

## ANSC Undergraduates Conducting Research

**Maya Schlesinger**, a senior Animal Science undergraduate student in the Honors Program, has worked in the laboratory of **Dr. Mary Anne Amalaradjou** since her first year. Maya is on the pre-vet track and has a strong interest in research; therefore, she hopes to complete a PhD after vet school.

Dr. Amalaradjou's lab focuses on natural methods for controlling pathogenic microbes found in food and the influence of microbes on gut health. Pathogens studied in this lab include *Listeria monocytogenes*, *Salmonella enteritidis*, and *Escherichia coli*. These pathogens have a major impact on public health and are a large point of interest in food science research.

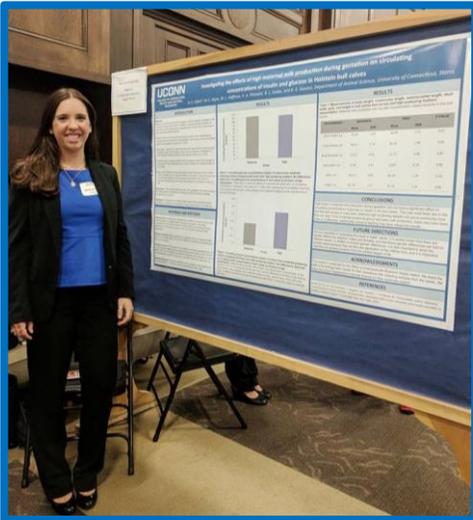
Dr. Amalaradjou's lab often turns to probiotics, or bacteria with beneficial properties, as a method of pathogen control. Maya's first project in the lab involved examining certain probiotics' effects on *Salmonella* growth in conventional chicken feed. This was part of a study that sought to develop a method of spraying probiotics onto chicken feed and growing eggs.

Maya is currently working on her honors thesis project, which is to evaluate muscle growth in chicken embryos when different types of probiotics are sprayed on the fertilized eggs. Maya's project uses fluorescent histochemistry to visualize and quantify muscle fibers from various stages of embryo development. This study is funded in part through her Idea Grant Award provided by the Office for Undergraduate Research at UConn.



**Alexandra Cabra**, a junior Animal Science undergraduate student on the pre-vet track, has worked in **Dr. Kristen Govoni's** laboratory since the fall of her sophomore year.

*More on Back*



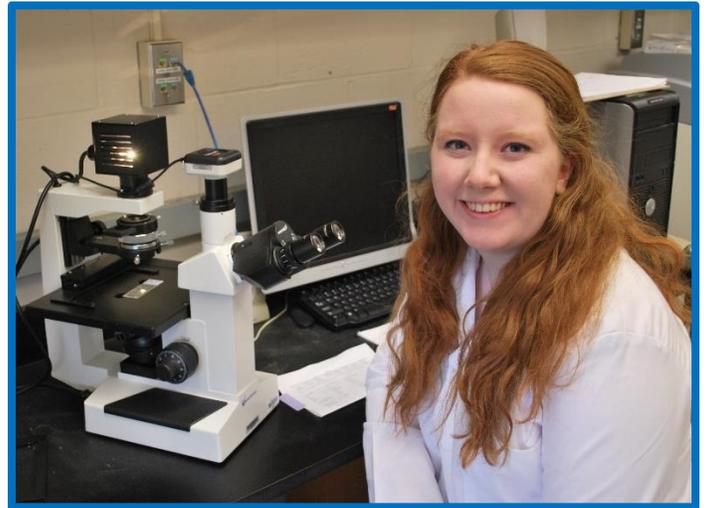
Dr. Govoni's lab focuses on animal growth and development. When Alex first started in the lab, they were conducting a study involving sheep with the goal of determining the effects of poor maternal nutrition during gestation on offspring growth. Ewes were divided into groups that were either over-fed, under-fed, or fed the recommended amount during their pregnancies, and their offspring were studied. Alex assisted with analysis in the lab by using a cryostat to slice cross sections of the pancreas and muscle sampled from these lambs to make histological slides. She then helped to stain the slides so that they could be analyzed for morphological changes.

Dr. Govoni's lab is currently working on a project to determine the effects of high maternal milk production during gestation on offspring growth and health in Holstein calves. All samples were collected from calves born here at UConn. Alex's portion of the project focused on how high maternal milk production affected circulating glucose and insulin concentrations in Holstein bull calves. She received a grant from the Office of Undergraduate Research for this work, and was able to present her results recently at the Fall 2017 Frontiers in Undergraduate Research Poster Exhibition. She received another OUR grant to continue this project and determine how high maternal milk production during gestation affects circulating glucose and insulin concentrations in Holstein heifer calves.

Alex will also be working with Dr. Govoni for her honors thesis project. Working in Dr. Govoni's lab has given her a better understanding of lab techniques, scientific writing, and research as a whole. When she graduates in May of 2019, Alex plans to attend veterinary school and pursue a career in veterinary medicine.

**Veronica Pleasant**, a junior Animal Science undergraduate student, has been working in the laboratory of **Dr. Kristen Govoni** since September of her sophomore year. Veronica has a passion for understanding disease pathogenesis and is pursuing a double major in both the Animal Science and Pathobiology departments. Dr. Govoni's laboratory focuses on the effects of maternal programming on the offspring growth and development using a sheep model. This work is in collaboration with Dr. Sarah Reed, whose laboratory focuses on muscle physiology, and Dr. Zinn. The literature, including publications from the UConn ANSC

department, indicate that poor maternal nutrition during gestation has effects on muscle development, insulin-like growth factors, postnatal growth and development, metabolism, and stem cell function. In general, poor maternal nutrition during gestation predisposes the offspring to disease, obesity, and other biological dysfunctions.



In Dr. Govoni's lab, Veronica aided a graduate student in determining how poor maternal nutrition during gestation affects the number of myogenic progenitor cells expressing the transcription factor Paired Box 7 positive [Pax7(+)] in offspring muscle. This was accomplished using a cryostat to slice cross-sections of fetal sheep muscles to make histological slides. These slides were then stained and imaged with a microscope in order to determine the number of Pax7(+) progenitor cells within a given cross-section of fetal muscle tissue. During the spring semester of her sophomore year, Veronica assisted in a project focused on how high maternal milk production during gestation affects dairy calf growth and health. She performed several enzyme-linked immunosorbent assays (ELISAs) in order to determine the concentrations of interferon gamma (IFN $\gamma$ ) and immunoglobulin G (IgG) in the colostrum of the Holstein cows at the Kellogg Dairy Center (KDC), as well IgG concentrations in calf serum. These were performed to determine if the inflammatory and passive transfer of antibodies from cow to calf are altered due to high maternal milk production. Veronica continued the analysis of these data into her junior year. Currently, she is working on further detection of IgG in the serum and administered colostrum of female Holstein calves from the KDC, as funded by the Office of Undergraduate Research.

Working in Dr. Govoni's laboratory has given Veronica greater confidence in a lab setting, as well as a much larger appreciation for the applications of research in real life. After graduating from UConn, she hopes to attend veterinary school and pursue a career in companion animal emergency medicine.

*More on Back*



**Randi Szabo**, a junior Animal Science undergraduate student, has been working in **Dr. Kristen Govoni's** laboratory since the fall of her freshman year. She originally started as a work-study student, doing regular maintenance in the lab. This included cleaning, getting familiar with different equipment, and also getting to assist with ongoing experiments in the lab.

During her sophomore year, she began an independent study project. Randi was awarded an OUR Grant to evaluate the blood biochemistry of bull calves born to moderate and high producing cows at UConn. The objective was to determine if there were any differences in metabolic markers that could be affecting health and growth of offspring based on maternal milk production. This involved collecting blood samples from the calves as well as analyzing the data from the blood biochemistry panel. For her sophomore year, she only focused on bull calves, but now in her junior year she is evaluating heifer calves to determine if there are any gender differences.

She has been able to also assist with another project coordinated with Dr. Sarah Reed's lab, which involved supplementing growing rams' feed with antioxidants to determine if it improved growth. Working in Dr. Govoni's lab provided her with lab experience as well as animal handling experience. After graduating UConn she hopes to go to vet school and pursue a career in both large and small animal medicine.

**Helenrose Iannitti**, an undergraduate ANSC junior, is a member of the Honors Program. Helenrose has worked with **Dr. Sarah Reed** since December of her freshman year. She began assisting in the UConn equine barns as part of a collaborative project with Dr. Reed's lab, other universities, and the United States Polo Association during which Helenrose helped collect blood samples, weight data, and heart rate monitor data from the UConn polo horses.

Helenrose has participated in various ongoing projects in Dr. Reed's lab. She has worked with Dr. Reed and graduate students to run protein assays, quantify cell culture and histology data, collect blood and muscle samples from sheep, ultrasound horses and sheep, and section mouse muscle tissue using a cryostat.

Helenrose has continued working in Dr. Reed's lab on an ongoing project investigating the role of maternal nutrition during gestation on offspring growth and development.

Helenrose developed her honors project on this work, focusing on the effects of poor maternal nutrition during gestation on

offspring oxidative stress. Oxidative stress occurs when the body cannot adequately detoxify oxygen-centered free radicals. This effects numerous aspects of animal health and it is a growing field of animal research.

During the spring semester of her sophomore year, Helenrose began her individual project. Since then she has completed a series of oxidative stress assays using samples from the offspring of the ewes who experienced poor maternal nutrition during gestation. Thus far, she has analyzed these samples for malondialdehyde (MDA) concentrations.

Malondialdehyde is an indicator of lipid peroxidation, which occurs when an animal experiences oxidative stress. Helenrose has analyzed sheep plasma, serum, and muscle tissue for MDA. Her data demonstrate a tendency for poor maternal nutrition to affect offspring MDA concentrations, and therefore, oxidative stress. She is currently working to analyze muscle samples from the offspring for additional markers of oxidative stress.

Helenrose has enjoyed her research, and she plans to attend veterinary school after completing her undergraduate career and research here at UConn. She hopes to attain a DVM and pursue a career in large animal medicine.

