Yale *Environmental Health & Safety*

Guidelines for Dust and Allergen Control in Laboratory Animal Facilities

Laboratory animal allergy (LAA) has emerged as a significant health hazard among individuals working with laboratory animals, especially rodents. Although a variety of potential contaminants are found in elevated concentration in laboratory animal facilities, the principal aero-allergens in rodent rooms are fur, dander, and urinary and saliva-derived proteins carried on airborne particulate matter, especially bedding. Although not related to allergens, many other operations within research animal facilities also expose individuals to elevated levels of particulates and dust, including feed pellet sifting and clean bedding dispensing that may still cause irritation and health effects to personnel.

Yale EHS and YARC have performed extensive monitoring for dust and LAAs under a wide range of operations involving rodents in laboratory research. Based upon this work, various control measures have been implemented. To maintain reduced exposures and improve healthfulness, the following recommendations should be observed whenever working with or around research animals, especially mice and rats:

- **Dusty Operations**: Recognize that many animal research and support activities generate significant amounts of dust, including potential allergenic materials. Observe all standard operating procedures to reduce exposures to dust, especially the use of exhaust ventilation devices and equipment. All activities that may potentially cause exposure to animal allergens should be conducted under local exhaust ventilation, such as a ventilated dump station, biosafety cabinet, animal transfer station, or fume hood. If none is available, respiratory protection must be worn.

- **Medical Screening and Clearance**: Individuals working with research animals or visiting YARC facilities must be medically cleared in advance. The Chief of Employee Health conducts a risk assessment based on a medical questionnaire, and contacts and advises personnel about any additional medical screening requirements, immunizations, allergy risks, or other preventive measures. Individuals are reminded to notify their personal physician and the Employee Health Office of any changes in their health status that could impact or be impacted by work with and around research animals.

- **Personal Attire and Hygiene**: Since LAAs are carried on particulates, individuals should wear long pants and keep arms covered. Long hair should be tied hair back or pinned up to minimize open surface area exposure; alternatively, a hair net can be worn. Long beards should likewise be covered or restrained. Protective gowns or scrubs need to be worn if handling research animals or doing activities where there is a chance of exposure to dust or allergens. Individuals leaving an animal facility should always wash their hands.

- **Personal Protective Equipment**: Personal protective equipment (PPE) requirements vary by species, work activity, use of infectious or other hazardous agents in the animals, and personal medical conditions. General YARC facility corridors pose minimal dust and LAA exposures, and may be traveled through without any PPE. However, entry into husbandry rooms may require donning PPE. For those rooms with only “clean” rodents, the yellow cloth gowns should be added if not wearing departmental scrubs. Gloves and safety glasses should also be worn if handling animals. For rooms involving other species, those with quarantine restrictions, and rodents involved in infectious or other hazardous agent work, more advanced PPE is required. Consult the room orders, lead person, or YARC facility manager.

- **Husbandry Practices**: Rodent transfers and all other work that requires opening or otherwise accessing the interior of a cage must be performed under exhaust ventilation. For "clean" animals, this work can be performed in a certified animal transfer station (ATS) or a biological safety cabinet (BSC). For animals involved in infectious or other hazardous agent work, animal transfers are generally restricted to BSCs; consult the lead person or facility manager for specific details. YARC housing for rodents must be in filter-contained cages, either in static microisolator systems for infectious/hazardous agent work or in HEPA filtered IVC rack systems for clean animals. For high density BL3 housing, special HEPA filtered containment IVC systems may be used.

- **General Cleaning**: Dry sweeping generates very high levels of dust in the air, and is prohibited in all animal facilities. Instead of dry sweeping, daily wet mopping of interior hallways and husbandry rooms is essential to limit and remove dust accumulations. In the event that a vacuum cleaner is needed for a special cleaning application, only a true HEPA filtered unit should be used. Contact the lead person, YARC facility manager, or EHS for assistance.

- **Sanitation**: Among YARC activities, the disposal of waste bedding by cage dumping produces the highest levels of dust and airborne LAAs. Cage dumping must be performed with local exhaust ventilation, either by a fixed exhaust station (e.g., TAC dirty-side washroom) or portable HEPA filtered dump stations. In the event that the local exhaust device is broken or undergoing service, staff must wear respiratory protection, either as an N95 respirator or a HEPA filtered powered air purifying respirator (PAPR). No open air cage dumping is permitted. When working at a portable dump station, minimize your dust and LAA exposures by not overfilling the liner bags and only tying them shut while still under the ventilation station.

If you have any questions about LAAs, dust, or your personal health, please contact one or more of the following groups:

Medical clearance, personal health issues	Employee Health Office	432-0071
YARC work practices and SOPs	Animal Resources Center	785-2526
Veterinary questions	Veterinary Clinical Services	785-4281
Dust and LAA control, respirator advice	Environmental Health & Safety	785-3550

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