

Policy and Procedure for - Importing Rodents from Non-Commercial Sources

Background:

Laboratory rodents, particularly mice and rats, are susceptible to infection by a wide variety of microbial agents. Infection by one or more agents can have devastating effects on the research by rendering animal subjects worthless, either by making them sick or by inducing physiologic changes in the absence of overt illness. As such, control measures that minimize the risk of opportunistic infections of the rodent colonies are critical to both the research and veterinary care programs. The most important management practice relative to this goal is the exclusion from the facilities of animals of an undesirable microbial status.

The highest risk for introducing infection into a rodent colony is through the introduction of live animals. Every time rodents are introduced into the Comparative Medicine Facility (CMF) colonies it puts the resident rodent population at risk. These risks are cumulative. The inadvertent introduction of even a single infected animal could cause a disease outbreak which could result in lost time, in lost research data, etc. Clearing an introduced pathogen may take years.

However, without the introduction of new animals most of the current research would not be possible. It is therefore necessary to minimize the risk by thorough screening of the health status of all incoming animals. Most rodents are purchased from commercial vendors, which routinely screen their colonies. CMF maintains a list of approved vendors. Animals from these sources can be introduced directly into the animal rooms. Please check with CMF Animal Procurement for details, available in the Portal.

Due to the explosive increase in transgenic and knockout mouse strains over the past few years and the rise in national and international collaborations, a growing number of rodents (mostly mice) are being introduced from non-commercial sources. These would include other universities, research institutions or small biotech companies. To assure that no unwanted organisms are introduced along with these animals, **Loyola University Chicago/Stritch School of Medicine (LUC/SSOM) and CMF are requiring that all animals be purchased from or rederived by commercial vendors.**

Policy:

1. Only animals originating from an approved commercial vendor or other approved source may be received into the CMF animal facilities without undergoing additional screening, quarantine, rederivation, or other suitable monitoring or decontamination procedures. Approved vendor/source status is conferred by the CMF veterinary staff to institutions that provide suitable documentation of an acceptable disease control and surveillance program and that the source colony is free from all excluded agents.
2. Rodents originating from non-approved sources may be imported only under the following circumstances:
 - a. If the source institution is able to supply suitable documentation indicating that the animals in question are free from all excluded agents, they may be

quarantined in one of the campus quarantine cubicles. The quarantine plan must include appropriate sentinel monitoring and must be approved by the CMF veterinary staff. The investigator will be responsible for arranging the costs associated with the quarantine program.

- b. If the disease status of the source colony is uncertain or the source is known to harbor excluded agents, the animals must be tested at a commercial vendor prior to entering CMF animal facilities.
 - c. Rodents regardless of health status may be imported for acute use in quarantine (see item 5 below). These animals will not be evaluated in quarantine and may not be bred. They may be used in the quarantine facility for tissue collection or acute experiments, where the animals are sacrificed immediately upon arrival at CMF. Access to these animals is restricted. All acute use procedures must be discussed and coordinated with the CMF veterinarian prior to the animals' arrival.
3. Animals excluded from Incoming Rodent Quarantine:
- a. Animals for whom health records are incomplete or missing
 - b. Animals from institutions or vendors with current infections
 - c. Animals from institutions or vendors with a history of recurrent or uncontrolled infections
- Veterinary staff will evaluate the health record of each proposed import and determine eligibility for incoming quarantine.
4. Animals excluded from Incoming Rodent Quarantine may be accepted to CMF on the condition that they are rederived prior to entry into CMF colonies.
- a. Such animals will be evaluated on a case-by-case basis by veterinary staff and discussed with the importing Investigator.
 - b. Currently such animals are accepted only to CMF Quarantine, and only on the condition that they be rederived.
5. Housing of animals from non approved commercial vendor or other approved source for acute use will be considered at the Hines VA Veterinary Medicine Unit (VMU). CMF veterinarian will determine the suitability of housing space and transportation of the animals from the Hines VA VMU to the Principal Investigator's (PI's) lab. The animals are to be used acutely or sacrificed at the PI lab.
6. The investigator will be responsible for the costs associated with the quarantine program at the Hines VA VMU and for the delivery of animals from the VMU to PI lab.

ONLY CMF VETERINARIANS AND THE CMF BUSINESS OFFICE CAN APPROVE SHIPMENTS. ANIMALS THAT ARRIVE WITHOUT APPROVAL ARE NOT ACCEPTED, CANNOT BE RETURNED TO SOURCE AND WILL BE EUTHANIZED BY CMF STAFF.

Procedure:

1. Submit a Request for Animals form through the Research Channel and include collaborator contact information and sending institution's animal facility contact information. The CMF will obtain the Animal Health Reports for the past year.

2. The CMF Procurement Office will ensure the information is complete, obtain any additional information, and present the information to the Veterinarian.
3. If the CMF Veterinarian approves the shipment notifications will be sent to the shipping institution and to the LUC/SSOM PI or designee.
4. The CMF Procurement Office will arrange the shipment of the animals.
5. Mice will be housed in a quarantine cubicle upon arrival. The mice are set up with a sentinel mouse cage. Upon completion of weekly exposures, for 60 days, to soiled bedding from quarantine mice, sentinel mice are tested for antibodies to MPV-1, MPV-2, MVM, NS-1, MHV, MNV, TMEV (GDVII), EDIM, SEND, PVM, REO, MPUL, LCMV, MAV, ECTRO, K, POLY, MCMV, HANT, ECUN, CARB, MTLV; and tested for pinworms, helicobacter and fur mites.
6. Rats will be housed in a quarantine cubicle upon arrival. The rats are set up with a sentinel rat cage. Upon completion of weekly exposures, for 60 days, to soiled bedding from quarantine rats, sentinel rats are tested for antibodies to RPV, H-1, KRV, RMV, NS-1, SDAV, SEND, PVM, REO, MPUL, LCMV, MAV, RTV (GDVII), HANT, ECUN, CARB; and tested for pinworms, helicobacter and fur mites.
7. If the animals are negative for all agents at the end of the quarantine period the animals will move to a “step-down” area for an additional 60 days before being permitted in barrier housing areas. Procedures for the “step-down” area are identical to steps 5 and 6 above.
8. If the animals are negative for all agents at the end of the “step-down” period the animals will move to the assigned barrier housing area.
9. If the animals are found to be contaminated during quarantine evaluation, the investigator will need to discuss potential options with the CMF veterinarian. Rederivation options will be based on the pathogen and genotype of the imported animals and may include regular quarantine, treatment, burnout or embryo transfer.
10. Surveillance and isolation procedures will be instituted by CMF based on the identified contamination.
11. Cross contamination and a means in which to monitor cross contamination will be addressed by CMF based on the contamination and available resources.
12. PI’s must consult with CMF on handling ‘gift’ animals, animals from non-approved sources, and/or animals not ordered through the CMF animal order procedure. CMF must verify the source and identify procedures in the processing of the animals.
13. Training classes for research staff will be developed by CMF to teach the approved procedure in importing animals to LUC/SSOM.
14. Financial consideration related to this policy must be discussed with CMF in order for the PI to have the cost information needed for testing and rederivation.

Definitions

Approved commercial vendors – A vendor with proven health status. Currently the list of approved rodent vendors for the CMF includes the following: Charles River Laboratories, Harlan Sprague Dawley, Hilltop Lab Animal, Inc., National Institute on

Aging, National Cancer Institute, Frederick Cancer Research & Development Center, Taconic and The Jackson Laboratories commercial facility.

Health report

Report on the health monitoring of a rodent colony is usually obtained by periodic testing of sentinel animals placed into an animal room. Ideally it includes viral serology, microbiology and parasitology. The health report reflects the health status of an entire colony not necessarily of individual animals. This is not to be confused with a health certificate which is based on the clinical examination of an animal or a small group of animals. The Animal Health Reports must be generated from the sentinel mice or experimental mice housed in the same room as the mice to be shipped and must include current health information, i.e. within 90 days

Excluded Agents

Excluded agents for mice include MPV-1, MPV-2, MVM, NS-1, MHV, MNV, TMEV (GDVII), EDIM, SEND, PVM, REO, MPUL, LCMV, MAV, ECTRO, K, POLY, MCMV, HANT, ECUN, CARB, MTLV, and internal and external parasites.

Excluded agents for rats include RPV, H-1, KRV, RMV, NS-1, SDAV, SEND, PVM, REO, MPUL, LCMV, MAV, RTV (GDVII), HANT, ECUN, CARB, and internal and external parasites.

Please contact CMF for detailed list of excluded agents.

SPF

Specific Pathogen Free (excluded agents listed above are undetectable during regular monitoring); SPF colonies are housed in a full-service microisolator (static filter-top) or individually ventilated cages (i.e. autoclaved cage and bedding, irradiated food; serviced in a clean-air hood/change-station) and/or in the CMF barrier.

Non-approved source

Usually a non-commercial research institution or small biotech company which is not on the list of approved vendors. Some approved vendors maintain contract breeding colonies for research institutions. Sometimes these colonies are housed separately from the commercial colonies. In this case they are considered non-approved sources (e.g. research colonies at Jackson Laboratories).

Rederivation

Animals infected with undesirable rodent pathogens need to be tested by an approved CMF testing facility. If confirmed positive for excluded agents or pathogen, the animals need to be rederived. Rederivation means restoration of the same animal strain to Specific Pathogen Free (SPF) status. Rederivation procedures depend on the pathogen involved and may include treatment with antimicrobial agents, “burning out” of acute infections, cesarean rederivation (surgically removing pups from the uterus of an infected pregnant animal and transferring them to a foster mother of known SPF status), or embryo transfer (fertilized eggs from infected strains are surgically transferred to the oviducts of

pseudopregnant SPF animals). Once the animals are determined to be free of relevant pathogens, the animals can be moved to the assigned animal housing room.

Rederivation by embryo transfer is a secure means for ensuring the specific pathogen free status of genetically-modified mouse strain, particularly when there is a known infection. This procedure can be performed by commercial vendors.

Testing Sites

Currently the list of approved testing sites for the Comparative Medicine Facility includes the following: Charles River Laboratories, University of Michigan and Taconic.

PATHOGEN (OUTBREAK) QUARANTINE

Outbreaks of excluded pathogens may be detected by direct testing of sentinel or colony animals. In the case of an outbreak, CMF veterinary staff will establish and direct the treatment plan specific to the pathogen involved. Testing, containment and treatment plans will be communicated to affected Investigators as well as be posted in the rooms. During Pathogen Quarantine, the principles of containment and isolation, and decontamination will apply. Treatments are available for some pathogens, and will be communicated to Investigators. In some instances, no treatment is available and culling of animals may be the best course of containment. CMF veterinary staff will be available for consultation regarding specific Pathogen Quarantine situations.

Regardless of the pathogen involved, the basic principles of quarantine will apply. Specific measures will be posted at affected rooms, but the following measures tend to be appropriate for most pathogen outbreaks:

- Movement of animals will be restricted.
 - No animals should be received into the room.
 - If animal receipt is already in progress, operation manager will make arrangements for animals to be received into a different area.
 - No animals from the affected room should be transferred to other CMF colonies or shipped to outside institutions.
 - In most cases, breeding should be suspended as it only serves to provide a continuous source of naive animals to amplify the infection.
- Personnel access will be restricted
 - Only personnel performing essential functions should enter the room.
 - The quarantined room should be the last room entered on any given day.
 - Personnel entering the quarantine room shall not return to any other rodent room or colony on the same day.
- Containment measures will be instituted.
 - Personnel entering the quarantined room should don a second set of personal protective equipment (PPE).
 - Strict attention to proper microisolator technique should be observed.
 - Disinfection/decontamination measures specific to the suspected pathogen will be posted in the room.
 - The second set of PPE should be removed before exiting the room, and discarded into the waste receptacles provided in each room.

- Treatment measures will be determined by CMF veterinary staff and communicated to affected investigators.
- Veterinary staff should be consulted with any questions or specific requests.
- For a list of rooms currently under Pathogen Quarantine, please contact CMF.

References:

<http://info.med.yale.edu/yarc/qa/introduc.htm>

<http://www.med.nyu.edu/dlar/policies/importing.html>

[http://oar.missouri.edu/OAR_WEB\\$/insideoar/vetcare/vetcare3.htm](http://oar.missouri.edu/OAR_WEB$/insideoar/vetcare/vetcare3.htm)

<http://campusvet.wsu.edu/policies/RHMQuarantine.htm>

<http://www.ahc.umn.edu/rar/rodentquarantine.html>

<http://www.larc.ucsf.edu/RP/larcQP.asp>

Accepted by the Subcommittee of the RUC on 3/19/2009

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