

Engineering Physics/ C.E.D.T. Research Hazards Safety Report

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1. Elaborate on potential hazards

Radiation – 355 nm and 405 nm Lasers (see section 4), 1064/532/355

Potential Falling Objects – General (bookcases, boxes on a table, items on a shelf)

Biohazards – Human and Animal Tissue Samples (see section 4)

2. Routine/standard operating procedures

a) Laboratory Protective Devices – Large dividers are in place to shield the entrance area so individuals not wearing goggles who enter the room are afforded some protection

b) Personal Protective Devices – Goggles of the appropriate wavelength are worn when using the 3B lasers.

c) Other Protective Procedures – Individuals entering the room are immediately notified if the lasers are in use and must either wear protective goggles or exit the room. Care is taken when aligning the beams such that the operator is always aware of where the beam is directed

3. Emergency preparation

Scenario – The beam from the 3B laser falls into the eyes of an individual not wearing protective goggles

a) Emergency Procedures – Leave the room to prevent further exposure; call EFERT and notify Dr Fang.

b) Emergency Devices/Materials Available – A telephone is present in the lab to call EFERT and Dr Fang's office.

4. Dangers/Emergency of lasers, biohazards

LASERS

Lasers are fast pulsed pulse energies from ~1-150 μ joules. Infrared and UV beams cannot be seen without a detector card or a fluorescent target. These beams can damage the eyes and even cause skin burns. Reflected beams off various surfaces are dangerous. It is the joint responsibility of the laser operator and individuals entering the laser operating area to ensure that proper eyewear has been selected for the wavelengths in use. Visitors must be accompanied by qualified laser personnel. All laser maintenance must be performed only by qualified laser personnel.

BIOHAZARDS

Biological Hazard: Cell Cultures

1. Elaborate on Potential Hazards

MLL rat prostate adenocarcinoma cells

Class II material – carcinoma cell line, moderate risk to individual, low risk to community

2. Routine Operating Procedures

- a) Laboratory Protective Devices – All work must be done in a Class II biohood in level II facility (McMaster Biophotonics Facility)
- b) Personal Protective Devices – Gloves, lab coat, long pants and closed-toed shoes are worn at all times to prevent exposure
- c) Other Protective Procedures – Dispose of used materials in biohazard waste container. Wipe biohood with ethanol and turn on UV light once finished. No food or drink in the lab.

3. Emergency Preparation

Scenario – A spill occurs outside the biohood.

- a) Emergency Procedures – Alert the Spill Team. Liquid must be soaked up with paper towel and discarded in biohazard waste container. Surrounding area must be wiped down with disinfectant. If skin has been exposed, wash affected area with disinfectant soap and rinse with copious amounts of water.
- b) Emergency Devices/Materials Available – A telephone is present in the lab to call the Spill Team. Bleach is present in the lab for disinfection. A sink is present for personal decontamination.