Exposure Response Plan for the Laboratory Handling of Acanthamoeba

Background Information

*Acanthamoeba* keratitis is a debilitating infection of the cornea caused by parasites of the genus *Acanthamoeba*. It is characterized by intense pain and a slowly worsening clinical course. If not diagnosed early and treated aggressively, the infection may spread to other ocular tissues and enucleation is required.

*Acanthamoeba* can also cause a serious, often deadly infection of the brain and spinal column as well as skin lesions and disseminated infection usually in people with compromised immune systems.

*Acanthamoeba* have been isolated from a variety of sources including soil, air, swimming pools, and contact lens care products.

*Exposure Incident:* Laboratory acquired infections (LAIs) of corneal keratitis involve inadvertent exposure to trophozoites or cysts through splashing or other contamination incidents. The infectious inoculum of *Acanthamoeba* is thought to be less than 100 trophozoites or cysts. Persons who have been infected with *Acanthamoeba* can become infected again. The spread of *Acanthamoeba* infection from one person to another has never been reported.

*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. Whenever there is an accident involving *Acanthamoeba*, the Biosafety Officer must be notified.

Pre-exposure Health Screening:

All employees will receive training on the risks of working with *Acanthamoeba* and symptoms of exposure by the PI or Occupational Health Professional prior to beginning work with or around this agent. It is recommended that contact lens not be worn by anyone working with or around *Acanthamoeba*.

All immunocompromised employees who might potentially be exposed to Acanthamoeba during routine work should be advised to self identify to Employee Health Clinic (Boston) or Occupational Medical Clinics (Grafton/Medford) for further evaluation and discussion of the specific risks associated with immunodeficiency and exposure.

Before an Exposure Incident Occurs:

Immunization for *Acanthamoeba* is currently not available.
After an Exposure Incident Occurs: Immediate Action by Route of Exposure

*Mucous membranes (eye):* If contaminated material is splashed and contaminated the eyes, flush the eyes for 10-15 minutes.

*Contact with intact skin and clothing:* Remove contaminated clothing using gloves and place objects in plastic bags. Clothing is best disposed of as biological or medical waste. Wash contaminated skin with soap and water.

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

Following immediate post exposure actions, contact the Tufts MC Employee Health Clinic and arrange for medical evaluation, diagnosis and treatment if needed.

During this medical evaluation, the exposed individual may be asked to allow an eye scraping, may be educated on the signs or symptoms of *Acanthamoeba*, and instructed to watch for the development of these signs and symptoms. An eye exam may involve confocal microscopy to visualize the amoeba.

**Signs and Symptoms of Acanthamoeba include:**

- Eye Irritation, Pain and Redness
- Increased Light Sensitivity
- Foreign Body Sensation or Excessive Tearing
- Blurred Vision
- Excessive Tearing

**Post-exposure prophylaxis:**

There is currently no post exposure pre-symptom prophylaxis for Acanthamoeba.

If any individual working with or around *Acanthamoeba* develops signs or symptoms suggestive of exposure to *Acanthamoeba*, they must inform their PI and Biosafety Officer immediately. Signs and symptoms usually develop very slowly. The individual must be evaluated at Tufts MC Employee Health.