

## Allergy Policy Regarding Laboratory Animals Brandon University Animal Care Committee (BUACC)

### Scope

All users of and visitors to the Brandon University Animal Facility are covered under this policy.

### Purpose

Providing a healthy and safe environment for all users of research and teaching animals is of utmost importance to Brandon University. Providing information regarding the nature, prevention, managing, disclosing of laboratory animal allergies (LAA) is an important element in creating such an environment.

### Definitions

- ACC – Animal Care Committee
- Anaphylaxis - “is a serious allergic reaction that is rapid in onset and may cause death”<sup>1</sup> “or a serious, generalized or systemic, allergic or hypersensitivity reaction that can be life-threatening or fatal”<sup>2</sup>.
- BU – Brandon University
- Fomites – “consist of both porous and nonporous surfaces or objects that can become contaminated with pathogenic microorganisms and serve as vehicles in transmission”<sup>3</sup>.
- LAA – Laboratory animal allergy – “is an allergic hypersensitivity response which may develop as a result of exposure to animal allergens”<sup>4</sup>.
- PI – Principal Investigator
- PPE – Personal protective equipment
- SOP – Standard operating procedure

### Accountability

1. Development and implementation of policies pertaining to the appropriate use and care of laboratory animals is the responsibility of the Brandon University (BU) Animal Care Committee (ACC).
2. Personal protective equipment (PPE) for animal facility users and visitors will be obtained from the Animal Health Technologist.
3. It is the duty of the Animal User to:
  - a. Use pertinent PPEs in the proper manner ;
  - b. Follow Animal Facility SOPs and rules; and
  - c. Inform the Animal Health Technologist and the Principal Investigator (PI) of any laboratory animal allergy (LAA) symptoms and additional PPE requirements using the Brandon University Incident Report. If further practices need to be put into place that can't be accommodated by the Animal Health Technologist, the Incident Report will be provided to the Dean of Science.

## Policy

Laboratory animal allergy “is an allergic hypersensitivity response which may develop as a result of exposure to animal allergens”<sup>3</sup>. LAAs have been reported by 10 to 30% of individuals working with laboratory animals<sup>5</sup>. Reported symptoms included sneezing, skin reactions – hives being the most common, runny nose, conjunctivitis, nasal congestion, inflammation of nasal mucosa, and asthma – wheezing, coughing, shortness of breath<sup>5,6</sup>. In rare circumstances anaphylaxis may occur<sup>7</sup>. Long-term duration of exposure has been associated with increased sensitivity to allergens<sup>5,6</sup>. Five to 40% of individuals develop allergies in the first 1 to 2 years of exposure<sup>5</sup>.

Some of the most common LAA are typically caused by exposure to proteins created in the liver of rodents that are expelled in their urine; individuals can also be exposed to allergens by coming in contact with hair, dander, serum and saliva<sup>5</sup>. Exposure to these proteins can occur through direct contact, by fomite transmission, and through these particles becoming airborne<sup>5</sup> due to handling and movement of animals, and disruptions in bedding. Humans most frequently experience allergens from rats and mice, as they are two of the most frequently used species; in addition, individuals also fairly often come in contact with allergens from rabbits and guinea pigs<sup>5,8</sup>.

In dealing with LAA the best management option is prevention which achievement can be aided through reducing exposure to animals, engineering controls, staff training, and the use of PPE<sup>4,9</sup>.

### *Reducing exposure to animals:*

Reducing exposure to research and teaching animals can help reduce exposure to animal allergens. One way of reducing exposure is by restricting access to the Animal Facility<sup>4</sup>. The Animal Facility at Brandon University is restricted to those who have received Access Cards authorized by the Dean of Science.

### *Engineering controls:*

To help reduce exposure to airborne animal allergens engineering controls should be utilized. These controls include the use of ventilated housing cabinets and maintenance of appropriate air exchanges rates and relative humidity, as the use of ventilated cabinets, higher air exchange rates, and higher humidity levels have been shown to reduce aerosolized allergens<sup>9</sup>. The Animal Health Technologist monitors the animal facility’s air exchange rate, relative humidity and other parameters through monthly reports provided by BU Physical Plant. The use of an automatic cage washer can also reduce airborne animal allergens. The Animal Facility at BU utilizes a ventilated housing cabinet for rodents and an automatic dishwasher to clean cages.

### *Staff training:*

Reduced exposure to animal allergens can also be achieved through proper training of new Animal Users and individuals maintaining and visiting the Animal Facility. This includes training and education in the proper use of PPE, appropriate animal handling techniques, and allergen exposure risks associated with laboratory animal use and exposure<sup>9</sup>. The Animal Health Technologist will provide new Animal Users and Animal Facility Staff with information regarding the standard operating procedures (SOPs) associated with the use of the Animal Facility during the mandatory Animal Facility orientation and training in the proper fit and use of appropriate PPE. Prior to use of the Animal Facility, new Animal Users and Animal Facility Staff must read the appropriate Canadian Council on Animal Care (CCAC) modules and successfully complete the associated quizzes as outlined in BUACC’s Policy on the Training of Personnel Working with Animals. All new animal users and Animal Facility Staff are required to read CCAC’s core module on Occupational Health and Safety which includes sections on wearing appropriate PPE and allergies to Laboratory Animals. Pls and the Animal Health Technologist will provide hands on training for new Animal Users and Animal Facility Staff.

### PPE:

Exposure to animal allergens cannot be completely avoided through the use of engineering controls. Therefore it is important for Animal Users and Animal Facility staff to use appropriate PPE. Proper use of PPE is essential for reducing exposure to animal allergens through the use of PPE. The BU Animal Health Technologist will help determine which PPE are appropriate for particular Animal Users and Animal Facility Staff and train proper use of PPE, as indicated in the “Staff training” section of the current policy. Additional PPE may be required if an Animal User or Animal Facility Staff shows signs of LAA. Examples of PPE include hair bonnet, N95 respirator, lab coat, gloves, and shoe covers. These help prevent animal allergens from being transmitted to other locations in the Animal Facility and individuals’ homes. Because of the importance of using appropriate PPE to prevent the development and exacerbation of LAA, if Animal Users and Animal Facility staff are thought to be in non-compliance with regards to the use of PPE the BUACC Non-Compliance Procedures Policy outlines the procedures to be followed. Individuals found to be in non-compliance may have their access to the Animal Facility revoked.

### Incident Report:

An Animal Facility User is to report to the Animal Health Technologist and PI (if they aren’t the PI) using an Incident Report if they experience allergic symptoms related to the use of the Animal Facility. This Incident Report will be forwarded to the Dean of Science. For a list of some possible allergic symptoms see “Policy” section of this policy. If an Animal Facility user develops a severe allergy they will be directed to Human resources, if they are an employee, and to Student Accessibility Services, if they are a student, as per Brandon University’s Severe Allergy Prevention and Control Policy.

### References

- Sampson, H.A. et al. (2006). Second symposium on the definition and management of anaphylaxis: Summary report – second National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network symposium. *Journal of Occupational Health, Journal of Allergy and Clinical Immunology*, 117, 391-397. <https://doi.org/10.1016/j.jaci.2005.12.1303>
- Simons et al. (2014). International consensus on (ICON) anaphylaxis. *World Allergy Organization Journal*, 7, 1-19. <http://www.waojournal.org/content/7/1/9>
- Boone, S.A. & Gerba, C.P. (2007). Significance of fomites in the spread of respiratory and enteric viral disease. *Applied and Environmental Microbiology*, 73, 1687-1696. doi:10.1128/AEM.02051-06
- Control of laboratory animal allergy. Health and Safety Executive. <http://www.hse.gov.uk/pubns/eh76.pdf>
- Straumfors, A., Eduard, W., Andresen, K., and Sjaastad, A.K. (2018). Predictors for increased and reduced rat and mouse allergen exposure in laboratory animal facilities. *Annals of Work Exposures and Health*, 62(8), 953–965. <https://doi.org/10.1093/annweh/wxy060>
- Simoneti, C.S., Souza Freitas, A., Rodrigues Barbosa, M.C., Ferraz, E., Bezerra de Menezes, M., Bagatin, E., Arruda, L.K., Elcio Oliveira Vianna, E.O. (2016). Study of risk factors for atopic sensitization, asthma, and bronchial hyperresponsiveness in animal laboratory workers. *Journal of Occupational Health*, 58, 7-15. <https://doi.org/10.1539/joh.15-0045-OA>
- Bush, R.K. (2001). Mechanism and Epidemiology of Laboratory Animal Allergy. *Institute for Laboratory Animal (ILAR) Journal*, 42, 4-11. <https://doi.org/10.1093/ilar.42.1.4>
- Aoyama, K. et al. (1992). Allergy to laboratory animals: an epidemiological study. *British Journal of Industrial Medicine*, 49, 41-47. <http://dx.doi.org/10.1136/oem.49.1.41>

- Phipatanakul, W. et al. (2012). Environmental assessment and exposure reduction of rodents: a practice parameter. *Annals of Allergy, Asthma, & Immunology*, 109, 375-387.  
<https://doi.org/10.1016/j.anai.2012.09.019>

## Sources

- Canadian Council on Animal Care: Occupational Health and Safety module.  
<https://www.ccac.ca/en/training/modules/core-stream/occupational-health-and-safety.html>
- Centre for Addiction and Mental Health. (2017). Allergens Standard Operating Procedure.
- McGill University. (n.d). Allergy Prevention.
- University of Prince Edward Island. (2018). Laboratory Animal Allergy Policy

*BUACC Approved – August 28, 2019*  
*SRC Approved – November 29, 2019*  
*Senate Approved – December 17, 2019*  
*Updated June 2020*