**Manchester Institute of Biotechnology - Risk Assessment**

TUOM_4COL

| Date:  13 Nov 2015 | Assessed by: | Validated by: | Location:  MIB |  | Review date: |
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| Task/Premises:   |  | | --- | | Public engagement activity: "MIB Open Day"  Interactive Science Stands - Stand Name: Photobiology  Demonstration of fluorescence using *Spirulina* extract prepared in Acetone – Uzma and Kang-Cheng Liu will conduct demonstration.  Demonstration of Bioluminescence using Fireflies.  Sealed petri dishes of cultured bioluminescent bacteria on Agar. For viewing only.  Light activated protein – photoconversion. No student involvement required.  Uzma Choudry and Kang-Cheng Liu in overall charge.  Volunteers involved in the session are ‘facilitators’ only.  All accidents to be reported to a First Aider and reported accordingly. | | | | | | |

| **Activity** | **Hazard** | **Person(s) in danger** | **Existing measures to control risk** | **Risk rating** | **Result** |
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| Demonstration of fluorescence using *Spirulina* extract prepared in Acetone | Solvents: |  | Solvent will be disposed of in non-halogenated chemical waste |  |  |
| **Acetone –**  Highly flammable, irritating to eyes, repeated exposure may cause skin dryness or cracking, vapour may cause drowsiness and dizziness  **Projector / Source of white light:**  Source of light may heat up over time (depending on what source is used). This may result in a burn | Demonstrators in charge of solvent chamber  Demonstrator only | No ignition source in proximity  Sealed volume; 2 x 100ml volumes sealed in lab (duran bottles 250ml). Prepared and sealed in lab, transported in a secondary containment to the MIB Atrium.  PPE worn by demonstrators: Howie-style lab coat, Nitrile gloves, chemical splash proof safety glasses  Open well ventilated area  Inform demonstrators to be cautious when handling the projector/light source.  Projector - electrical : PAT Tested (annual)  No trailing cables (trip hazard) | High  Low | A  A |
| Bioluminescence in Fireflies | **Fireflies**  **Potential Health Effects:**  Inhalation – maybe harmful if inhaled. May cause respiratory tract inflammation.  Skin – Maybe harmful if absorbed through skin. May cause skin irritation.  Eyes – May cause eye irritation.  Ingestion – Maybe harmful if swallowed. | Demonstrators and Participants. | Fireflies enclosed in a box with small cut-outs for viewing and applying ATP.  Gloves must be used when handling the fireflies.  Inform participants to not eat the fireflies. | Low | A |
| Bioluminescent Bacteria | **Bacterial culture – liquid and agar plates – Biohazard**  **HG1 – Please find attached BioCOSHH form** | Demonstrators and Participants | Plates will be sealed using nescofilm and tape. Liquid cultures will be in a sealed bottle.  BioCOSHH form NSC 1509B details the biological hazards and control measures. | Low | A |
| Light Activated protein photoconversion | **Biological material**  Maybe harmful if absorbed through skin, eyes or if swallowed.  **Electrical:**  LEDs components may heat up slightly. | Demonstrators | Protein prep will be handled using gloves and enclosed in screw-top 10ml vials and sealed with Nescofilm. This will prevent any contact with the material. The protein prep will be sealed in lab and transported in a container  Participants will not handle LEDs and demonstrators will be informed to be cautious when handling the LEDs. Ensure the LED intensity is low. | Low | A |

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| **Authorisation by PI**  **I confirm that I have considered and understand the experiment and the associated hazards. I am satisfied that all of the hazards have been identified and that the control measures to be followed will reduce the risks to acceptable levels.**  **Print name: Signed:**  **Date:** |

**Declaration by researcher**

**I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated. Where PPE has been identified as a control measure, I will ensure that it is worn.**

**Declaration by PI**

**I confirm that the researcher who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.**

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| --- | --- | --- | --- |
| **Name (please print)** | **signed** | **PI countersignature** | **date** |
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