

Animal Health & Welfare Core

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animal vendors testing husbandry

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Animal Health & Welfare

Medical Center North

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The goal of the Animal Health & Welfare Core is to ensure the health and welfare of the mice in order to enhance efficiency and maximize consistency in phenotypic characterizations. To achieve that goal, the Core employs the following strategies:

- Coordinate transfer of mice from Institutions outside of Vanderbilt.
- Assure that mice admitted to the MMPC meet defined health criteria and that post-quarantine protocol assignment and transfer is conducted efficiently and in a timely manner.
- Direct the implementation of daily husbandry and care.
- Provide veterinary care to mice admitted to the MMPC and diagnose disease and identify unique metabolic or cardiovascular phenotypes of mice through interaction with the Comparative Pathology Subcore.
- Assure compliance with MMPC guidelines and local, national and federal regulatory bodies and provide guidance to the Administrative Core on all issues that are veterinary in nature.

The procedures used in the Core are those that have been recommended by the National MMPC Program and are summarized below. Investigators inside Vanderbilt are charged directly for per diems and MMPC is charged per diems for investigators from outside Vanderbilt. The MMPC incorporates the charges for animal care into the total cost for phenotyping services.

Receipt of Mice

The Core ensures the health and pathogen status of shipped experimental mice to a) assure data integrity for the metabolic and cardiovascular phenotypes being studied and b) maintain the health standards of the larger DAC colony.

Before mice are accepted into the MMPC quarantine from outside research institutes they undergo the screening guidelines recommended by the National MMPC Program. The source institution must test for the pathogens listed in Table 1 and provide a health certificate no older than 4 months. There are a number of mice in stock at approved vendors that may be useful for testing a hypothesis related to metabolic disease. Animals are accepted from approved commercial vendors and admitted directly into the MMPC. Investigators are encouraged when possible to send mice from approved vendors as the cost is less and the turnaround time is shorter because quarantine is not required.

Table 1. Testing of Mice for Admittance into the MMPC

- Ectromelia
- Lymphocytic choriomeningitis virus
- Mouse adenoviruses
- Mouse hepatitis virus
- Mouse parvoviruses

- Mouse rotavirus (EDIM)
- Mycoplasma pulmonis
- Pneumonia virus of mice
- Minute virus of mice
- Reovirus
- Sendai virus
- Theiler's virus
- Murine Minute Virus
- Ectoparasites
- Endoparasites

Quarantine

Mice from other research institutions with the exception of approved vendors (Table 2) must undergo quarantine and testing prior to release into the colony. Once animals enter Vanderbilt, they may enter quarantine by the standard or expedited track.

Table 2. VUMC Approved Vendors

- Harlan Teklad
- Jackson Labs
- Taconic Farms
- Charles River Labs
- National Cancer Institute
- National Institute of Aging

Upon Receipt into Quarantine

All experimental animals:

- Receive Fenbendazole Diet for the duration of quarantine.
- Cages treated with Atguard granules.

Standard Track

- **Experimental mice:** Samples are collected (fecal samples, tape tests of pelage and perineum) for parasitology. Testing for Mouse Hepatitis Virus is performed on a subset of animals from the shipment. Tests may either be by ELISA or PCR analysis.
- **Sentinel Mice:** Direct contact sentinels (female CD-1) are placed in cages with experimental mice for a minimum of 96 hours. Following this direct exposure, sentinels are returned to their home cages for additional exposure by soiled bedding at cage change. Following 6 weeks of exposure, sentinels are sacrificed and tested for the pathogens outlined in Table 3.
- **Assurance for exclusion of mites:** Experimental mice will be examined once upon arrival for ectoparasites via fur pluck/tape test. Sentinel animals will be tested at the end of the six week exposure series.
- **Movement of mice from quarantine into MMPC:** If all results from experimental and sentinel mice are negative, experimental mice can be moved into the general colony or into the MMPC. Total time in quarantine is ~6 to 8 weeks depending upon turn-around time for laboratory tests and any necessary confirmatory tests. Positive tests will be confirmed and if confirmed, the mice may be euthanized minimizing pathogen risks to the MMPC.

Table 3. Quarantine Testing Serology

- Ectromelia
- Lymphocytic choriomeningitis virus
- Mouse adenoviruses
- Mouse cytomegalovirus
- Mouse hepatitis virus
- Mouse parvoviruses
- Mouse norovirus
- Mouse rotavirus (EDIM)
- Mouse thymic virus

- Mycoplasma pulmonis
- Minute virus of mice
- Pneumonia virus of mice
- Reovirus
- Sendai virus
- Theiler's virus (GD-7)
- Polyomavirus
- K virus

Subgross examination of the pelt - Ectoparasites

Subgross examination of the cecal and colon contents - Endoparasites

In addition to the tests mentioned above, international shipments are also tested for the following:

- Hantaan virus
- Mouse Cytomegalovirus
- *Encephalitozoon cuniculi*
- CAR Bacillus
- Murine T lymphocyte virus

Animal Husbandry

Trained DAC staff under the supervision of Dr. Yu conducts MMPC mouse husbandry. Dr. Yu's staff has specific guidelines they follow for performing husbandry with minimal disruption to ongoing experiments. Husbandry, as are all animal care procedures, is conducted in adherence with MMPC standard guidelines and strictly follows local, national, and federal regulations.