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MU Veterinary Medicine Resident Receives High Honors at European Conference

Aida Vientós-Plotts, a resident at MU's College of Veterinary Medicine (CVM), won the best oral short communication award for her presentation at the 27th European College of Veterinary Internal Medicine–Companion Animals Congress, held Sept. 14-16 in Malta.

Vientós-Plotts' presentation, "Development of respiratory dysbiosis as cats transition from healthy to asthmatic airways," was selected above 15 other oral abstracts presented at the conference hosted by the European Society for Veterinary Internal Medicine and the International Society for Companion Animal Diseases.



Dysbiosis refers to a microbial

imbalance or maladaptation on or inside the body, a process that most people associate with gastrointestinal disease, not respiratory disease.

The European Society of Veterinary Internal Medicine—Companion Animals (ECVIM—CA) is an international group devoted to advancing and sharing knowledge in all aspects of companion animal internal medicine, but with a particular focus in respiratory medicine and infectious disease.

The International Society for Companion Animal Infectious Diseases was founded as a response to a growing interest in companion animal infectious diseases within the profession, and the increasing importance of zoonoses as emerging infectious diseases in humans. It is estimated that 75 percent of emerging infectious diseases in humans are zoonotic, or diseases that can be transmitted to humans from animals.

“We generally go to the American College of Veterinary Internal Medicine because it’s in the (United) States, so it’s easier for us to go. We have to go for our certification exams the last two years of our residency, but we don’t have to present anything unless we want to,” Vientós-Plotts said.

“Last year, pet food company Royal Canin announced they would sponsor a number of residents from the United States to go to ECVIM,” Vientós-Plotts explained. “That sounded interesting and exciting, and we thought we should apply and see if we’re selected to go.”

More than 30 residents traveled to France, toured the Royal Canin campus, and then went to Malta for the conference. The Mediterranean island nation lies near Sicily, 50 miles from the southern coast of Italy.

About the presentation

“It is with great pleasure that we could award Dr. Aida Vientós-Plotts for best oral communication in the stream of internal medicine at the 27th ECVIM Congress in Malta,” said Frédéric Billen, president of the European Society of Veterinary Internal Medicine. “Besides being a hot topic, her study was well designed and very original. Her presentation style was also very much appreciated by the jury. Dr. Aida Vientós-Plotts was very professional and mastered perfectly her topic.” Billen, DVM, PhD, DECVIM-CA, is a professor of small animal internal medicine at Liège University in Belgium and a member of the European Society of Veterinary Nephrology and Urology.

The research

“The presentation at ECVIM was actually the third part of my ongoing research,” Vientós-Plotts says. “It was about evaluating how the composition of a cat’s lung microbiome changes as it transitions from being healthy to having asthma. The microbiome is the collection of bacteria and other elements that normally reside in a particular environment, whether that is the skin, the gastrointestinal tract or the lungs.”

“Until very recently, we have always thought the lungs were sterile, that there shouldn’t be any ‘bugs’ in there,” Vientós-Plotts continued. “In 2008, the National Institutes of Health started the human microbiome project. They took DNA and analyzed all the different ‘bugs’ that are in all the different parts of the body, but since the lungs were considered to be devoid of bacteria, they were largely ignored until recently. There just wasn’t much information about the lungs and airways, and whether or not we could characterize what ‘bugs’ were there in a healthy person or animal.

“We are interested in figuring out if a change in the amount or type of normal or good ‘bugs’ can lead to predispose to disease, or if diseases lead to that imbalance,” Vientós-Plotts explained. “Everybody understands this in the gut; similar principles apply to the respiratory tract. So, for this particular project, we looked at what happens to the bacterial populations as cats transitioned from being healthy to having asthma, and the changes were impressive. Some of the types of bacteria that are usually found at 60 percent went all the way down to 5 percent or even 0.6 percent.

“Just as in human medicine, in veterinary medicine, little was known about the respiratory microbiome in dogs and cats. So, our lab — Dr. Carol Reinero and the Comparative Internal Medicine Lab — in conjunction with Dr. Aaron Ericsson, the director of the MU Metagenomics Center, published the first paper on the respiratory microbiome in healthy dogs. They also have looked at dogs with chronic bronchitis, which is the most common respiratory disease that dogs get.

“My first publication was the characterization of the healthy cat airway biome,” Vientós-Plotts said. “Then, I published a paper on the effects of giving oral probiotics in the lungs. There’s evidence that probiotics can affect other parts of your body, including the lungs, not just in the gut, which is the common assumption. We actually found some of the ‘bugs’ that we gave in the probiotic in the lungs; that was pretty cool. That second part was published just recently. The third part — how the

composition of a cat's microbiome changes as it transitions from being healthy to having asthma — was represented in the oral abstract presented at ECVIM in Malta.”

A medical residency can be quite challenging. Residents clock long clinical shifts, practicing medicine under the supervision of an attending faculty physician. At MU's CVM, residents are also encouraged to complete a master's degree in addition to performing their clinical work.

“When I started my residency, I started a master's program,” Vientós-Plotts says. “However, my research has evolved over time and I feel like there is much more to investigate, therefore I recently decided to stay and complete a PhD.”

How you can help

To support research into asthma, aspiration pneumonia, infectious pneumonia, chronic bronchitis and other debilitating or fatal lung disorders in animals, please consider a gift to the [Small Animal Swallowing Disorders and Respiratory Research Fund](#).

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October 21, 2017
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RSVP by October 13
mucvmevents@missouri.edu

Barbecue and lawn games provided for CVM alumni, students, faculty and staff. Coolers welcome. Please bring your own seating.

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