



Zoonoses Associated with New World Nonhuman Primates, including Marmosets

This information sheet is intended for Princeton University faculty, students and staff who conduct research with marmosets. Researchers who have contact with macaques should consult the information sheet: Zoonoses Associated with Old World Nonhuman Primates.

Summary

Researchers and animal care staff should be aware of the potential for transmission of zoonotic diseases when handling marmosets. Animal bites and scratches, broken skin contact with animal wastes and soiled equipment, and accidental ingestion of organisms can result in the transmission of zoonotic diseases.

Humans can spread diseases, such as measles (rubeola), tuberculosis and influenza, to marmosets. Personnel who enter areas where marmosets are housed or tested must participate in the Occupational Health Program for Animal Workers, which includes proof of rubeola immunity and annual TB testing.

Although the use of personal protective equipment, proper disinfection and hand hygiene can reduce the potential for transmission of viruses, persons who have upper respiratory infections such as the common cold or flu or active *herpes simplex* lesions (cold sores) should not enter marmoset areas until symptoms have resolved.

Zoonotic Agents of Concern

Tuberculosis

Mycobacterium spp. may be transmitted from humans to marmosets. The bacteria can be spread through aerosolization of the organism, which can be found in the saliva. All persons who enter marmoset areas must participate in the Occupational Health Program for Animal Workers, which includes annual TB testing.

Measles

Rubeola (measles) can be spread easily from humans to marmosets.. A measles outbreak can devastate a marmoset colony. The virus is extremely contagious and spreads via the airborne route. All persons who enter areas where marmosets may be housed, tested or treated must have proof of rubeola immunity, which is included in the Occupational Health Program for Animal Workers.

Enteric Pathogens

Several pathogens may be transmitted from marmosets to humans via the fecal oral route. Prevention of transmission is achieved through use of personal protective equipment, disinfection of surfaces and equipment and proper hand hygiene.

Shigellosis

Non-human primates, including marmosets, can shed *Shigella* bacteria. Symptoms include diarrhea, fever, and stomach cramps starting a day or two after ingestion of the bacteria. The diarrhea is often bloody. Shigellosis usually resolves in 5 to 7 days.

Salmonellosis

Salmonella bacteria, shed in the feces of infected non-human primates, can cause fever, cramps and diarrhea approximately 12 to 72 hours after ingestion. Persons with impaired immune systems can develop more serious illness, if treatment is not received and the infection spreads to the bloodstream.

Cryptosporidium

Cryptosporidium is a parasite that affects many mammals. Infected animals shed the organism in their feces. It is fairly resistant to disinfectants and will continue to be shed in animals after symptoms of illness have stopped. Most humans will develop diarrhea which typically resolves within 1 to 2 weeks without treatment. Immune compromised persons are at risk of developing serious disease.

Giardiasis

Giardiasis is caused by ingestion of the parasite *Giardia*. Symptoms, including diarrhea, nausea and abdominal cramps may begin 1 to 3 weeks after ingestion and linger for 2 to 6 weeks. Treatment is available and may be recommended by your healthcare provider.

Other Zoonotic Agents

Non-human primates can also serve as a source of transmission for viruses, such as hemorrhagic fever viruses and monkey pox viruses. It is unusual for these and other viruses to be present in purpose-bred animals, however, marmosets and their body fluids should be handled as if they could be a source of infection. Wear personal protective equipment, described below, when working with marmosets or their body fluids, practice good hand hygiene and disinfect potentially contaminated surfaces regularly.

Prevention

Wear personal protective equipment. Lab coat, gloves, surgical mask, face shield or safety glasses, gown, booties and bonnet are required when working in marmoset housing and procedures areas or when handling soiled equipment from these areas.

Handwashing is the most important measure you can take to prevent transmission of zoonotic organisms. Wash your hands with warm water and soap after removing gloves and upon exiting the animal facility or procedure rooms.

Persons with cold or flu symptoms or active herpes simplex lesions (cold sores) should not enter marmoset housing or procedure rooms.

Report injuries or illnesses to your supervisor and University Health Services.

- Bite or bite or scratch wounds: clean immediately with soap and water.
- Eye exposures: flush for 15 minutes at eyewash.
- **Report all bites, scratches, injuries and illnesses** associated with non-human primate research and husbandry activities to University Health Services:
 - Weekdays, 8 a.m. to 4 p.m., seek treatment through Employee Health
 - After 4 p.m. and on weekends, report to the Emergency Room at University Medical Center at Princeton Plainsboro.
 - Contact the Department of Public Safety and request transport assistance by dialing 911 from a University phone or 609 258 3333 from a cell phone.

Always tell your treating physician about your research. Regardless of your symptoms, tell your physician about the work you do in the laboratory. Persons with weakened immune systems should seek advice from University Health Services practitioners on risks associated with exposure to zoonotic agents in the animal laboratory.

University Health Services
Student Health: 609-258-3141
Employee Health: 609-258-5035

Environmental Health and Safety
Main Number: 609-258-5294

References:

Centers for Disease Control and Prevention. 2014. Salmonella. Available at:
<http://www.cdc.gov/salmonella/>

Centers for Disease Control and Prevention. 2014. <http://www.cdc.gov/shigella/general-information.html>

Centers for Disease Control and Prevention. 2014. <http://www.cdc.gov/parasites/crypto/>

Matz-Rensing K., Jentsch KD, Rensing S, Langenhuyzen S, Verschoor E, Niphuis H & Kaup FJ. 2003. Fatal *Herpes Simplex* Infection in a Group of Common Marmosets (*Callithrix jacchus*). Vet Pathol 40:405-411.

Merck Veterinary Manual. 2014. Viral Diseases of Nonhuman Primates.
http://www.merckmanuals.com/vet/exotic_and_laboratory_animals/nonhuman_primates/viral_diseases_of_nonhuman_primates.html. Accessed February 4, 2015.