



Cornell University
Cornell Center for Animal Resources and Education

CARE606.01 Mice Quarantine Program

The intent of this procedure is to describe the CARE quarantine program for mice coming from **non-approved vendors** (see definition). This procedure is intended as a reference for quarantine animal care personnel, the quarantine manager, CARE personnel, and for researchers who want to import animals from non-approved vendors. This procedure is approved by the Cornell Institutional Animal Care and Use Committee (IACUC) and the Cornell Center for Animal Resources and Education (CARE). Any exemption must be approved by the IACUC prior to its application.

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1. Definition

Non-approved vendors are all rodent suppliers other than Charles River Laboratories (excluding National Cancer Institute), Harlan, Taconic, and the production division of Jackson Labs.

2. Objective of the Quarantine Procedures

To prevent the introduction of mouse pathogens into established colonies.

3. Acquisition of Animals

- a. Quarantine manager's responsibilities:

1. Ensure that the vendor provides the CARE veterinarian with the following information:
 - A recent (<3 months) health report of the colony
 - A summary of health issues for the last 12 months, for the whole facility
 - A description of the husbandry practices (sterile or non-sterile micro-isolation, use of change station, etc.)
 - A description of the health monitoring program
 2. Ensure that the Principal Investigator completes a <http://www.research.cornell.edu/care/Documents/Forms/F001.01> [Quarantine Space Request.doc](#) form prior to ordering the mice.
 3. After the CARE veterinarian notifies the manager of the decision to allow the mice into quarantine, coordinate shipment with source information (See CARE Veterinarian's Responsibilities below.)
- b. CARE veterinarian's responsibilities:
1. Evaluate the information provided by the source institution.
 2. If necessary, consult with the principal investigator to determine whether the mice will be received for quarantine.
 3. Notify the quarantine manager of the decision on quarantine housing for each quarantine request.
 4. Notify the quarantine manager of any special screening procedures for groups of animals (e.g., special instructions if mice are immunodeficient).

4. Quarantine Access

NOTE: Only essential personnel have access to quarantine (i.e., the quarantine unit manager, supervisor, Lab Animal Services animal care personnel, or CARE veterinary personnel).

- a. If research personnel require access to the quarantine room, contact the quarantine manager for permission and instructions on entering the room.
- b. Do not transfer mice out of quarantine before the end of the designated quarantine period unless the transfer was approved by a CARE veterinarian.
- c. Once mice leave the quarantine, do not allow them back into the quarantine unit unless they are processed as a new quarantine group (i.e., they undergo the full quarantine procedures [**NOTE:** There are exceptions to this step for breeding mice; see the section below on Breeding Mice in Quarantine]).

5. Breeding Mice in Quarantine

- a. Allow limited breeding during quarantine only if it has been approved by a CARE veterinarian and/or the quarantine manager.

- b. If space is limited due to large animal numbers in quarantine, notify researchers that they may need to limit breeding to the most essential lines and needs.
- c. If barrier colony animals (i.e., those housed in TMCF) must be bred to a quarantined group, allow the barrier mice into the quarantine facility. **Do not** allow those mice to return to the barrier colony until the quarantine period is complete.

6. Personal Protective Equipment (PPE)

- a. Don shoe covers when stepping into the quarantine room
- b. If handling the mice, don rubber gloves and a disposable gown
- c. Handle open cages under the Biological Safety Cabinet (BSC)
- d. Remove all PPE before exiting quarantine
- e. Wash hands after each visit

7. Husbandry

NOTE: This section describes the step by step instructions for Animal Care Personnel to provide proper care for the quarantine rodents.

- a. Whenever feasible, handle cages from the different shipments on different days. If not feasible, thoroughly disinfect the BSC and don a new pair of gloves and gown between each group.
- b. Handle groups of mice suspected or known to be contaminated last.
- c. Change bottles every week.
- d. Change cages, bottles and food on the following schedule:
 - Day 1: Place mice into autoclaved BCU cage (bottom, bar lid, filter top); give feed and new water bottle
 - Week 1: Give feed and new water bottle
 - Week 2: Change cage filter; give feed and new water bottle
 - Week 3: Change cage bottom; give feed and new water bottle
 - Week 4: Change cage filter; give feed and new water bottle
 - Week 5: Give feed and new water bottle
 - Week 6: If mice have not been released from quarantine, perform a complete cage change (bottom, bar lid, filter top; give feed and a new water bottle.

Note: Cages with litters or with 4 adult mice may have cage bottoms changed more frequently.

- e. Spray soiled bottles and cages with disinfectant under the BSC and place in an autoclavable bag. Spray the closed bag with disinfectant before removing it from the room. **IMPORTANT:** Place the cage top upside down onto the cage prior to wrapping to prevent warping during the autoclave cycle.

- f. Transport the soiled material to the cage wash area for autoclaving.
- g. After autoclaving, dump the bedding in a dump station and process the cages / accessories through the cage washer.
- h. Assemble clean cages as a unit (i.e., with bedding, wrapped in paper bags and autoclaved before being used again). **IMPORTANT:** Place the cage top upside down onto the cage prior to wrapping to prevent warping during the autoclave cycle.

8. Observation and Special Care

NOTE: This section describes step by step instructions for Animal Care Personnel.

- a. Observe the mice at least once daily.
- b. Check each cage daily to ensure proper connection to the rack.
- c. Report animals with clinical signs to CARE veterinary staff.
- d. If deaths occur, store the carcasses in the designated refrigerator within the Quarantine area and inform CARE veterinary staff.

9. Animal Arrival

NOTE: This section describes step by step instructions for the Quarantine Manager to properly receive mice into the quarantine facility.

- a. Upon arrival, decontaminate the outside of the shipping container with disinfectant.
- b. Remove the mice from the shipping container under the BSC in quarantine room.
- c. Place the mice into Bio-Containment Units (BCU) in the BSC. Refer to the [quarantine request form](#) for the specific housing needs of each group of rodents. **Do not** house more than 4 adult mice in one cage.
- d. Collect approximately 10 fresh fecal pellets from the shipping container. Hold these samples until the sentinel mice are ready to be shipped (see sentinel testing below for further instructions on submission of the fecal pellets).

10. Sentinel Testing

NOTE: This section describes the step by step instructions for the Quarantine Manager and/or CARE Technician responsible for Sentinel Testing in the Quarantine Mouse Facility.

Quarantine Manager:

- a. Order 2 ovariectomized female outbred mice from Taconic or other approved source as contact sentinels for each separate shipment group of mice housed in quarantine.

- b. Identify and place the 2 contact sentinels into the source cage with animals belonging to the principal investigator.

IMPORTANT:

- If more than two cages are used to house the shipment, transfer the soiled bedding from the extra cages to the cages housing the sentinels at least once a week.
- If the source mice have white coats, ear punch the sentinel mice before placing them in the cage with the source mice.

Animal caretaker or CARE tech:

- c. Remove surgical clips from the ovariectomized females 2 days after they arrive.

CARE tech:

- d. After 4 weeks of exposure of sentinel to imported population, send 2 live sentinels to RADIL for a *Cornell Panel 1 (Quarantine)*. **NOTE:** This Profile includes the following tests:
 1. Serology: CARB, *Encephalitozoon cuniculi*, Ectromelia, EDIM, LCM, *Mycoplasma pulmonis*, MAD1, MAD2, MCMV, MHV, MNV, MPV, Parvo NS-1 (MPV, MVM), Polyoma, PVM, Reo3, Sendai, TMEV GDVII, Tyzzer's
 2. Microbiology for respiratory and digestive pathogens
 3. PCR for: *Helicobacter* spp.
 4. Parasitology for ectoparasites and endoparasites
 5. Histopathology
- e. Send the following samples to RADIL with the sentinel:
 1. Approximately 10 fresh fecal pellets collected on arrival from the shipping crate to test for *Helicobacter* spp.
 2. Mouth swabs collected from representative strains of source mice. Ship these samples on icepacks for culture and PCR for *Pasteurella pneumotropica*.

Animal Caretakers:

NOTE: The following step is performed only when there is known or suspect exposure of the source group to a pathogen.

3. Once the sentinels have been shipped, treat the remaining animals preventatively for external and internal parasites in the following manner:
 - Treat 50% of the animals with ivermectin 0.008 mg/mL in the drinking water (i.e., mix 1 volume of ivermectin sheep drench 0.08% with 99 volume of water)

- If after 3 days, no adverse reaction has been seen with the first half under treatment, place the second half of the animals on Ivermectin treated water as described above
 - Maintain treatment for 7 days
 - Discontinue treatment for the next 7 days
 - Repeat treatment for another 7 days, treating all the animals at the same time
- f. Whenever an animal is showing overt clinical signs or is found dead or moribund, notify the quarantine manager and contact CARE to perform a complete necropsy.
- g. Special requirements for immunodeficient mice:
1. Do not place sentinel mice in direct contact with the source animals.
NOTE: This step is a precaution to prevent possible transmission of pathogens from the sentinels to the population.
 2. Each week, transfer soiled bedding from the cages of the immunocompromised source mice to the sentinel mouse cage.
 3. Submit the indirect contact sentinels and samples as described for the contact sentinels.
 4. Request an extra immunocompromised mouse from the source (same strain/same room) for immediate testing.
 5. Submit two immunodeficient weanlings to RADIL for *Pneumocystis carinii* PCR on the lungs.

11. Outcome and Follow up

NOTE: This section describes the step by step instructions for the Quarantine Manager once the sentinel test results are received.

1. Ensure a CARE veterinarian interprets the RADIL results.
2. Proceed with one of the following options depending upon the results for each group of quarantine mice and the instructions from a CARE veterinarian:
 - Transfer the mice to an animal facility that accepts mice with the corresponding health status (refer to the excluded pathogens list in the [CARE SOP 545, Excluded Pathogens from Rodent Facilities](#)).
 - Begin a rederivation process for the mouse line.
 - Hold the mice in quarantine for an extended period, if space is available.
 - Euthanize the mice.

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