

ABT395/399 Fall 2020 Research and Internship Presentation Schedule
Agricultural and Medical Biotechnology Program

<https://uky.zoom.us/j/86518875483>

Tuesday, November 17 & Thursday, November 19, 2020

10:10 AM Dr. Aardra Kachroo Welcome & Introductions

10:15-10:30 AM Hadi Elgaali Single-cell analysis of the periodontal immune niche in type 2 diabetes

Mentor: Dr. Barbara Nikolajczyk, Department of Pharmacology and Nutritional Sciences, College of Medicine

10:30-10:45 AM Gavin Brackett Mechanisms of familial social transmission of aggression in honeybees

Mentor: Dr. Clare C. Rittschof, Department of Entomology, College of Agriculture, Food, & Environment

10:45-11:00 AM Noah Clements How repeat induced point mutation (RIP) affects single nucleotide polymorphism (SNP) calling in fungal genomic sequences

Mentor: Dr. Mark Farman, Department of Plant Pathology, College of Agriculture, Food, & Environment

11:00-11:15 AM Morganne Dixey Mechanisms of virulence regulation by the Lyme disease bacterium, *Borrelia burgdorferi*

Mentor: Dr. Brian Stevenson, Department of Microbiology, Immunology, and Molecular Genetics, College of Medicine

11:15-11:30 AM Interactive effect of genetics, environment, and agronomic management on soybean seed composition

Mentor: Dr. Montserrat Salmeron, Department of Plant and Soil Sciences, College of Agriculture, Food, & Environment

11:30-1:00 PM LUNCH BREAK

1:00-1:15 PM Brianna Fischer The roles of NCK-1 and MAGU-2 during neuromuscular junction development in *Caenorhabditis elegans*

Mentor: Dr. Salvatore J. Cherra III, Department of Neuroscience, College of Medicine

1:15-1:30 PM McKenna Roe Liquid-liquid phase separation of the human metapneumovirus phosphoprotein and nucleoprotein characterized in vitro

Mentor: Dr. Rebecca Dutch, Department of Molecular and Cellular Biochemistry, College of Medicine

1:30-1:45 PM Jason Wu Determination of specific termite individuals performing undertaking behavior.

Mentor: Dr. Xuguo Zhou, Department of Entomology, College of Agriculture, Food, & Environment

1:45-2:00 PM Mckenzy Boateng, Jr Bioinformatics analysis of the long-term effect of tillage and nitrogen input agriculture on soil bacterial communities

Mentor: Dr. Carlos Rodrigues-Lopez, Department of Horticulture, College of Agriculture, Food, & Environment

2:00-2:15 PM Katie Chheang Effects and mechanisms of gold nanoparticle exposure on longevity in *C. elegans*

Mentor: Dr. Olga Tsyusko, Department of Plant and Soil Science, College of Agriculture, Food, & Environment

2:15-2:30 PM Alyse Ptacek Role of Wnt pathway in leukemia stem cells modeled in zebrafish

Mentor: Dr. Jessica Blackburn, Department of Molecular and Cellular Biochemistry, College of Medicine

2:30-2:45 PM Keeley Ruskowski Review of bacterial contamination of various commercial fermentations: Causes and treatments

Mentor: Dr. Luke Moe, Department of Plant and Soil Sciences, College of Agriculture, Food & Environment

2:45-3:00 PM Emma Skipworth Determining the mechanism by which *Borrelia burgdorferi* controls production of the SpoVG DNA-/RNA-binding regulatory protein

Mentor: Dr. Brian Stevenson, Microbiology, Immunology, and Molecular Genetics, College of Medicine

3:00-3:15 PM Hannah Cleary Methods of mechanotransduction in corpuscles of waterfowl

Mentor: Dr. Eve Schneider, Department of Biology, College of Arts and Sciences

3:15-3:30 PM Sara Hieneman Monitoring GIPC3 binding to auditory transduction pathway proteins

Mentor: Dr. Craig W. Vander Kooi, Department of Molecular & Cellular Biochemistry, College of Medicine

Thursday, November 19, 2020

9:55 AM Dr. Aardra Kachroo Welcome & Introductions

10:00-10:15 AM Andrea Martin Serum and imaging-based biomarkers of cartilage health in hip joint disease

Mentor: Dr. Michael Samaan, Department of Kinesiology and Health Promotion, College of Education

10:15-10:30 AM Sunny Ghuneim Sex-specific effects of early life stress on water and electrolyte homeostasis

Mentor: Dr. Analía Loria-Kinsey, Department of Pharmacology and Nutritional Sciences, College of Medicine

10:30-10:45 AM Amanda Fiedler Phthalates disrupt the prostaglandin pathway: Linking their roles in female fertility

Mentor: Dr. Patrick Hannon, Department of Obstetrics and Gynecology, College of Medicine

10:45-11:00 AM Allison Fink Factors Affecting the periparturient rise in *Haemonchus contortus* infection in Hampshire and Polypay ewes

Mentor: Dr. Debra Aaron, Department of Animal Science, College of Agriculture, Food, & Environment

11:00-11:15 AM Christopher Martin Conservation of systemic acquired resistance in plants

Mentor: Dr. Aardra Kachroo, Department of Plant Pathology, College of Agriculture, Food, & Environment

11:15-11:30 AM Cole Blanford Receptor impacts on inflammatory response due to *Pneumocystis trophozoites*

Mentor: Dr. Beth Garvy, Department of Microbiology, Immunology and Molecular Genetics, College of Medicine

11:30-1:00 PM LUNCH BREAK

1:00-1:15 PM Grace Moses Will the co-infection of Rickettsia in *Mermessus fradeorum* lessen the strength of CI (cytoplasmic incompatibility) caused by Rickettsiella?

Mentor: Dr. Jennifer White, Department of Entomology, College of Agriculture, Food, & Environment

1:15-1:30 PM Braden Florence Production of nanobodies targeting SARS-CoV2 spike protein

Mentor: Dr. Konstantin V. Korotkov, Department of Molecular and Cellular Biochemistry, College of Medicine

1:30-1:45 PM Luke Landis Population intercommunication of the eastern subterranean termite as a function of colony vitality

Mentor: Dr. Xuguo Zhou, Department of Entomology, College of Agriculture, Food, & Environment

1:45-2:00 PM Kyle Stephenson Bactericidal and anti-inflammatory nanoparticles for periodontal disease treatment

Mentor: Dr. Luciana Macchion Shaddox, Department of Oral Health Practice, College of Dentistry

2:00-2:15 PM Taylor Napier Effects of honey or sucrose diet on the aggression of guard bees toward returning foragers in *Apis mellifera*

Mentor: Dr. Clare Rittschof, Department of Entomology, College of Agriculture, Food, & Environment

2:15-2:30 PM Reagan Smith Repurposing FDA approved drugs to target leukemia stem cells and prevent patient relapse

Mentor: Dr. Jessica Blackburn, Molecular and Cellular Biochemistry, College of Medicine

2:30-2:45 PM Courtney Shields Evaluation of novel biological control rhizobacteria for management of angular leaf spot in dark tobacco

Mentor: Dr. Natalia Martinez, Department of Plant and Soil Sciences, College of Agriculture, Food, & Environment

2:45-3:00 PM Evelyn Turnbaugh Progress towards establishing a capn5 zebrafish mutant line using CRISPR/Cas9 genome editing

Mentor: Dr. Ann Morris, Department of Biology, College of Arts and Sciences

3:00-3:15 PM Emory Wilds DNA mismatch repair and chemotherapy resistance

Mentor: Dr. Eva Goellner, Department of Toxicology and Cancer Biology, College of Medicine

3:15-3:30 PM Mary Catherine Wilson Developing a platform for production of Protoilludene for medical applications in the treatment of substance addiction

Mentor: Dr. Joseph Chappell, Department of Pharmaceutical Sciences, College of Pharmacy

3:30-3:45 PM Anna Foose Role of grooming behavior and pesticide resistance in honeybees

Mentor: Dr. Clare Rittschof, Department of Entomology, College of Agriculture, Food, & Environment