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

Researcher: Morgan Richards Phone: 905-525-9140 ext. 21940 Lab: ETB 431
Supervisor: Dr. Qiyin Fang Phone: 905-525-9140 ext. 24227 Office: ETB 405

Potential hazards in the research projects

The MCF-7 cancer cell

Biohazards materials - Alpha-MEM (minimal essential media)complete, which includes alphaMEM 20% Fetal Bovine Serum, 5% Pinstrep and 5 ug/ml G418 antibioti.
Flammable materials – 70% and 99% ethanol
Extreme low temperature – Liquid nitrogen

FLIM Microscope

Radiation: Laser – Class 3B laser at 440nm
Electrical: High voltage enclosed – Laser sources
Potential falling objects – Items on shelves

Routine Operating Procedures

MCF-7 Cancer Cells

It is important to handle the biological reagents and the MCF-7 cells in the biological safety cabinet. Personal protective equipment includes gloves and the lab coat. Ensure that no open wound is exposed and fully covered shoes are to be worn at all times. After handling the biological hazard, the waste should be packed and sealed in the plastic bag and disposed to the red bin indicated “Biohazard”. Biological reagent should be bleached using 10% bleach before disposing. Wipe the working surface with 70% ethanol and turn on the UV light in the biological cabinet after each use, and must wash hands with disinfectant hand washer after all lab work.

FLIM Microscope

The cells will be imaged using a home build FLIM microscope. The microscope is setup such that the viewing angle of the user is not on the same plane as the light path. Reflections in this case will be generated from optical components such as filters and lenses. Also, the set up utilizes collimated optics which reduce the risk of having the laser light enter the eyes.
In addition to reflections from optical components, other reflecting objects such as watches, rings and jewellery will increase the potential for redirecting the light in a hazardous way. These objects must be removed during operations and Non-reflective barriers must be placed to cover the light beam path.
Image viewing in the setup requires the use of the appropriate eyewear. The eyewear functions as a filter which prevents the light (at the excitation laser wavelength) from entering the eye. Thus all personals in the room must have the required eyewear.

Emergency Preparation

MCF-7 Cells

In the case of spill, Spills need to be cleaned with 10% bleach. and must wash hands with disinfectant hand washer after all lab work

FLIM Microscope

In the event of an accident, “88” should be called immediately, and the supervisor and EOHSS LSO designate should be contacted. Any work on the system should stop, and the light source turned off. An incident report should be filed with the department as soon as possible.