Safe Work Practice

Allergen Protection in Animal Projects

1.0 Hazard Description

Allergens may be encountered when working with animals, isolated tissue specimens from animals, or when cleaning up animal waste materials, including used food and bedding materials. Mammals, particularly rodents, dogs and cats, are most commonly known to be allergenic however the majority of animal species have the potential to generate allergic reactions in humans who are regularly exposed to them.

Allergy symptoms may consist of skin rashes, nasal congestion and sneezing, itchy eyes or asthma-like symptoms (i.e., coughing, wheezing and chest tightness). Personnel may be sensitized to allergens through direct skin contact, via eyes and mucous membranes or through inhalation, or may be inoculated with allergens through uncovered wounds, accidental animal bites or needlestick injuries.

1.1 Hazard Assessment Considerations

Proper mitigation strategies are required to minimize the development or acerbation of work-related allergies in staff and students conducting or supporting research, teaching or testing activities involving animals. Principal investigators (PI) conducting animal projects must consider allergen exposures as part of the Hazard Assessment of the relevant activities as per the Animal Research, Teaching and Testing Projects Safe Work Practice (SWP).

2.0 Minimum Hazard Controls

The main focus of this SWP is for enclosed, environmentally-controlled, animal facilities. Many of the controls listed are not feasible in an agricultural or field research setting. See sections 2.3.1 and 2.3.2 of Administrative Controls and 2.4.6 of PPE Controls for requirements that are applicable to agricultural and field research work.

In addition to the minimum requirements listed in the Animal Research, Teaching and Testing Projects SWC, PIs working with animals must abide by the following:

2.1 Elimination/Substitution

1. Consider the use of absorbent pads instead of sawdust bedding when working with small terrestrial or avian animal species.
2. Consider the use of an animal strain or gender that is known to be less allergenic than others whenever possible.

### 2.2 Engineering Controls

1. Heating, ventilating and air conditioning (HVAC) systems for animal handling, holding and support cage cleaning/washing facilities should allow for a minimum of 10 room volume air changes per hour and a relative humidity of at least 50%.
   - If required, contact your Building Services Manager for assistance in determining the current room air changes or humidity for the facility.

2. Animal handling and holding facilities must be maintained at a negative air pressure differential relative to the immediately adjacent hallway(s) and/or room(s) or must be separated from outer areas by an airlock anteroom.
   - If required, contact EHS via ehs.info@ualberta.ca for assistance in determining the air pressure differential of the facility.

3. Primary housing for small animals should be as follows:
   - Small terrestrial and avian animals should be kept in filtered caging systems,
   - Aquatic animals must be kept in tanks equipped with lids.

4. Whenever possible, direct manipulations of small terrestrial or avian animals should be conducted within ventilated hoods, biological safety cabinets (BSC) or cage changing stations. This includes, but is not limited to, activities such as:
   - Shaving of terrestrial animals for surgical procedures. If BSC is not available, a repositionable scavenging device should be employed.
   - Breakdown and any applicable packaging of used cages for cleaning.

5. Biological safety cabinets and cage change stations must:
   - Have a sticker on its front indicating it has been successfully tested and the future date of its next testing, and
   - Be located away from high traffic areas, doors and air supply/exhaust diffusers.
   - In addition, a minimum open space of 18” above and 12” on each side and behind must be provided around each BSC. Biological safety cabinets should not be set up facing each other. If BSC’s must face each other in a room then they must be separated by at least 3 m.

6. Never handle animals, their soiled cages or waste material in a laminar flow hood.

7. Terrestrial and avian animals must be transported in filtered cages or a filtered transport cart when transferred between animal facilities through indoor public areas.

### 2.3 Administrative Controls

1. Animal housing and handling facilities must be kept clean and free of dust. Wet cleaning with towels and/or mops is preferred to vacuuming or sweeping.
2. Used small animal cages and tanks must be sealed in plastic bags or sheeting for transport between animal holding rooms and wash-up areas.
3. Soiled bedding, animal carcasses or other waste must be sealed in plastic bags and placed in secondary, sealed hard-plastic or metal containers for transport from animal holding or cage processing rooms to waste disposal facilities.

2.4 Personal Protective Equipment (PPE)

1. Minimum barrier protection when working with animals is:
   - Safety glasses or goggles,
   - Appropriate gloves (disposable or bite resistant, as appropriate)
   - Appropriate shoes that fully cover the foot,
   - Floor-length pants and
   - A facility-dedicated laboratory coat or gown
2. Minimum barrier protection must be worn by any personnel:
   - Entering an animal housing area,
   - Directly handling an animal
   - Processing soiled animal cages, tanks or any waste material.
3. Facility-dedicated clothing must be laundered regularly to prevent the build-up of animal allergens.
   - Visibly soiled facility-dedicated clothing must be packaged for laundering immediately.
4. Removal of street clothing and use of facility-dedicated scrubs and minimum respiratory protection (see below) must occur in any animal handling or holding facility where:
   - The animal facility HVAC system cannot maintain a minimum of 10 room air changes per hour or a relative humidity of at least 50%,
   - Manipulations of animals cannot be conducted within a ventilated hood, BSC or cage changing station, or,
   - Soiled cages, tanks and associated waste cannot be processed within a ventilated hood, biological safety cabinet or cage change station.
5. Minimum respiratory protection against animal allergens consists of a fit-tested N95 half-face respirator.
   - A surgical mask is NOT equivalent to a fit-tested N95 respirator.
   - If required, contact EHS via ehs.info@ualberta.ca for assistance with the selection and fit-testing of an N95 respirator.
6. When directly handling animals in an agricultural facility or outside in a field setting:
   - Appropriate disposable gloves or work gloves must be worn.
   - Long-sleeved coveralls must be worn in agricultural settings and are recommended for field work as appropriate.
Barrier protection must be upgraded during invasive techniques (i.e. surgeries, necropsies, etc.) to include appropriate Tyvek coveralls or an equivalent fluid barrier. 

Respiratory protection is not normally required when working with animals outdoors or in a barn. However, if personnel will be working in enclosed spaces without proper ventilation where urine, feces, and/or denning/nesting materials have accumulated, the use of a fit-tested N95 respirator is required.

3.0 Emergency Preparedness/Response

1. Personnel must inform their PI if they suspect they are developing allergies as a result of their work activities and submit an incident report via Incident Portal.
2. Personnel who develop or have worsening allergy symptoms should consult a physician.
   - Personnel should not ignore signs of allergies; allergies tend to worsen over time with continued exposure to the allergen source.
   - Self-medicating with off-the-shelf antihistamines is NOT recommended without the advice of a physician; medication can temporarily alleviate symptoms but may mask an overall worsening condition.

4.0 Applicable Legislation and Regulations

1. Canadian Biosafety Standard, Public Health Agency of Canada
2. Guide to the Care and Use of Experimental Animals, Canadian Council on Animal Care

5.0 Related Resources

1. Laboratory Personal Protective Equipment Requirements, Environment, Health and Safety, University of Alberta
2. Safe Work Practice: How to Use Animal Safe Work Practices (EHS-SWP-100), Environment, Health & Safety, University of Alberta

6.0 Document Management

Creation Date: 15 December, 2017
Version Date: 15 December, 2017
Author: Daniel C. Dragon & Christi Andrin
Review Schedule: The document shall be reviewed by the EHS Systems Planning and Development Team before 15 December, 2018.
## Record of Amendments:

<table>
<thead>
<tr>
<th>Document Version</th>
<th>Amendment Date</th>
<th>Amended Section</th>
<th>Description</th>
<th>Completed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>15-Dec-2017</td>
<td>N/A</td>
<td>Original document</td>
<td>DD, CA</td>
</tr>
</tbody>
</table>