Risk Assessment Form (3)

Must be completed before experimentation.

Student's Name(s) Elizabeth Korn

Title of Project Gel and Electric Field-Based Desorption of DNA from PMMA-Coated Silicon Surfaces to Optimize Sequencing Accuracy

To be completed by the Student Researcher(s) in collaboration with Designated Supervisor/Qualified Scientist: (All questions must be answered; additional page(s) may be attached.)

1. List all hazardous chemicals, activities, or devices that will be used; identify microorganisms exempt from pre-approval (see Potentially Hazardous Biological Agent rules).

   Toluene, and Polymethyl methacrylate (PMMA) dissolved in toluene, Lambda DNA, SyBr Gold dye, NEBuffer 3.1, hydrogen peroxide (H2O2), ammonium hydroxide (NH4OH), hydrofluoric acid (HF), hot plate

2. Identify and assess the risks involved in this project.
   - Acids and bases can be extremely harmful if inhaled, ingested, or contacted with skin.
   - Risks involved with chemical use are harm from contact of skin with toluene, and poison from ingestion of any of the chemicals used.
   - Silicon slivers may scatter when cleaving – be careful of splinters.
   - Agarose solution may be hot when removed from the microwave.

3. Describe the safety precautions and procedures that will be used to reduce the risks.
   - Personal protective equipment (nitrile gloves, lab coats, goggles, long pants, and closed shoes) must be used.
   - Toluene and PMMA solution should be kept away from plastics as toluene dissolves plastic. All containers holding toluene should be made of glass.
   - Be careful with heated up agarose solutions, handle with care and let cool down before pouring into gel tank.
   - Hydrofluoric acid must be handled with extreme care. Calgonate (calcium gluconate) should be present in any lab in which hydrofluoric acid is used. Extra protective equipment must be used when dealing with HF (neoprene gloves and an apron)
   - Ammonium hydroxide must be stored in a separate chemical cabinet for bases. Hydrogen peroxide must be stored in a refrigerator for chemicals only.

4. Describe the disposal procedures that will be used (when applicable).
   - Disposing of chemicals should occur under a fume hood.
   - Chemicals should be disposed of into appropriately labeled waste containers and these containers should be stored in a safety cabinet that resists fire.
   - All hot solutions should be cooled before disposal.
   - Toluene waste container should be made of glass.

5. List the source(s) of safety information.
   - Safety Data Sheet
   - MSDSs
   - Prudent Practices for Safety in Laboratories

To be completed and signed by the Designated Supervisor (or Qualified Scientist, when applicable):

I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the Research Plan/Project Summary and will provide direct supervision.

Jonathan Sokolov — Designated Supervisor's Printed Name

Jonathan Sokolov — Signature

6/25/2019 — Date of Review (mm/dd/yy)

Prof. of Materials Science, Stony Brook Univ. — Position & Institution

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20 years of DNA-related research — Experience/Training as relates to the student's area of research