**SPF Mouse Serology**

Last Reviewed: May 2, 2024

**I. Purpose**

Specific pathogen-free (SPF) mouse sentinel serology is done as part of a comprehensive preventive health care and disease surveillance program.

**II. Responsibility**

It is the responsibility of the AV to provide oversight and for the LAR staff to understand, to be proficient in, and to participate in the serology testing program.

**III. Procedure**

**Examination and Sample Collection**

1. On a semiannual basis, collect SPF sentinel mice from each mouse room into clean  
   microisolator cages.
   1. All mouse rooms in Skaggs Building (SB), 027, 037, 039, 066, 061B, and Health  
           Sciences Building (HS) B004 mouse quarantine.
   2. Take one sentinel mouse from every rack and place into a clean cage.
   3. Label each box with a new cage card that includes room number, rack  
      number, and investigator.
2. Move mice on a clean cart to HS 016, LAR Clinical Lab
3. Fill out IDXX RADIL serology paperwork (print from computer or get hard copy from  
   file cabinet).
   1. The order in which the mice are listed on the submission form will be the order  
      in which animals are necropsied. List smallest room number first and proceed  
      to larger room numbers.
4. Pre-label all Opti-spot dried blood spot cards that will hold samples.
5. Items needed
   1. Scissors
   2. Forceps
   3. Peroxigard RTU
   4. Microscope slides
   5. Sharpie® markers
   6. Microscopes (optical and dissecting)
   7. Clear cellophane tape
   8. Opti-spot dried blood sport card
   9. Fecal flotation tubes
   10. Sterile scalpel blades
   11. 25-gauge needles
   12. 1-mL syringes
   13. Sharps container
   14. Paper towels
6. Place mouse (proper order of serology paperwork) in CO2 chamber and euthanize  
   using 20% volume displacement per minute inside the chamber.
7. Retrieve blood via cardiac puncture.
   1. Use a 1 cc syringe with 25 ga needle.
   2. Place one large drop (approximately 25 microliters) of blood in the  
      designated circle of the dried blood spot card.
   3. Allow sample to dry for 1 hour before folding protective upper tab over the  
      blood spot and tuck under the lower tab.
8. Label tail with the number from serology paperwork using a Sharpie® marker.
9. Use a dissecting microscope to check body for ectoparasites and abnormalities.
10. Collect a fur tape sample and a perianal sample using cellophane tape. Press the  
        tape firmly against the skin. For perianal samples, place tape over anus and draw a  
        large circle around the sample area using a Sharpie® marker.
    1. Place fur and perianal tapes on separate slides and label.
    2. 3 samples of each specific type can fit on a slide.
    3. Do not mix fur tapes and perianal tapes on the same slide.
    4. Use an optical microscope to check the sample for the presence of pinworm  
       eggs and other parasites.
11. Incise the mouse along the ventral midline of the body.
12. Check for abnormalities of internal organs (location, size, texture, color).
13. Collect one fecal pellet from the rectum.
    1. Place in pre-labeled fecal flotation tube.
    2. 3 samples from different mice may go into one tube, in the order written on  
       the submission form.
14. Push contents of cecum onto a slide.
    1. Label slide with mouse number(s); 3 samples can fit on one slide.
    2. Use a dissecting microscope to check the sample for the presence of adult pinworms
15. Double check that all procedures were finished and all necessary samples were collected before discarding each carcass.

**Fecal Flotation**

1. Once all necropsies are completed, prepare fecal floats for parasite eggs.
2. There should be a maximum of three fecal samples in one tube
3. Use a transfer pipet to add a small amount of "Vetus Feca Test solution (a 1:18  
   dilution of Vetus Feca Test Dry Concentrate" diluted with water) to tube and mix well  
   with feces.  (This 1:18 solution and concentrate are located in HSB016 metal cabinet).
4. Use a transfer pipet to fill the tube to top with Vetus Feca solution, creating a  
   meniscus.
5. Place square coverslip on top of tube.
6. Let stand for 10 minutes.
7. Place the cover slip on a clean slide; create minimum air bubbles.
8. Use compound microscope to examine the samples for eggs of internal parasites.

**Packaging Samples for IDEXX RADIL**

1. Place Opti-spot samples into a ziplock bag.
2. Place the IDEXX RADIL paperwork together with the ziplock bag of samples into an  
   appropriately sized shipping envelope for priority mail and seal.
3. Mail from campus post office.
   1. 2-day service (either UPS or USPS, whichever is cheaper).
   2. Use IDXX RADIL address listed on paperwork
   3. Charge to UM credit card.