Various training materials and links are available in [LAF Webpage](#) (under Learning tag) for users reference.

3. Facility security control

- 3.1. The main doors of both 7J and 7L facilities are controlled by a card/wrist band-locking system. LAF will activate users' staff/student card/wristband for accessing the concerned facility, after one complying with all applicable items in Section 1, including LAF user training.
- 3.2. To record each entry event, all users must swipe their cards/wrist bands on the door lock even when the door has been opened by another person.
- 3.3. Staff/student card/wrist band must not be used by any person other than its official owner in entering LAF. The use of other's card to get access into LAF will be considered as a serious security breach. Both the card owner and the unofficial user of the card may be suspended from entering LAF. If required, depending on the severity of the event, HKUST security office or Hong Kong Police Force will be notified.

4. Biosecurity control on personnel entries

- 4.1. LAF facilities are classified according to the current health status of the animals in the respective facility.
- 4.2. Once visited another animal facility in the past 24hr, he/she must not visit any LAF animal facility.
- 4.3. When one needs to visit two or more LAF facilities within 24 hr, one should plan for visiting the facility from a higher to a lower barrier level (i.e. 7L-A1 barrier → 7L-A2 barrier → 7J barrier)
- 4.4. A separation time of 24 hours is required for one plan to visit the LAF barriers in a reverse sequence (i.e. 7J barrier → 24hr → 7L-A2 barrier → 24hr → 7L-A1 barrier).
- 4.5. During the 24hr separation time, a thorough showering and cloth changing is expected.
- 4.6. If, under exceptional circumstances, one needs to visit a higher barrier after visiting a lower barrier within 24 hr, he/she must request LAF to arrange him/her a shower including hair washing in an LAF facility and don a new set of facility clothing between the visit.
- 4.7. As a biosecurity measure, LAF 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 LAF staff to complete his/her task if conflict of the facility entry policy is encountered.
- 4.8. Research groups may, whenever possible, separate personnel to take responsibility to different barriers to avoid travelling between different LAF barriers.

5. Facility entry procedures

- 5.1. In general, the facility entry procedures include the proper disinfection of items to be used in the animal caring area, handwashing, putting on PPE and putting on shoe covers. Please strictly follow the instruction given during the LAF's facility orientation to prevent introducing contaminants into the facilities.
- 5.2. In case of a disease outbreak, enhanced facility and room entering procedures will be implemented. Please note the most current animal rooms entry sequence posted in the lobby and in circulars/emails.

6. General practices in the animal facilities

- 6.1. 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.
- 6.2. 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.
- 6.3. Mobile phones are turned into vibration mode or low ring volume and be kept in sanitized plastic bags available in gowning rooms.

6.4. Music and video entertainment are strictly not allowed.

7. Restricted areas

- 7.1. Users are welcomed 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.
- 7.2. A user can conduct AEC approved procedures in the operating room and 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 LAF staff only.

8. Use of Procedure/Operation/Surgery rooms

- 8.1. Surgery Room users must comply with the safety rules as trained during the facility orientation, especially on the use of gas anesthesia, dangerous drugs and sharps.
- 8.2. Upon user's request, LAF staff can provide the necessary assistance during the reserved period, including but not limited to colony management procedures, blood drawing and giving injections. If required, anesthetics will be prescribed upon request from LAF staff.
- 8.3. Materials to be applied on the laboratory animals should be prepared aseptically. Handling hazardous material, e.g. viral vectors and estrogen receptor antagonist for genetic manipulation, must be done with the corresponding containment levels.
- 8.4. Sharp items must be disposed properly into a designated sharps container. DO NOT recap injection needles.
- 8.5. The working surfaces must be tidied and cleaned every time after used.
- 8.6. No two groups can use a Surgery room at the same time.
- 8.7. Procedure rooms in 7L facility supply disposable cages for bringing mice away from LAF to users's laboratories. Users must transfer the animals to the disposable cages within the biosafety cabinet with strict biocontainment practices.
- 8.8. Procedure rooms in 7L facility also supply plastic bags and provide a freezer for the disposal of animal carcasses. Users must transfer the euthanized animals into the bags within a biosafety cabinet with strict biocontainment practices. No opening of animal cage is allowed in the euthanasia area in the barrier.

9. Use of animal holding rooms

- 9.1. Cage space for each user group has to be allocated by LAF. Please fill in the LAF Service Request Form and return to apcf@ust.hk for approval.
- 9.2. Animals are held in 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 staff in-charge of the room must be notified about the transfer of cages to different racks.

- 9.3. Animals must not be transferred between animal rooms without permission. Please seek consultation from Manager of the concerned facility before doing so.
- 9.4. Only simple cage handlings, i.e. set mating and regrouping of animals, are done in the animal rooms inside an operating animal transfer station or a biosafety cabinet. Invasive procedures, including injections, should be done in the procedure/operation rooms.
- 9.5. Mice being held in individually ventilated cages in 7L facility must be handled in the biological safety cabinet or the animal transfer station with biocontainment and biosecurity procedures. Training videos on such procedures produced by LAF are available in LAF webpage (Learning > [Videos](#) > Mouse Manipulation in LAF barrier facility)
- 9.6. 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 facilities' staff.

10. Materials available in animal rooms in 7J

- 10.1. A three-decked trolley in each room is used as a working station and shared among different users. Soiled disposable plastic sheets should always be replaced after using the trolley.
- 10.2. 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 LAF staff to provide those to the animal room. Users are not allowed to enter the clean storage areas. Pens, cage cards and nestlets are available from the three-decked trolley in each animal room.

11. Materials available in animal rooms of 7L

- 11.1. 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 room.
- 11.2. Complete assembled cages are available from the designated corridors.

12. Animal Welfare Notification/Alert System.

12.1. For the alertness on animal welfare issues and minimal response time between issues identification and problem solving, the following Notification/Alert System is applied.

Email	Aims	From	To	CC
Level 1	<ul style="list-style-type: none"> • Notifying the issue and specify severity • Clearly define precise time required for fixing • Suggest solution if appropriate • Issues may be documented with photo taking 	Vet Technologist	User	Facility Manager
Level 2	<ul style="list-style-type: none"> • Warning, limiting the time to response • If not rectify on time, LAF may act on the animals to avoid welfare and legal infringement 	Vet Technologist	User	PI, Facility Manager, Director
Level 3	<ul style="list-style-type: none"> • Notify the PI the situation • Declaring LAF have to rectify issues at users cost • AEC may be notified about the users' ignorance on the issue 	Attending Veterinarian	PI	User, Director, Vet Technologist, Facility Manager
Level 4	<ul style="list-style-type: none"> • Notify the AEC • Barring the entry of the offender 	Director	AEC	As appropriate
Note	Offender repeatedly ignores notifications regarding animal health and welfare issues will be notified directly at Level 2 or higher depending on the severity of the issues.			

12.2. LAF 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.

13. Incidence reporting

13.1. Concerns on welfare of animals can be reported to the Director of LAF or members of [AEC](#). If required, concerns can be reported anonymously. All reports will be handled in the strictest confidence.

14. Euthanizing laboratory animals

- 14.1. All personnel must be trained to perform euthanasia properly.
- 14.2. All personnel must follow *AVMA Guidelines for the Euthanasia of Animals: 2020 Edition* in performing euthanasia.
- 14.3. Upon requisition, LAF can provides training on euthanizing.

15. Handling mouse escape

- 15.1. Cages must be handled on a stable working station, like the three decked trolley and the ATS. Escape animas should first be calmed before recapturing up.
- 15.2. Ask for assistance from any LAF technical staff once animal escape happens.
- 15.3. LAF veterinary staff must be notified when an animals has been dropped on the floor. Biosecurity issues will be considered prior to the subsequent arrangement for the concerned animals.

16. Animal bites and scratches

- 16.1. 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 specific species prior to handling.
- 16.2. After being bitten, wash the wound immediately with running water for 5 minutes, disinfect the wound with alcohol and cover the wound with a sterile adhesive dressing available from the first-aid box.
- 16.3. Notify LAF staff and your supervisor regarding the incident.
- 16.4. Depending on the severity of the wound, one may seek medical help. Seeking medical assistance for the risk of getting infectious disease is optional.
- 16.5. If possible, identify the involved animal as it may be the subject of later investigation.

17. Taking animals away from LAF

- 17.1. Mice to be taken away from LAF are put in disposable cages found in the barriers.
- 17.2. The period of animal-keeping in the laboratory should be as short as possible.
- 17.3. In the laboratory, the animals should be kept in a clean, quiet, and dim place. They should be kept away from electronic devices, which are very to emit ultrasound waves that rodents are sensitive to.

- 17.4. All animals must be kept in an appropriate holding environment (i.e. with the appropriate air quality, temperature and humidity; with the proper light-dark cycle; free from odors, noise and minimal human activity disturbance, etc.).
- 17.5. Animals taken outside the facility are exposed to a higher risk of infection. These animals must not be returned to LAF to avoid introduction of pathogens into the facilities.
- 17.6. Used disposable cages needs to be double-bagged and discarded into a normal litter bin without returning to LAF for cleaning. Users are advised to wash and reuse the water bottles in their animal holding site. To return metal lids to LAF, items are double-bagged with autoclavable bags and returned to the Door D of 7J facility for sterilization and washing.
- 17.7. Animal carcasses resulting from the terminal procedures in the users' research laboratories should be returned and placed into designated freezers outside LAF facilities. Freezer security code can be obtained from the LAF staff.

18. Mandatory Animal Record

- 18.1. HKUST has a collective responsibility to ensure that research practices are carried out properly at all times. The use of laboratory animals, including species and quantities, must be recorded accordingly. Tick@lab is a software used in HKUST to handle the research compliance.
- 18.2. All animals being kept and used by animal users must be recorded in Tick@lab.
- 18.3. Online tutorials and training materials is available from [LAF website](#) for users to get familiar with the system.
- 18.4. To kick start with using the system or for any query on using Tick@lab on animal management, please feel free to contact Ms Crystal Chu via email (bocrystal@ust.hk).
- 18.5. For Animal Ethic Protocol compliance issues, please contact VPRDO helpdesk via email (crphelpdesk@ust.hk).