

Graduate student positions: 2

2 graduate positions are available to work with Dr. Dongyan Niu (<https://vet.ucalgary.ca/contact-us/faculty-members/full-time/dongyan-niu>) at the University of Calgary, Faculty of Veterinary Medicine (UCVM), in Calgary, Canada. With cutting-edge interdisciplinary projects, excellent resources, and a strong publication focus, the Niu Lab provide an outstanding opportunity for all trainees.

Position 1

We are seeking highly motivated candidates that hold a master's in microbiology, molecular biology /bio-engineering related subjects. Experience in whole genome sequencing (shot-read and long-read sequencing technology), bioinformatics, antimicrobial resistance characterization, gene expression profiling and microscopy are particularly welcome. The candidate should be open to interdisciplinary collaboration and be interested in both fundamental and applicative research.

Project 1

Emergence of foodborne pathogens and transmission of antimicrobial resistance (AMR) increasingly challenge current food safety system worldwide. Farm animals have been recognized as major reservoirs for development and transmission of several important human pathogens. Antimicrobial resistance issue in livestock production and food supply chain is progressively posing alarming threat to human health. In this PhD project, we will determine emergence and transmission of virulence and AMR from poultry cluster to food supply chain - with the ultimate goal to develop strategies that can counteract these effects. Hereto we will use cutting-edge techniques, such as whole genome sequencing, metagenomics, and advanced microscopy.

Position 2

We are looking for highly motivated candidates that hold a master's in microbiology, molecular biology /bio-medical engineering related subjects. Experience in bacteriophages, transposon sequencing, bioinformatics, functional genomics, microscopy, microfluidics, and nanotechnology are particularly welcome. The candidate should be open to interdisciplinary collaboration and be interested in both fundamental and applicative research.

Project 2

To battle against bacterial infectious disease that caused by antimicrobial resistant pathogens, new technologies are urgently requested. Bacteriophages, are viruses that naturally invade bacterial cells, disrupting bacterial metabolism and causing lysis of the bacterium. With the rise of antimicrobial resistance (AMR), phages and their derivatives have therefore been considered as leading alternative antimicrobials for the control of bacterial infectious diseases including AMR bacterial infections in humans and animal. In our lab, we have identified synergistic interaction among multiple phages. In this PhD project, we will examine the underlying mechanism at cellular and molecular level. In addition, we will investigate feasibility of bacteriophages and other novel antimicrobials (e.g. peptide and tannin) in prevention and treatment of bacterial infection in animal or human. Animal model may include cattle, chicken and/or mice.

Application Deadline: October 30, 2020

Position Initiation: January 01, 2021

Lab environment

UCVM is well established amongst research-intensive North American veterinary colleges with the high quality of research programs and graduate training program. There are over 70 faculty members, 125 DVM students, 110 graduate students, 25 post-doctoral fellows, and 15 advanced clinical trainees. Descriptions of the Faculty and its departments can be found on the UCVM website (<http://www.vet.ucalgary.ca>). In addition, UCVM is closely integrated with the Cumming School of Medicine, trainees will be in a unique environment of accessing outstanding research infrastructures (e.g. gnotobiotic research facility) and conducting world-class activities for comparative medical and One Health research. Moreover, Dr. Niu has established solid collaborations with a number of government research agencies (e.g. Canadian Food Inspection Agency, Public Health Agency Canada, and Agriculture and Agri-Food Canada), trainees will therefore have plenty of opportunities of interacting with top research scientists disciplined in infectious disease, human and animal health. Calgary is a vibrant, multicultural city with a population of 1,200,000. It is located near the Rocky Mountains, Banff National Park and Lake Louise and offers an enormous opportunity for outdoor activities both in winter and summer.

Interested individuals should submit a **1) current curriculum vitae, 2) transcripts and 3) an outline of research interests along with 4) the names of three referees** to: Dongyan Niu (PhD), dongyan.niu@ucalgary.ca. We thank all applicants' interests, but only candidates selected in short list will be contacted.