



Care and Use of Laboratory Mice, Rats, and Other Rodents

This information sheet summarizes potential zoonotic diseases and allergies associated with laboratory mice, rats, and other rodents, as well as recommended protective measures.

Colony-born rodents are generally docile, but may occasionally inflict injury such as a bite or scratch. While rodents may carry organisms that are potentially infectious to humans, the primary health risk to individuals working with laboratory rodents is typically development of allergies. The development of disease in humans often requires a preexisting state that compromises the immune system. If you have an immune-compromising medical condition or you are taking medications that impair your immune system (steroids, immunosuppressive drugs, or chemotherapy, for example) you are at higher risk for contracting a rodent disease and should consult your physician.

Potential Zoonotic Diseases

Lymphocytic choriomeningitis: Lymphocytic choriomeningitis (LCM) virus is a member of the Arenaviridae family. LCM is widely distributed among wild mice throughout the world, and it can be naturally present in laboratory rodents and other species. Although generally uncommon, human LCM infection has been associated with laboratory animal and pet contact. Transmission of LCM to humans can occur through direct contact of infected materials with mucous membranes or broken skin, inoculation, and aerosol exposure. Disease in humans typically produces flu-like symptoms that range from mild to severe. LCM infection in pregnant women can result in infection of the fetus.

Campylobacter: *Campylobacter* is a gram negative bacterium present in a number of animal species throughout the world. Young animals are thought to readily acquire the infection and shed the organism. Numerous cases of zoonotic transmission from laboratory animals and pets have been recorded. Transmission occurs by the fecal-oral route, commonly through ingestion of contaminated food or water, or by direct contact with infected animals. Campylobacters cause acute gastrointestinal illness: diarrhea with or without blood, abdominal pain, and fever. Additional severe health effects may also occur in rare cases.

Leptospirosis: *Leptospirosis* bacteria are ubiquitous in nature, commonly found free-living in fresh water and in numerous animal species throughout the world. Over a dozen *Leptospirosis* species have been identified, with hundreds of serovars. Rodents are natural carriers of leptospires, and may carry the organism for life without symptoms. The leptospires infect the kidneys, and may shed in the urine for years. Transmission to humans can result from direct contact with urine or tissues from infected animals, as well as incidental ingestion or inhalation of aerosols. Laboratory-acquired infection is well-documented. The disease in humans may cause a variety of flu-like symptoms, ranging from mild to severe. Other possible symptoms include rash, hepatorenal failure and jaundice, neurological disorders, and pulmonary involvement.

Hantavirus Infection: *Hantavirus* infection occurs among wild rodent populations throughout the world. Rats and mice are often implicated in human outbreaks of the disease. Although uncommon, laboratory-acquired hantavirus infection has occurred. Rodents shed the virus in their respiratory secretions, saliva, urine and feces. Transmission to humans is typically via inhalation of infectious aerosols, although it can also occur through direct contact with broken skin or mucous membranes and

through animal bites. Disease due to laboratory-associated exposure is typically characterized by fever, headache, myalgia (muscle aches) and petechiae (rash) and other hemorrhagic and renal symptoms.

Allergic Reactions to Rodents

By far the greatest occupational health risk from working with rodents is development or elicitation of allergies. Those workers that have other allergies are at greater risk of developing animal allergies. Animal components such as dander, hair, scales, fur, saliva and body waste, and urine in particular, contain powerful allergens that can cause both skin disorders and respiratory symptoms. The primary symptoms of an allergic reaction are nasal or eye symptoms, skin disorders, and asthma.

How to Protect Yourself

- **Wash your hands.** The single most effective preventative measure that can be taken is thorough, regular hand washing. Wash hands and arms after handling any animal. Never smoke, drink or eat in the animal rooms or before washing your hands.
- **Wear gloves.** When working with rodents wear appropriate gloves for the task and wash your hands after removing gloves.
- **Use respiratory protection.** Dust masks should be worn when there is a risk of aerosol transmission of a zoonotic agent or when there is a medical history of allergies.
- **Wear other protective clothing.** Lab coats should be available and worn when working with rodents. Avoid wearing street clothes while working with animals. Lab coats should be disposed of or laundered at work.
- **Seek Medical Attention Promptly.** If you are injured on the job, promptly report the accident to your supervisor, even if it seems relatively minor. Minor cuts and abrasions should be immediately cleansed with soap and water and then protected from further exposure. For more serious injuries or if there is a question regarding severity and potential long term health problems, individuals should report to:

Employees: Campus: Santa Cruz Occupational Medical Center (SCOMC)
610 Frederick Street
Santa Cruz, CA
831-457-7118
8 a.m. to 4:30 p.m. Monday through Friday, except holidays

Students: Campus: [Student Health Services](#)
(831) 459-2500

After hours or weekend care: Dominican Hospital Emergency Department

- **Tell your physician you work with rodents.** Whenever you are ill, even if you're not certain that the illness is work-related, always mention to your physician that you work with rodents. Many zoonotic diseases have flu-like symptoms and would not normally be suspected. Your physician needs this information to make an accurate diagnosis. Personal health questions should be answered by your physician.