Safe Work Practice

Animal Projects with Viable Pathogens

1.0 Hazard Description

The federal biosafety regulators require that any animal research, teaching or testing activities involving viable preparations of bacteria, viruses, fungi, parasites or prions capable of causing disease in human, animals or plants (hereafter referred to as “viable pathogens”) must be housed in appropriate biocontainment facilities while following appropriate containment standard operational practices (SOPs).

1.1 Hazard Assessment Considerations

1. The risk group and appropriate handling procedures for any viable pathogen utilized with animal models at the University of Alberta (U of A) must be determined by the Principal Investigator (PI).
   - Information on animal and plant pathogens is available on the Canadian Food Inspection Agency (CFIA) website (http://www.inspection.gc.ca/eng/1297964599443/1297965645317).
   - If investigators cannot locate information on the potential pathogenicity of the microbe they are employing, they should contact the Biosafety Officers at biosafety@ualberta.ca for assistance.

2.0 Minimum Hazard Controls

In addition to the minimum requirements listed in the Animal Research, Teaching and Testing Projects Safe Work Practice (EHS-SWP-101) and the Animal Projects with Biological Materials SWP (EHS-SWP-130), PIs working with viable pathogens must abide by the following:

2.1 Elimination/Substitution

1. The PI should consider if substitutions for or elimination of the viable pathogen with one of the following could be used to attain the same outcomes:
   - Avirulent strains or non-pathogenic related species
   - Inactivated preparations or derivatives of the biohazard.
2.2 **Engineering Controls**

1. No additional minimal Engineering Controls beyond those outlined in the Animal Projects with Biological Materials SWP are required.

2.3 **Administrative Controls**

1. If during the Hazard Assessment process, a commercially available vaccine is identified against the viable pathogen, the PI must contact Environment, Health and Safety (EHS) via ehs.info@ualberta.ca to determine the availability of the vaccine and the recommended immunization schedule. The U of A strongly encourages the use of vaccines when available for all personnel directly handling human pathogens or animals inoculated with them.

2. If using inactivated preparations of a pathogen, the preparation must undergo quality control (QC) testing to confirm inactivation was successful before the preparation may be used with animals.
   - For commercially available inactivated preparations, a QC certification may be obtained from the manufacturer.
   - For material inactivated by project personnel, a minimum of 12% of the preparation must be inoculated into an appropriate enrichment culture medium. If no growth is observed in the culture after the appropriate incubation time for the pathogen involved, then the remaining material is considered inactivated.

   In either case, a copy of the manufacturer’s QC certificate or the group’s in-house testing parameters and test results must be kept on file and made available on request to the Biosafety Officers.

3. Introduction of viable pathogens into animals must occur in an animal facility certified to the appropriate containment level for the type and risk group of the pathogen used.

4. Animals inoculated with viable pathogens must remain in the original animal containment facility and cannot be transported to a facility of lower containment level.

2.4 **Personal Protective Equipment (PPE)**

1. No additional minimal PPE controls beyond those outlined in the Animal Research, Teaching and Testing Projects, and Animal Projects with Biological Hazards SWPs are required.
3.0 Emergency Preparedness/Response

1. No additional minimal Emergency Preparedness/Management controls beyond those outlined in the Animal Research, Teaching and Testing Projects, and Animal Projects with Biological Hazards SWPs are required.

4.0 Applicable Legislation and Regulations

1. Canadian Biosafety Standard, Public Health Agency of Canada
2. Canadian Environmental Protection Act, Environment Canada
3. Health of Animals Act, Canadian Food Inspection Agency
4. Human Pathogens and Toxins Act, Public Health Agency of Canada
5. Human Pathogens and Toxins Regulations, Public Health Agency of Canada
8. Occupational Health and Safety Regulations, Government of Alberta
9. Plant Protection Act, Canadian Food Inspection Agency

5.0 Related Resources

1. Biosafety Guidelines, Environment, Health & Safety, University of Alberta
2. Safe Work Practice: How to Use Animal Safe Work Practices (EHS-SWP-100), Environment, Health & Safety, University of Alberta
4. Safe Work Practice: Animal Projects with Biological Materials (EHS-SWP-130), Environment, Health & Safety, University of Alberta

6.0 Document Management

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