DNA Vaccine Construction, Testing and Management in Beef Cattle

The internship will focus on DNA vaccine construction and testing in cell culture and animals and vaccine management strategies in cattle. This internship will be unique due to the close proximity of the research laboratory to the research stations allowing an easy commute between the facilities.

Qualifications

1. Minimum qualifications: Rising juniors and seniors from LSU and partner institutions with at least a 3.0 GPA are most competitive. Second-year students and those with a minimum 2.5 GPA are also eligible and encouraged to apply; Major in biology, microbiology, animal science, pre-vet, dairy science or related field; Basic knowledge of working with DNA and pipetting

2. Preferred qualifications: Two semesters of biology and microbiology are preferred; Biochemistry a plus, but not required; Experience with volunteers and youth; Experience working in a lab setting and collecting field data are a plus but not required; Some experience with livestock a plus

3. Physical qualifications: Ability to stand for extended periods; Collecting field data may involve getting dirty and working in dusty or muddy conditions

Primary Contacts / Program Advisors: Dr. Richard Cooper, Professor and Associate Director, LSU School of Animal Sciences; Mr. Mark Williams, Instructor, LSU School of Animal Sciences

Maximum Interns Needed: 2

Location: LSU School of Animal Sciences/Central Research Stations, Baton Rouge, LA

The School of Animal Sciences is located on LSU’s main campus and within five miles of the Central Research Station, which houses the Animal Sciences beef unit, and the Reproductive Biotechnology Center which houses cattle and horses. The intern will interact with faculty and staff active in each location.

Weeks 1-10
Daily Contacts: Dr. Richard Cooper and Mr. Mark Williams
Primary Tasks:
- Station and Program Orientation
- Identify a “Special Topic Research Issue” to focus on during the program
- Assist Dr. Cooper with DNA vaccine preparation and testing in cell culture
- Learn laboratory techniques for DNA preparation, harvest, and vaccine preparation
- Participate in quality control testing for DNA vaccine lots in cell culture expression systems
- Participate in station trials with beef unit contact (Mr. Williams) and the beef cattle extension veterinarian (Dr. Christine Navarre).
- Accompany Mr. Williams/Dr. Navarre on extension calls to commercial herds
- Participate in on-farm demonstrations working with Mr. Williams and Dr. Navarre
- Summarize and present results (PowerPoint) from the special topic research project to School of Animal Sciences and Central Station faculty and staff.

Success Measures

- Interns will meet weekly with Dr. Cooper and Mr. Williams to discuss the internship experience and all aspects of the program including a discussion of any logistic or communication concerns they may have.
- Each faculty contact will complete a survey regarding the internship program, the effects on their program and provide a description of program impacts.
- Completion of an LSU College of Agriculture course in the interns’ respective department (earning a C–grade or higher), if applicable.
- Completion of the PowerPoint presentation for research activities during the ten weeks along with a detailed summary of the internship experience to be shared with all participating faculty and internship program administrators.