

Laboratory Animal Allergy Prevention - Information Guide

Introduction

The University of Texas at Austin has an [occupational health program](#) in place to provide University employees with access to resources in the prevention and treatment of occupationally acquired injuries and illnesses. Personnel who handle or conduct research with animals may be exposed to a variety of animal products. These animal products contain proteins that may be allergenic and can trigger an allergic reaction in some personnel and may lead to the development of asthma. The development of an allergic response to animal proteins while working with laboratory animals is an occupational risk that can require medical treatment and affect future career options.

Prevention of laboratory animal allergy (LAA) depends on the control of and exposure to animal allergens. This information guide is designed to give employees information about the University's efforts to minimize or prevent the development of LAA and occupational asthma. It includes symptom reporting procedures and a review of the engineering & administrative controls, and personal protective equipment available at the University. "Employees" includes faculty, staff, postdoctoral associates and student workers. Non-employees concerned about LAA such as visiting faculty, students and volunteers should contact the Environmental Health and Safety (EHS) department.

Occupational Exposure to Laboratory Animal Allergens

Individuals can develop allergies to animals at home and in the workplace. The animals most commonly associated with occupational allergies are mice and rats; however, other animals used in research have been linked to allergic reactions including amphibians and insects.

The intensity, frequency and route of exposure to the animal allergens is the best predictor for who may develop LAA. A personal health history of allergy to other animals (typically cats and dogs) may increase the risk of developing LAA. Additionally, atopic individuals may be at increased risk. Atopy is an inherited tendency to develop allergies, such as hay fever (seasonal allergies), asthma, and eczema.

According to the National Institute for Occupational Safety and Health (NIOSH), when no prevention strategies are used, one out of every three (3) to five (5) individuals who works with laboratory animals will develop allergic symptoms. Further, one (1) in twenty (20) workers with allergies to animal proteins will develop asthma as a result of their contact with laboratory animals.

Animal Allergens

Sources to animal allergens vary with animal species and have been found in animal dander, urine, feces, saliva, feathers, blood, serum and plasma. Allergens can become airborne and carried on the hair and clothing of individuals working with laboratory animals and expose people who do not directly work with the animals. Even a low exposure to these common allergens can trigger an allergic response, but according to NIOSH, the risk increases as the individual's exposure increases.

Symptoms of Laboratory Animal Allergy

Symptoms of LAA vary among employees who become sensitized and most employees who do develop LAA will do so within the first three (3) years of exposure [Gordon S., Preece R.]. Mild reactions include sneezing, runny nose, nasal congestion, itchy or irritated eyes. More moderate reactions may include the development of skin rashes. Symptoms that suggest a more serious reaction, such as asthma, may include persistent cough, chest tightness, wheezing, or shortness of breath. In sensitized individuals, reactions often occur soon after exposure to the animal allergen but may be delayed for two (2) to eight (8) hours or more. Anaphylaxis is a rare, severe allergic reaction that can be triggered in sensitized individuals and lead to difficulty breathing, swelling of the throat, rapid drop in blood pressure and unconsciousness. Anaphylaxis is a medical emergency and may be fatal without immediate medical intervention.

Prevention of Laboratory Animal Allergy

The [Environmental Health & Safety \(EHS\) department](#) is available to consult with individuals, principal investigators (PIs) and departments on the evaluation and implementation of engineering and administrative controls to reduce exposure to animal allergens. Where exposure cannot be eliminated, personal protective equipment (PPE) can be worn to further minimize the risk of exposure. EHS can offer PPE options to mitigate the identified hazard.

Work Practices and PPE

- When appropriate, perform animal work in a ventilated hood or biological safety cabinet. When not working in a hood or cabinet, make sure that the ventilation system in the room is working properly.
- Cage changing/cleaning facilities should employ laminar airflow with PPE approved by EHS.
- Avoid direct contact by wearing gloves and eye protection.
- Dust masks (surgical masks) are available from the University and should always be worn in animal housing areas to prevent droplet and touch contamination to the mucous membranes of the nose and mouth. Dust masks are not a respirator. If an individual needs protection from aerosolized animal allergens or zoonotic agents, an EHS approved respirator should be worn.
- Avoid potential exposure problems for family and co-workers by covering street clothes and hair while working with the animals (lab coats and hair covers).
 - Leave work clothes at the workplace. This helps to minimize the risk of carrying animal allergens that stick to clothes and hair outside of the animal housing areas.
 - Do not eat or drink where animals are kept. Do not wear lab coats and hair covers while eating or drinking.
 - Wash hands frequently and before leaving the work area and before eating and drinking.
 - Shower prior to going to sleep to avoid allergens that may be present in your hair from getting into your bedding at home.
- Use ventilated animal cage racks or filter-top animal cages where feasible.
- Keep cages and animal areas clean. Use HEPA filtered vacuums and wet cleaning procedures to wipe down animal areas.
- Avoid high particulate producing bedding.
- Perform administrative work (paperwork) outside of the animal housing areas to minimize exposure as much as possible.
- Restrict access to animal housing areas to authorized personnel.

Respiratory Protection

Engineering and administrative controls, rather than the use of respirators, should be the primary methods for the prevention of LAA. However, if ventilation, hoods or cabinets are inadequate or not feasible, a respirator may be advised. Prior to wearing a respirator, employees should be medically cleared, fit tested and trained. Employees not required to wear a respirator but who wish to wear one voluntarily while in laboratory animal areas should be assisted with this request.

Employees required to wear a respirator or voluntarily electing to wear a respirator will be referred to the *HealthPoint* Occupational Health Program (OHP). The employee will complete a Respiratory Protection Questionnaire that includes personal health information necessary to determine whether it is safe for an individual to wear a respirator. Respirators pose their own health risks. Individuals with respiratory or cardiac conditions may be at greater risk for health complications from these conditions while wearing a respirator. Questionnaires are kept confidential in OHP and separate from personnel records. After medical clearance is obtained, the employee will be fit tested to the make & model of respirator to be worn. Fit testing is completed in the OHP clinic or referred to an external provider for remote campus locations.

Respirators commonly worn in laboratory settings at the University include disposable filtering facepiece respirators (e.g. N95) or a reusable half-mask air purifying respirator (APR). Facial hair cannot impede the seal of a tight fitting respirator so employees need to include personal grooming as part of their respiratory protection plan. Employees unable to wear a tight fitting respirator due to a medical condition may qualify for a loose fitting powered air purifying respirator (PAPR).

Figures 1, 2 & 3: Common respirator types for protection from animal allergens



Occupational Health Program

All employees coming into contact with laboratory animals should enroll in the occupational health medical surveillance program. “Employees” includes faculty, staff, postdoctoral associates and student workers. Staff may include personnel from Facilities and Housekeeping assigned to support the Animal Resource Center (ARC) or other animal housing areas. Medical surveillance includes the completion of a required [Health Assessment Questionnaire for Personnel Working with Research Animals and Other Hazards](#) to determine the animal species and anticipated intensity, frequency and route of exposure. Employees that work with mammals or in the ARC animal housing areas will receive a copy of this information guide. The health assessment questionnaire also includes personal health information that will assist OHP staff in providing individualized counseling on occupational health risks and ways to minimize exposure that is specific to an employee’s circumstance. Employees working in high risk areas will complete an abbreviated Update Questionnaire annually and employees working in low risk areas will complete the Update Questionnaire every three (3) years.

Reporting Symptoms

Diagnosis of LAA is based on patient history, exposure risk, physical examination and testing deemed medically appropriate by a physician. An employee experiencing symptoms of LAA should inform their supervisor and contact the *HealthPoint* OHP office at 512-471-4OHP (4647). OHP will work with the employee to discuss ways to eliminate or reduce symptoms and may make a referral for advanced evaluation & treatment, if indicated. OHP will also work with the employee to complete the necessary paperwork associated with filing a workers’ compensation claim, if appropriate. A UT System workers’ compensation adjuster will review the claim and determine whether or not the condition is compensable under the workers’ compensation insurance (WCI) system. If a claim for coverage is denied under the WCI system, the employee may still seek treatment using their personal health insurance coverage.

Employees that require extensive medical treatment or who suffer from repeated asthma attacks despite workplace controls and wearing PPE may be referred to the Campus ADA Coordinator (Americans with Disabilities Act) to have an interactive discussion about their work assignment and review the reasonable accommodations that may be available.

University Contact Information

- Environmental Health & Safety Department (EHS), 512-471-3511, <http://www.utexas.edu/safety/ehs/>
- *HealthPoint* Occupational Health Program (OHP), 512-471-4OHP(4647), email at Healthpoint.ohp@austin.utexas.edu, or website at hr.utexas.edu/current/services/ohp.html
- Animal Resource Center, <https://research.utexas.edu/arc/>
- Institutional Animal Care and Use Committee (IACUC), <https://research.utexas.edu/arc/policies-and-procedures/animal-care-or-use-concerns/>

References

1. National Institutes of Health (NIH), [Laboratory Animal Allergy Prevention Program](#) (LAAPP), January 2003, rev. May 24, 2011
2. NIOSH Alert: Preventing Asthma in Animal Handlers, January 1998 DHHS (NIOSH) Publication No. 97-116, posted at <http://www.cdc.gov/niosh/docs/97-116/>
3. Stave G., Darcy D. Prevention of Laboratory Animal Allergy in the United States, A National Survey. *JOEM*. 2012; Volume 54, Number 5.
4. Gordon S., Preece R. Prevention of Laboratory Animal Allergy. *Occupational Medicine*. 2003; 53:371-377.