Application for Research/Teaching Involving Biohazardous Materials

Instructions:

SAMPLE __Excerpt of Methodology – Teaching

Section 3 Project Description:

3a. Provide a brief project description.

3b. Outline the overall goal(s) of the project in the space below: Please be concise and give enough information to assure that the purpose of the experiments and the techniques used are clear.

3c. Provide a detailed project methodology. Please include a detailed description of the biosafety and personnel safety precautions to include –Microbiological practice and containment, personal protective equipment, containment, spill procedure, waste storage and disposal, sharps management, decontamination procedures, accident follow up, and training provided to participants

1. Describe procedures involving use of infectious agent (indicate culture volume, maximum concentration). How and at what stage of the experiment is the infectious agent inactivated or lysed?

Palaemontes sp. grass shrimp (50 individual animals) are collected by the instructor in tidal creeks on the coast and maintained in aerated seawater in Rm 2209 until used (no more than 2 wks). Students place shrimp in disposable Petri dishes and dissect them to remove M. turgidus metacercarial cysts. Disposable pipets are used to transfer cysts to a watchglass containing saline. Cysts are observed using a dissecting microscope to note emergence of the etacercariae. Materials are placed in a biosafety bag and autoclaved at the end of the lab exercise. Nondisposable dissecting equipment will be soaked overnight in a disinfectant such as CiDecon, washed with hot water and soap and rinsed with distilled water.

To study the internal anatomy of a parasitic nematode, preserved specimens of Ascaris suum are purchased from Wards Scientific Co and dissected by students in dissecting pans (1 worm/student). Worms are place in a biosafety bag and autoclaved at the end of the exercise. Nondisposable dissecting equipment and pans will be disinfected as described above.

Feces from dogs, horses, cattle, goats and sheep are collected by students and brought to the laboratory for examination. Each student will collect a small sample (50 g) of fecal material.
from one of these domestic animals in a disposable Copro-Kit collection device which is snapped shut and brought to the laboratory in a sealed Zip-lock bag. Samples will be stored in the lab refrigerator until examined (no more than 2 wks). Eggs in feces are observed and identified microscopically both as a thin smear in saline or after concentration by flotation in Copro-Sol. All contaminated materials are autoclaved at the end of the exercise.

To demonstrate growth of tapeworm cysticercoids, Tenebrio sp. flour beetles are fed eggs of the rat tapeworm Hymenolepis diminuta. Beetles are stored in plastic boxes in the Rm 2209 and dissected within 3 wks to observe the larval parasites. Contaminated disposables and infected beetles are autoclaved at the end of the exercise. Nondisposable dissecting equipment will be disinfected as described above.

2. Will experiments result in acquisition of new characteristics such as enhanced virulence, infectivity, drug resistance, or change in host range? If so, explain:

No.

d. Safety Procedures:

1. Outline protective equipment required to minimize exposure of laboratory personnel during all procedures requiring handling or manipulation of infectious agent:

Laboratory coats and gloves will be used in all exercises involving BSL2 agents or animal tissues. Gloves are autoclaved after use. Lab coats are washed on campus.

2. Outline procedures for decontamination of work surfaces, instruments, equipment, liquid containing infectious materials and glassware:

All student work surfaces are disinfected with 10% bleach. All tissue and fecal samples and disposable materials such as pipets and slides used in exercises involving BSL2 agents are placed in biohazard bags and then autoclaved prior to being discarded. For final disposal, bags of autoclaved materials are placed in a heavy duty black garbage bag and put in the dumpster behind Biology.

Nondisposable dissecting equipment will be soaked overnight in a disinfectant such as CiDecon, washed with hot water and soap and then rinsed with distilled water.

3. Outline disposal/decontamination procedures for contaminated sharps, contaminated solid waste, tissues, pipette tips, etc.

Sharps are not used in these exercises. All dissections are completed with scissors and forceps. Contaminated waste and disposable labware is autoclaved and disposed as described above.