



**Graduate students/Estudantes de Pós-graduação:**

**APPLICATIONS NOW OPEN FOR THE  
GLOBAL INNOVATION INITIATIVE (GII):**

**Applying cutting-edge genomic technologies to prevent the global  
emergence of antimicrobial resistance at animal-human-environment  
interface**

**PROJECT DESCRIPTION AND GOALS:**

A total of 9 graduate students (3 from Ohio State University-USA, 3 from UFPB-Brazil and 3 from UoN-UK) will be recruited to participate in the Project “Applying cutting-edge genomic technologies to prevent the global emergence of antimicrobial resistance at animal-human-environment interface”, funded by the Institute for International Education of The US Department of State. This is an international collaboration project among The Ohio State University (USA), Federal University of Paraiba (Brazil) and The University of Nottingham (UK) in order to establish a capacity building and research training program on the Global One Health-based approach targeting to integrate scientific leadership and communication skills for controlling antimicrobial resistant zoonotic pathogens, a worldwide threat to public health.

**SELECTION OF STUDENTS:**

Students will be selected based on defined criteria:

- 1) Must be already enrolled in defined Professional, Masters or PhD programs;
- 2) Must be in excellent academic standing;

Each student will be assigned co-mentors from partner institutes depending on the expertise needed to address the project.

## **PROGRAM ACTIVITIES:**

**Didactic courses (Online/ distance hybrid):** All students are required to take the following courses:

- 1) Foodborne Pathogen Epidemiology;
- 2) Molecular biology;
- 3) Molecular Epidemiology of Infectious Diseases (<http://go.osu.edu/MolEpid>);
- 4) Antimicrobial Stewardship course (<http://mad-id.org/antimicrobial-stewardship-programs/>),
- 5) Bioinformatic analysis.

All nine students and program faculty will participate in the One Health leadership course at Ohio State (US). This course will be offered as a five-day intensive course in each of the two project years.

### **Workshops and integrative activities:**

All students will attend 3 workshops:

- 1) **Project initiation workshop (The Ohio State University):** This workshop will be held in US during the first 2 weeks of December 2015.
- 2) **Mid-term workshop (Nottingham University):** This workshop will be held in UK by the end of the summer research activities. During this workshop, students, mentors and training advisors will exchange scientific information and recent updates in the current research activities.
- 3) **Final workshop (Federal University of Paraiba):** Final project reports and findings will be presented in Brazil towards the end of year 2 of the project (November-December 2017).

As part of the project integrative activities, students are expected to:

- 1) Present scientific results during the workshops;
- 2) Complete scientific publications to promote scientific knowledge on antimicrobial resistance risk and control intervention strategies;
- 3) Participate in writing grant proposals.
- 4) Establish a sustainable interaction and exchange across discipline and geographic boundaries.

\*OSU will process visa requirements for all students coming to the US

\*All travel and research costs are covered by the Program

**Experiential research projects:** All students (US, UK and Brazilian) will conduct a minimum of 8-week experiential summer (as defined by the region) research activities in one of the other countries (Brazil, US or UK) as defined by the mentors and the specific projects goals. Research teams will continue interaction over the fall and spring semesters at their home institute to conduct further analyses, and prepare summary reports with guidance from mentors.

Three students will be appointed to each of the three projects:

- 1) Project #1: Multi-drug resistant (MDR) Salmonella: Inactivation of resistance genes carried on plasmids and intervention against horizontal transfer of resistance plasmids.** Research on inactivation and intervention against transfer could provide an effective approach towards reduction of antimicrobial resistance in *Salmonella* and potentially for related foodborne organisms such as *E. coli*;
- 2) Project #2: Alternatives to antimicrobials in animal production systems; impact on host immunity and reduction of persistence among foodborne pathogens.** The use of antimicrobials in food animal systems for growth promotion has been a controversial practice. Such use also plays a major role in the dissemination of highly multi-drug resistant pathogens. Identifying alternatives that may serve as a replacement is of high public health and economic importance;
- 3) Project #3: Dynamic of antimicrobial resistance gene expressions in complex microbial communities; establishment of a meta-transcriptome approach using RNAseq.** The RNAseq has been considered as a promising approach in providing useful information on the dynamics of gene expressions in complex microbial communities. Together with functional-genomic methods, we hypothesize that this approach might bring a new insight for the understanding of the mechanisms of antimicrobial resistance genes expression in animals fed with antimicrobial growth promoters.

**APPLICATION:**

- 1) Submit application form
- 2) Submit a copy of your CV (1-2 pages)

\*An interview may be required

**DEADLINE:**

Applications must be submitted by e-mail to [GlobalHealthGII@gmail.com](mailto:GlobalHealthGII@gmail.com) by **October 5, 2015**.

If you have any questions please contact Program Research Coordinator, Dr. Valeria Artuso-Ponte: [artusoponte.1@osu.edu](mailto:artusoponte.1@osu.edu)