Exposure Response Plan for the Laboratory Handling of *Legionella pneumophila*

**Background Information**

*Legionella pneumophila* are Gram-negative aerobic coccobacilli, isolated from surface water, soil, or thermally polluted lakes or streams. It is pathogenic for man and it has no known soil or animal sources. *Legionella pneumophila* is the main causative agent of *Legionnaires' Disease*. There are 16 recognized serogroups. *Pontiac fever* is caused by the same bacteria but produces a milder respiratory illness without pneumonia that resembles acute influenza. Pontiac fever also has a spontaneous resolution.

*Exposure Incident*: Laboratory acquired infections (LAIs): One case of a laboratory acquired infection with *L. pneumophila* has been reported. Infection was the result of aerosol inhalation during animal challenge studies. No person to person or animal to person infections has been observed. Infectious dose is unknown.

*Reporting Exposure Incidents*: Report all exposures to the Principal Investigator/lab supervisor and seek immediate medical evaluation. If help is needed with injuries or clean up, members of the University will contact the Police at 6-6911 and members of the Medical Center will contact Security at 6-5100. Whenever there is an accident involving *L. pneumophila*, the Biosafety Officer must be notified.

**Pre-exposure Health Screening:***

All employees will receive training on the risks of working with *L. pneumophila* and symptoms of exposure by the PI or Occupational Health Professional prior to beginning work with or around this agent. Immunocompromised persons should inform Occupational Health provider of their immune system status.

**Before an Exposure Incident Occurs:**

Immunization for *Legionella pneumophila* is not available.

**After an Exposure Incident Occurs: Immediate Action by Route of Exposure***

*Needlestick, Animal Bite or Laceration*: Wash the area with soap and running water. Low risk, no reports of infection.

*Mucous membranes (nose, mouth)*: If contaminated material is splashed or sprayed contaminating the nose or mouth: Rinse mouth out with clean water. Do not swallow. Wash the face being sure that the nasal cavities have been rinsed as much as possible.
Inhalation: If contaminated materials are aerosolized outside of primary containment and potentially inhaled, rinse mouth twice expelling the rinsate. Do not swallow.

Remove contaminated clothing using gloves and place in autoclave bags. Clothing is autoclaved and then laundered. Wash contaminated skin with soap and water. Low risk, no reports of infection.

After an exposure incident occurs: medical evaluation and follow-up:

Following immediate post exposure actions, contact the TMC Employee Health Clinic (Boston), TCSVM Occupational Medical Clinic (Grafton) or the Mt. Auburn Occupational Health Services (Medford) and arrange for medical evaluation, diagnosis and treatment if needed.

During this medical evaluation, the exposed individual may be asked to provide a blood sample, may be educated on the signs or symptoms of Legionella, and instructed to watch for the development of these signs and symptoms.

Signs and Symptoms of Legionnaire’s Disease vary according to infection site.

Symptoms typically begin suddenly one to three days after exposure. Most infections are asymptomatic, but the following symptoms may occur:

- Flu-like symptoms
- Fever
- Chills
- Productive or non-productive cough

Disease development depends on pre-disposing factors such as reduced immuno competence. Illness may last for a week or two. The mortality rate of Legionnaire’s Disease correlates with antibiotic resistance to penicillin; strains that are resistant have higher mortality rates. L. pneumophila can be colonized in the nose, throat or skin without symptoms or illness.

Post-exposure, pre-symptomatic prophylaxis: None

Post-exposure monitoring:

If any individual working with or around L. pneumophila develops signs or symptoms suggestive of exposure to L. pneumophila, they must inform the PI and Biosafety Officer immediately. Incubation period for Legionnaires’ disease is 2-14 days. Pontiac fever has an incubation period of 30 to 90 hours (with 24-48 hours being most common).

In accordance with Massachusetts regulation, any clinical laboratory identifying a positive culture of L. pneumophila must report to the Massachusetts Department of
Public Health in accordance with disease-reporting regulations. Due to the fact that this bacterium causes most cases of community acquired bacterial pneumonia, it is not reasonable to assume that infection is laboratory-acquired until clinically the organisms are compared.