

COMPARATIVE MEDICINE
LABORATORY ANIMAL FACILITIES

STANDARD OPERATING PROCEDURE
For
ANIMAL HEALTH MONITORING PROGRAM
SPF BARRIER FACILITY

1. Purpose:

The purpose of this Standard Operating Procedure (SOP) is to establish a system to screen mice housed in the SPF Barrier Facility for bacterial and viral murine pathogens, and endo- and ectoparasites. The screening will ensure that procedures instituted in the barrier are indeed effective in keeping mice pathogen free, and will enable animals to be shipped to other institutions, by providing current health reports. The health monitoring program will occur 3 times a year, or every 4 months. Additional screening can be performed on request but will be charged directly to the PI.

2. Scope:

This procedure applies to all veterinary technicians performing the sentinel program.

3. Procedure:

- a. Process incoming sentinel animals as per SOP – “Receipt and Quarantine of Incoming Sentinel Animals”.
- b. Expose sentinel animals to dirty bedding from the SPF facility:
 - i. One spoonful of dirty bedding will be removed from each cage in the SPF facility during cage changing. Dirty bedding will be placed in sterile plastic bags or containers, labeled with the SPF room number, and transported to quarantine, where SPF sentinels are housed.
 - ii. Place dirty bedding from the SPF cage into the corresponding labeled clean sentinel cage. Each sentinel cage should receive bedding from 10 SPF cages. Ensure that bedding goes into the correct sentinel cage. Change gloves in between handling bedding from each SPF animal room.
 - iii. Continue to add fresh dirty bedding from each cage change in SPF to a clean sentinel cage for a period of 4-6 weeks.
- c. Sacrifice sentinels after 4-6 weeks.
 - i. Animals should be transported to the necropsy room in their original microisolator cages. Animals should stay single housed for transport. Do not regroup animals together in cages.
 - ii. Euthanize animals with CO₂ or pentobarbital.
 - iii. Collect blood by cardiac puncture and process for viral serology as per SOP 2.B.6 “Processing Rodent Serology”.
 - iv. Collect fecal pellets from each sentinel cage using sterile gloves and tongs for Helicobacter testing. Combine all samples within each room into 1 “pooled” sample. Change gloves and tongs between rooms. Helicobacter testing should be done once a year with the Comprehensive panel.

- v. Perform a fecal flotation on pooled fecal samples from each room, to look for pinworms.
 - vi. Scotch tape the perianal region, and the hair between the shoulders to look for pinworms and furmites.
 - vii. Examine cecal contents for visible worms.
 - viii. Collect mesenteric lymph nodes and store at -70°C. If all serology tests come back negative, lymph nodes may then be discarded.
 - ix. Note any abnormality on gross post mortem, save carcass, and report to the veterinarian.
- d. Send serum for serological testing:
- i. The serology testing panel will rotate at each screening in the following order:
 1. Comprehensive Panel (Bioreliance Level II Profile):
 - a. The Comprehensive Panel includes: MVM (minute virus of mice), MHV (mouse hepatitis virus), Mycoplasma pulmonis, MPV (mouse parvovirus), PVM (pneumonia virus of mice), Sendai virus, GDVII (encephalomyelitis virus), EDIM (epizootic diarrhea of infant mice), LCM (lymphocytic choriomeningitis virus), CAR Bacillus, ectromelia virus, MAD (mouse adenovirus), MCMV (mouse cytomegalovirus), polyoma virus, reovirus, and Helicobacter.
 2. Select Panel (Bioreliance Level I Profile):
 - a. The Select Panel includes: MHV, EDIM, MVM, MPV, GD-VII, M. pul, PVM, and Sendai
 3. Basic Panel (Bioreliance Intermediate Profile):
 - a. The Basic Panel includes: MVM, MHV, M. pul, MPV, PVM, Sendai, GD-VII, EDIM, CAR Bacillus, and LCM.
- e. Health Reports:
- i. Report results by facility location and room number.
 - ii. Submit final report to the veterinarian, who will interpret the results and may recommend further testing.
 - iii. The veterinarian will notify the Principal Investigators of the results.
 - iv. Update sentinel tracking results on the S-drive.
 - v. File results with the sentinel report form by room number in the filing cabinet in the main office, room 116 BEB.
4. Summary:
- Triennial screening for murine pathogens is required to ensure research animals are free of disease that could interfere with research results. In addition to the testing protocol outlined here, animals that develop health problems throughout the year are examined, and necropsied to ensure sporadic outbreaks of disease have not occurred.