McMaster University
Medical Monitoring Program Information Sheet

The purpose of this document is to provide information on an agent/virus in order for all McMaster University staff and students to make an informed decision about entering our medical monitoring program.

Please review this document, print your name, sign and date the Memorandum of Understanding and Agreement and then provide it to your supervisor.

Vaccinia

The following summary is provided by the McMaster Biosafety Office.

For a complete copy of the excerpted text below please refer to: http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/msds160e-eng.php

Routine vaccination is no longer carried out as smallpox has now been eradicated; only used in armed forces and laboratories. Vaccines have potency of $10^8$ pock-forming units/mL; infectious dose unknown

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to 1% sodium hypochlorite, 2% glutaraldehyde, formaldehyde. Heat-labile antigen destroyed at 60°C, heat-stable antigen withstands 100°C (both may be present in infected tissue). Lyophilized vaccinia virus maintains potency for 18 months at 4-6°C, may be stable when dried onto inanimate surfaces

LABORATORY-ACQUIRED INFECTIONS: 18 reported variola laboratory infections and 2 reported infections of laboratory workers with recombinant vaccinia virus

SOURCES/SPECIMENS: Lesion fluids or crusts, respiratory secretions or tissues of infected hosts. Ingestion, parenteral inoculation, droplet or aerosol exposure of mucous membranes or broken skin with infectious fluids or tissues. Some poxviruses are stable when dried

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities for all activities involving the manipulation of this virus (with vaccination); primary containment devices and biological safety cabinets are recommended. Laboratory coat; gloves and gown when working with agent. Immunization of staff working directly with vaccinia

The following summary is provided by Employee Health Services.
For a complete copy of the excerpted text below please refer to:
http://en.wikipedia.org/wiki/Vaccinia

Facts
Virus disease of skin induced by inoculation for the prevention of smallpox. The virus may be transmitted to contacts of individuals who have been vaccinated recently.

Symptoms
Vesicular or pustular lesion, area of induration or erythema surrounding a scab or ulcer at inoculation site; major complications encephalitis, progressive vaccinia (immunocompromised susceptible), eczema vaccinatum - a localized or systemic dissemination of vaccinia virus, fetal vaccinia; minor complications - generalized vaccinia with multiple lesions; auto-inoculation of mucous membranes or abraded skin, benign rash, secondary infections; complications are serious for those with eczema or who are immunocompromised; death is most often the result of postvaccinial encephalitis or progressive vaccinia.

Diagnosis
Confirmation by identification of vaccinia pocks, isolation of virus, serology.

Treatment
Vaccinia immune globulin and methisazone may be of value in treating complications. Smallpox vaccine is indicated for laboratory workers directly involved with vaccinia and vaccinia virus recombinants.

Special Precautions
Individuals with any of these contraindications is at increased risk for a laboratory-acquired infection if an exposure incident occurs. The list of contraindications for administration of smallpox vaccine is reprinted below.

1. Eczema
   “Because of the increased risk for eczema vaccinatum, vaccinia vaccine should not be administered to persons with eczema of any degree, those with a past history of eczema, those whose household contacts have active eczema, or whose household contacts have a history of eczema. Persons with other acute, chronic, or exfoliative skin conditions (e.g., atopic dermatitis, burns, impetigo, or varicella zoster) might also be at higher risk for eczema vaccinatum and should not be vaccinated until the condition resolves” (CDC, 2001).

2. Pregnancy
   “Live-viral vaccines are contraindicated during pregnancy; therefore, vaccinia vaccine should not be administered to pregnant women for routine nonemergency indications. However, vaccinia
vaccine is not known to cause congenital malformations. Although <50 cases of fetal vaccinia infection have been reported, vaccinia virus has been reported to cause fetal infection on rare occasions, almost always after primary vaccination of the mother. Cases have been reported as recently as 1978. When fetal vaccinia does occur, it usually results in stillbirth or death of the infant soon after delivery” (CDC, 2001).

3. Altered Immunocompetence
“Replication of vaccinia virus can be enhanced among persons with immunodeficiency diseases and among those with immunosuppression (e.g., as occurs with leukemia, lymphoma, generalized malignancy, solid organ transplantation, cellular or humoral immunity disorders, or therapy with alkylating agents, antimetabolites, radiation, or high-dose corticosteroid therapy [i.e., >2 mg/kg body weight or 20 mg/day of prednisone for >2 weeks]). Persons with immunosuppression also include hematopoietic stem cell transplant recipients who are <24 months posttransplant, and hematopoietic stem cell transplant recipients who are >24 months posttransplant but who have graft-versus-host disease or disease relapse. Persons with such conditions or whose household contacts have such conditions should not be administered vaccinia vaccine” (CDC, 2001).

4. Persons Infected with HIV
“Risk for severe complications after vaccinia vaccination for persons infected with HIV is unknown. One case of severe generalized vaccinia has been reported involving an asymptomatic HIV-infected military recruit after the administration of multiple vaccines that included vaccinia vaccine. Additionally, a 1991 report indicated that two HIV-infected persons might have died of a progressive vaccinia-like illness after treatment with inactivated autologous lymphocytes infected with a recombinant HIV-vaccinia virus. No evidence exists that smallpox vaccination accelerates the progression of HIV-related disease. However, the degree of immunosuppression that would place an HIV-infected person at greater risk for adverse events is unknown. Because of this uncertainty, until additional information becomes available, not vaccinating persons (under routine nonemergency conditions) who have HIV infection is advisable” (CDC, 2001).

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: ________________________________

Date: ________________________________  Date: ________________________________