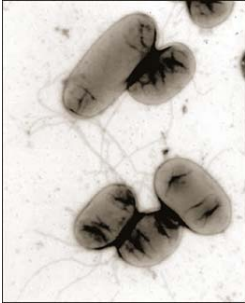


Microbial Pathogenesis and Vaccine Development Graduate Assistantships Available

Spring 2009 and Fall 2009

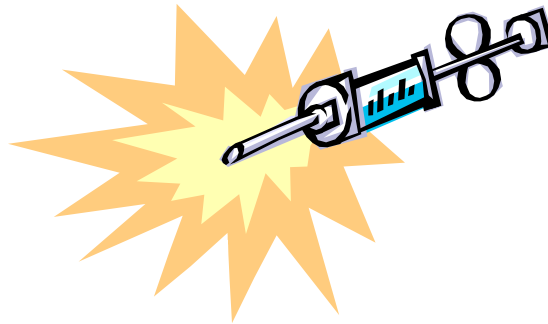


Masters level graduate assistantships available in the laboratory of Dr. Juliette Tinker in the Department of Biological Science at Boise State University. Dr. Tinker's laboratory focuses on bacterial pathogenesis and the development of novel vaccines against bacterial diseases.

Contact:

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Qualifications:

Undergraduate degree in Microbiology, Biology or related science. Relevant introductory coursework in microbiology is required and laboratory experience in microbiology and/or molecular biology is preferred. Students will be expected to teach introductory laboratory courses and develop an independent research project.

For application process and more information please visit:

<http://www.boisestate.edu/biology/mastersbio.shtml>

Project descriptions:

Characterization of an intranasal *Yersinia pestis* vaccine candidate:

This project focuses on the use of the mouse model to characterize the efficacy of a nasally delivered subunit vaccine against the etiological agent of the plague, *Yersinia pestis*. In addition, we will study the trafficking and ability of this vaccine candidate to be delivered to immune cells *in vitro*.

Characterization of *Staphylococcus aureus* vaccine candidates:

Similar to the above project, we will utilize the mouse model to characterize the immune response against a novel *S. aureus* human vaccine candidate. *In vitro* trafficking as well as *in vivo* mouse protection studies will be performed in conjunction with this project. In addition, novel Staphylococcal vaccines against the agriculturally significant disease bovine mastitis will be constructed and characterized.

Purification and characterization of novel bacterial AB₅ enterotoxins:

Clinically significant strains of gram negative bacteria produce toxins that are homologous to cholera toxin. This project will focus on the characterization of these toxins with respect to binding, trafficking and adjuvant potential. In addition, we will use bioinformatics to identify bacterial toxins that may represent novel vaccine adjuvants.

Use of live attenuated *Vibrio cholerae* as a platform for vaccine delivery:

Live vaccines represent some of the most inexpensive, easy to administer and effective vaccines available. This project will focus on the development of attenuated *V. cholerae* as a platform for the delivery of vaccines against many bacterial diseases.

Nanoparticles as novel bacterial therapeutics:

In collaboration with Kevin Feris (Biology) and Alex Punnoose (Physics), this project focuses on the characterization of zinc oxide based nanoparticles for use as novel therapeutics against methicillin-resistant *Staphylococcus aureus*. In addition, a number of other potential bacterial pathogens will be characterized for their responses against nanoparticles.