

NCUR Application

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Class: Senior

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College/School: School of Natural Sciences

Department/Major:
Chemistry

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Attach File: <http://>

Title of Presentation:

One Pot Silicon Coated Quantum Dot Synthesis and Cytotoxicity

BHSU IRB, IACUC or Biosafety #:

Abstract:

Standard synthesis of water soluble quantum dots involves the nanomaterial synthesis, followed by a second procedure to exchange surface ligands to gain water solubility. A procedure to grow water soluble quantum dots without a secondary surface reaction is being developed. Fluorescence and absorption spectroscopy for the new synthetic procedure will be presented. These quantum dots have been gaining interest due to compelling potential regarding photoluminescence in bioscience. However, little is known about the production or toxicity of this nanomaterial. First, we are trying determine what color range of quantum dots will fluoresce in a range we can view with fluorescent microscopes. The next process is to create water soluble quantum dots which are tuned to be applied to our cultured liver cells. Additionally, the method of effectively culturing buffalo rat liver cells (BRL-3A) will allow us to quantitatively analyze the effects of these nanomaterials. This data will allow us to modify the production of the quantum dots in hopes of making advancements in bioimaging and the medical fields.

I certify that: My project is at or near completion and the abstract accurately represents my findings:

Yes

Statement of Student Responsibilities:

If my project is accepted for NCUR and I receive funding, I agree to:

- complete my project before departure
- make a trial presentation to my faculty advisor before departure

- present my paper/project at NCUR and attend other sessions
- all required IRB, IACUC and Biosafety approvals have been received
- give presentation at Black Hills Research Symposium (BHRS)
- Represent BHSU in a professional & responsible manner