Francisella tularensis  
Pasteurella tularensis, tularemia, rabbit fever, deerfly fever, Ohara's disease

The following summary is provided by the McMaster Biosafety Office.

For a complete copy of the excerpted text below please refer to:  
https://erplan.net/WMD/BioFiles/Links/BiologicalAgents/Data/tularemiaData.htm

Gram negative non motile coccobacillus, non-sporing, aerobic, requires cystine for growth, two biovars, Jellison type A (highly virulent) and Jellison type b (mild disease)

INFECTIOUS DOSE: 5 - 10 organisms by the respiratory route; 106 - 108 organisms by ingestion
Inoculation of skin, conjunctival sac or oropharyngeal mucosa with blood or tissue while handling infected animals, or by fluids from infected flies, ticks or other animals; bite of arthropods (deerfly, mosquito) and ticks; inhalation of contaminated dust; able to pass through unbroken skin; rarely through bites of animals

Zoonosis from handling infected rodents and other animals; bites from infected blood sucking arthropods; cat bites

Survival outside host:  Carcasses and organs - up to 133 days; grain dust; bedbugs - 136 days; rabbit meat - 31 days; straw - 192 days; water - up to 90 days, infected rabbit meat stored frozen at -15° C has remained infective longer than 3 years

Laboratory acquired infections: Third most commonly reported; almost all cases involved tularemia research; few cases related to work with infected animals and their ectoparasites; 225 cases up to 1976 with 2 deaths. Sources are from lesion exudate, respiratory secretions, cerebrospinal fluid, blood, urine, tissues from animals and fluids from infected arthropods
Hazards are direct contact of skin or mucous membranes with infectious materials, accidental parenteral inoculation, ingestion, and exposure to aerosols and infectious droplets. Cultures have been more commonly associated with infection than clinical materials and infected animals.

Biosafety level 2 containment practices and containment for activities with clinical materials
Biosafety level 3 practices, containment and facilities for all manipulations of cultures and for experimental animal studies
Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, glutaraldehyde, formaldehyde. Susceptible to moist heat (121° C for at least 15 min) and dry heat (160-170° C for at least 1 hour)
Laboratory coat; impervious gloves when direct contact with infectious materials is unavoidable; gloves and gown (with tight wrists and tie in back), face masks for work with infectious materials in biosafety cabinet. Use impervious gloves when handling animals, especially rabbits.

The following summary is provided by Employee Health Services.

For a complete copy of the excerpted text below please refer to:

Facts
Tularaemia is a bacterial zoonotic disease of the northern hemisphere. The bacterium (Francisella tularensis) is highly virulent for humans and a range of animals such as rodents, hares and rabbits. It may cause epidemics and epizootics. F. tularensis is transmitted to humans (i) by arthropod bites, (ii) by direct contact with infected animals, infectious animal tissues or fluids, (iii) by ingestion of contaminated water or food, or (iv) by inhalation of infective aerosols. There is no human-to-human transmission.

Symptoms
Human tularaemia presents as an indolent ulcer at site of infection, accompanied by swelling of the regional lymph nodes (ulceroglandular); sudden onset of pain and fever, fever generally lasts 3 - 6 weeks without treatment; inhalation may be followed by a pneumonic disease or primary systemic (typhoidal) picture; type B strains 5-15% fatality rate; type A strains approximately 35% mortality from pulmonary tularaemia. The incubation period is related to virulence of infecting strain, size of inoculum (dose) and route of introduction; 1 - 14 days, usually 3- 5 days.

Diagnosis
Diagnosis is confirmed by serological testing.

Treatment
Tularemia can be difficult to diagnose. It is a rare disease, and the symptoms can be mistaken for other more common illnesses. For this reason, it is important to share with your health care provider any likely exposures, such as tick and deer fly bites, or contact with sick or dead animals. Blood tests and cultures can help confirm the diagnosis. Antibiotics are used to treat
tularemia. Treatment usually lasts 10 to 21 days depending on the stage of illness and the medication used. Although symptoms may last for several weeks, most patients completely recover. Treatment with antibiotics is an effective prophylaxis when given after post-exposure.

---

**Memorandum of Understanding and Agreement (“MUA”) for BSL2 Medical Monitoring Program**

**Note:** This MUA is to be signed by the employee/student and supervisor, filed and kept by the supervisor. It will be reviewed during the annual biosafety audit by the McMaster Biosafety office.

The employee/student named below acknowledges and agrees as follows:

- I have read and understand all of the information in this Medical Monitoring Information Sheet provided jointly by the McMaster Biosafety Office and Employee Health Services and reviewed the biologically hazardous agent to which I have potential exposure.  
  Initial here____

- I will report a pregnancy or a compromised immune system (due to medication {steroid or other immunosuppressive therapy}, organ transplant, chemotherapy or radiation therapy, HIV infection etc.) to my supervisor and X (graduate students) or Employee Health Services Occupational Health Nurse at ext. 20310 (faculty and staff) Initial here____

- I will report an exposure to a biological agent to my supervisor immediately and complete a McMaster incident/accident report. Initial here____

- I will report any illness that resembles the symptoms listed in this Medical Monitoring Information Sheet to my supervisor. Initial here____

- I recognize my responsibility to observe all safety practices and precautions while present in the BSL2 laboratory. Initial here____

- I am aware of, and wish to participate in, the medical monitoring program (RMM #605) for this biological level 2 agent. Please circle: [yes] [no] Initial here____

Employee/Student print name: ____________________________  Supervisor print name: ____________________________

Signature: __________________________________________  Signature: ____________________________