

Personnel

Item 2 – Occupational Health Policy for Individuals with Animal Contact

Subsection 2.9 – Occupational Risks of Working with Rats

Allergies

Background: This is the most significant health risk associated with the handling of specific pathogen-free rats bred for research. The major rat allergens are urinary proteins, *Rat n 1a* and *Rat n 1B*. The amount of allergens in the air is directly proportional to the number of animals in the room and the amount of work activity. Disturbing bedding (such as dumping cages) releases the highest level of allergens.

Diagnosis: Skin testing can be performed, but is not administered routinely. History of previous sensitivities to other allergens might indicate increased risk of developing sensitivity to rats. Allergic symptoms include sneezing, nasal congestion, itchy eyes, cough, wheezing, shortness of breath, or hives.

Prevention: Opening cages and manipulating animals in a HEPA-filtered, laminar flow hood is probably the best method of decreasing aerosol exposure. Dedicated clothing (lab coat) and gloves worn only when working with animals is also effective in decreasing exposure. Good personal hygiene is important, especially frequent hand washing. Surgical masks are probably not very effective in preventing exposure. For those with known sensitivity, an OSHA-approved dust-mist respirator should be worn, but these require specific fitting to the user.

Bites and Scratches

Background: Rat bites can be quite serious due to the disease **Rat Bite Fever** which is caused by either *Streptobacillus moniliformis* or *Spirillum minor*. Although there have been attempts to clear commercial colonies of these organisms, they still occur. Transmission is not uncommon due to the deep, penetrating nature of rat bites. They have long incisors which make small, deep puncture wounds that essentially inoculate the organism(s) into the tissues. Signs are pain and swelling at the site, swollen lymph nodes under the arm, then flu-like symptoms. Severe arthritis, endocarditis and other systemic infections can occur if not treated. Scratches are not usually a problem unless the person is allergic (see above).

Prevention: Good handling techniques are most important. Thicker protective gloves are available, but these can make handling rats awkward and can put the animal at risk of injury. With good training, confident handling, and paying close attention to the behavior of the animal, bites and scratches can be minimized.

Treatment: Wash thoroughly with an antibacterial soap and water for long periods (at least 10 minutes). Complete an incident report. Seek medical attention if there is excessive bleeding, pain or joint involvement. If swelling, discoloration, chronic pain or any discharge develops, seek medical attention immediately.

Other Risks

Wild Rats: There are a number of diseases that can be carried by wild rodents and passed to humans. Leptospirosis, Salmonellosis, Tapeworms and Ectoparasites are just a few examples. The Department of Laboratory Animal Resources should be notified if wild rodents are to be utilized and can provide further information on any of these diseases.

Additional Information

Books:

Occupational Health and Safety in the Care and Use of Research Animals, Institute for Laboratory Animal Resources, National Research Council. National Academy Press, 1997.

Viral and Mycoplasmal Infections of Laboratory Rodents: Effects on Biomedical Research, Bhatt, Jacoby, Morse III, and New, eds. Academic Press, 1986.

Infectious Diseases of Mice and Rats, Institute for Laboratory Animal Resources, National Research Council. National Academy Press, 1991.

The Laboratory Rat, Baker, Lindsey & Weisbroth, eds. Academic Press, 1979.

Videos:

The Humane Care and Use of The Mouse, Rat and Hamster, Laboratory Animal Training Association, 1991.

Internet:

<http://clueless.ucdavis.edu/> - This is the laboratory animal occupational health information provided by the University of California – Davis; compiled by Dr. Phil Tillman.

If you have any questions or would like additional information, please contact Dr. Robert Quinn, Director of the Department of Laboratory Animal Resources at 4-6563.

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