TITLE: Exhaust Air Dust (EAD) Rodent Health Surveillance

SCOPE: All Animal Care Personnel

RESPONSIBILITY: Veterinarians, All Animal Program Personnel

PURPOSE: To Establish the Proper Guidelines for Monitoring Health Status of Rodent Populations Utilizing Sentinel Rodents

I. PURPOSE

1. To define the microbial status of rodent colonies, surveillance is conducted for sub-clinical, clinical diseases and opportunistic agents that could jeopardize the validity and reproducibility of research data, complicity its interpretation.

II. RESPONSIBILITY

1. The veterinarians oversee all aspects of animal health and are assisted by all program staff.

2. The Assistant Director is responsible for ensuring that all practices are implemented by Facility Managers.

3. The Facility Manager is responsible for ensuring that all technical and animal care staff are adequately trained and experienced in rodent health surveillance procedures.

4. The Assistant Director is responsible for coordinating these rodent health procedures, submitting samples for evaluation, recording results, and reporting findings to the Director or designee.

III. PROCEDURES

1. At the defined intervals established below, current rodent inventories are sampled by room using an exhaust air dust (EAD) collection method and PCR testing.
   a. Tecniplast Interceptor system collects exhaust debris moving from cages to the exhaust filtration area. See SOP 429 for Interceptor use.
   b. EAD samples collected from air handling exhaust plenums using a sterile FLOQ swab placed into a sterile 1-2 ml microcentrifuge tube for PCR analysis. Using a sterile FLOQ swab trace a circular pattern inside the exhaust plenum of the rack for three circumferences while rolling the swab tip.
   c. Exhaust air dust 200ul sample.

2. EAD sample collection methods can be found at- https://www.idexxbioanalytics.com/edxsop

3. Veterinarians and technical staff submit samples for diagnostic laboratory evaluation on an electronic version of CMDC 261 entitled IDEXX Sample Submission form to the Assistant Director.

4. Surveillance of the following agents are tested by PCR:
5. Immunodeficient mice are susceptible to opportunistic and commensal bacteria, transmission of which may occur by direct contact, via fomites including gloved hands, or via cell lines. The presence of opportunistic bacteria can be verified by PCR testing of animals (i.e., skin swabs) or the environment (i.e., IVC exhaust plenums). Husbandry procedures in accordance with SOP 413 entitled *Isolation Rodent Husbandry and Use* must be adhered to when handling immunodeficient mice.

6. Immunodeficient mice in isolation housing are tested for the following agents using pooled fecal or pelt/cage sampling:

<table>
<thead>
<tr>
<th>AGENT</th>
<th>SAMPLE</th>
<th>TEST</th>
<th>FEB</th>
<th>MAY</th>
<th>AUG</th>
<th>NOV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mouse</strong></td>
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<tr>
<td>MHV</td>
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<tr>
<td>MPV 1-5</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>MVM</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>NS1</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
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<tr>
<td>TMEV</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>EDIM</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
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</tr>
<tr>
<td>Fur mites (Myocoptes, Myobia, Radfordia)</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pinworms (Aspiculuris, Syphacia)</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
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<tr>
<td><em>Helicobacter</em></td>
<td>EAD</td>
<td>PCR</td>
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<tr>
<td>MNV</td>
<td>EAD</td>
<td>PCR</td>
<td><em>x</em></td>
<td></td>
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</tr>
<tr>
<td>Sendai</td>
<td>EAD</td>
<td>PCR</td>
<td>x</td>
<td></td>
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<tr>
<td><em>Mycoplasma pulmonis</em></td>
<td>EAD</td>
<td>PCR</td>
<td></td>
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<tr>
<td>PVM</td>
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<td>Reo3</td>
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<td>Ectromelia</td>
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<td>MAV1</td>
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<td>PCR</td>
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<td>Polyomavirus</td>
<td>EAD</td>
<td>PCR</td>
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*Additional agents excluded at the SRB, ALZ, BPB, and IDR B facilities*

<table>
<thead>
<tr>
<th>AGENT</th>
<th>SAMPLE</th>
<th>TEST</th>
<th>FEB</th>
<th>MAY</th>
<th>AUG</th>
<th>NOV</th>
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<td>EAD</td>
<td>PCR</td>
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<tr>
<td>Parvo (NS1, RPV, RMV, KRV, H-1)</td>
<td>(pooled feces/EAD)</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
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</tr>
<tr>
<td>Fur mites (Myocoptes, Myobia, Radfordia)</td>
<td>pooled pelt/cage</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Pinworms (Aspiculuris, Syphacia)</td>
<td>pooled feces</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>RTV</td>
<td>EAD</td>
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<td>x</td>
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</tr>
<tr>
<td>Sendai</td>
<td>EAD</td>
<td>PCR</td>
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<tr>
<td>PVM</td>
<td>EAD</td>
<td>PCR</td>
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<tr>
<td><em>Mycoplasma pulmonis</em></td>
<td>pooled feces</td>
<td>PCR</td>
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</tbody>
</table>

*Additional agents excluded at the SRB, ALZ, BPB, and IDR B facilities*
7. When presence of non-tolerated opportunistic bacteria is confirmed by PCR testing, measures must be taken to contain and prevent further dissemination of the agent.

8. The Assistant Director reports findings concerning each surveillance evaluation to facility managers and veterinarians for interpretation and/or resolution as needed.

9. Additional health evaluations may be conducted upon request from the research staff (e.g., Gene Targeting Core-created mice prior to release) at the discretion of the veterinarians or in response to suspect exposure to infectious agents. Additional health evaluations may involve the use of sentinel animals and/or colony representatives. Use of imported germ plasm by the Gene Targeting Core must be received in accordance with SOP 424 and result in a request for health characterization of the produced mice prior to release to the general population.

10. Results of surveillance evaluations are maintained by the Assistant Director.

11. When presence of an excluded or non-tolerated agent is confirmed by testing, measures taken may include but are not limited to (a) depopulation of the affected animals, (b) rederivation of affected colonies, (c) decontamination of racks, trolleys and equipment in the affected room, (d) decontamination of the room using vaporized hydrogen peroxide in accordance with SOP 1016 Hydrogen Peroxide Vapor Decontamination and SOP 1162 Bioquell Z-2 Hydrogen Peroxide Vapor Generator System, and (e) follow up retesting of the room and occupants.

12. **IDEXX Panels, Schedules and Agents**
   a. **Surveillance Mouse Panels**
      USF EAD Surveillance Mouse Panel 1 ([Feb/Aug](#)) all facilities

<table>
<thead>
<tr>
<th>AGENT</th>
<th>SAMPLE</th>
<th>TEST</th>
<th>FEB</th>
<th>MAY</th>
<th>AUG</th>
<th>NOV</th>
</tr>
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<tbody>
<tr>
<td>Mouse</td>
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<tr>
<td>MHV</td>
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<tr>
<td>MPV 1-5</td>
<td>pooled feces</td>
<td>PCR</td>
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<td>x</td>
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<td>MVM</td>
<td>pooled feces</td>
<td>PCR</td>
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<td>x</td>
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<td>x</td>
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<tr>
<td>NS1</td>
<td>pooled feces</td>
<td>PCR</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>TMEV</td>
<td>pooled feces</td>
<td>PCR</td>
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<td>x</td>
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<td>x</td>
</tr>
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<td>pooled feces</td>
<td>PCR</td>
<td>x</td>
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<td>x</td>
</tr>
<tr>
<td>Fur mites (Myocoptes, Myobia, Radfordia)</td>
<td>pooled pelt/cage</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Pinworms (Aspiculuris, Syphacia)</td>
<td>pooled feces</td>
<td>PCR</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Corynbacterium bovis</td>
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<tr>
<td>Helicobacter</td>
<td>pooled feces</td>
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<td>Klebsiella oxytox</td>
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<tr>
<td>Klebsiella pneumoniae</td>
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<td>Pseudomonas aeruginosa</td>
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<td>Pasteurella pneumotropica biotype Jawetz</td>
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<td>PCR</td>
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<tr>
<td>Pasteurella pneumotropica biotype Heyl</td>
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<tr>
<td>Pneumocystis spp.</td>
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<td>Staphylococcus xylosus</td>
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<tr>
<td>Staphylococcus aureus</td>
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<td>PCR</td>
<td>x</td>
<td>x</td>
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</tr>
</tbody>
</table>
• MHV, MPV1-5, MVM, NS1, TMEV, EDIM, Pinworms (*Aspiculuris, Syphacia*), Fur mites (*Mycoptes, Myobia, Radfordia*)

**USF EAD Surveillance Mouse Panel 2 (May all facilities)**
• MHV, MPV1-5, MVM, NS1, TMEV, EDIM, MNV, Pinworms (*Aspiculuris, Syphacia*), Helicobacter, MNV, Fur mites (*Mycoptes, Myobia, Radfordia*)

**USF EAD Surveillance Mouse Panel 4 (Nov all facilities)**
• MHV, MPV1-5, MVM, NS1, TMEV, EDIM, Sendai, Mycoplasma pulmonis, PVM, Reo3, LCMV, Ectromelia, MAV1, MAV2, Polyomavirus, MNV, Pinworms (*Aspiculuris, Syphacia*), Helicobacter, Fur mites (*Mycoptes, Myobia, Radfordia*)

### b. Surveillance Rat Panels

**USF EAD Surveillance Rat Panel 1 (Feb & Aug)**
• RCV, Parvo (NS1, RPV, RMV, KRV, H-1), Pinworms (*Aspiculuris, Syphacia*), Fur mites (*Mycoptes, Myobia, Radfordia*)

**USF EAD Surveillance Rat Panel 2 (May)**
• RCV, Parvo (NS1, RPV, RMV, KRV, H-1), RTV, Pinworms (*Aspiculuris, Syphacia*), Fur mites (*Mycoptes, Myobia, Radfordia*)

**USF EAD Surveillance Rat Panel 3 (Nov)**
• RCV, Parvo (NS1, RPV, RMV, KRV, H-1), RTV, Sendai, PVM, Mycoplasma pulmonis, Pinworms (*Aspiculuris, Syphacia*), Fur mites (*Mycoptes, Myobia, Radfordia*)

### c. Custom PCR Panels

**USF EAD Isolation Mouse Panel (Feb, May, Aug, Nov)**

**USF Spiny Mouse PCR Panel (May, Nov)**
• Fecal: MAV 1, MAV 2, MHV, MPV, MVM, EDIM, RCV/SDAV, RPV, TMEV, CAR bacillus, *C. rodentium*, C. piliforme, C. kutscheri, M. pulmonis, P, pneumotropica, Salmonella spp, S. moniliformis, Helicobacter, Ectro, Hantaan, K virus, LCMV, MCMV, PVM, Polyoma, REO3, Pinworms,
• Pelt: Fur Mite

**USF Gerbil PCR EAD Panel (Feb, Aug)**
• Fecal :Pinworms (*Aspiculuris, Syphacia*), Helicobacter spp, C. piliforme, E. muris, T. muris, S. muris, G. muris, LCMV, MHV

**USF Guinea Pig PCR Panel (May, Nov)**
• Fecal: GPAV, GPCMV, Helicobacter

Approved: Date: