



Cornell University College of Veterinary Medicine

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Alumna Dr. Kelly S. Santangelo '04 is first veterinarian to receive a Boettcher Investigation grant

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Cornell DVM alumna Dr. Kelly Santangelo '04 is one of two Colorado State University biomedical researchers to receive Webb-Waring Biomedical Research Awards from the Boettcher Foundation.

Now in its eighth year, the Webb-Waring Biomedical Research Awards program honors early-career researchers with three-year, \$235,000 grants to advance their independent research and position them to compete for major federal and private awards.

Santangelo, the first veterinarian to ever receive the Webb-Waring award, will explore “Prevention and therapy of post-traumatic osteoarthritis.”

Her research will investigate how, after traumatic injury, the interaction between Toll-like receptors — proteins that play a key role in the immune system — and damage-associated molecular patterns contribute to the development and progression of post-traumatic osteoarthritis.

Santangelo first became interested in osteoarthritis while in veterinary school at Cornell University. At the time, she had her sights set on becoming an equine orthopedic surgeon. After receiving a Doctorate of Veterinary Medicine at Cornell, she completed a residency in Clinical Pathology and earned a PhD in Comparative and Veterinary Medicine at The Ohio State University. Along the way, Santangelo had decided to pursue a career in research.

Post-traumatic osteoarthritis is a debilitating condition that affects more than 27 million Americans. It results in a \$3 billion annual burden in direct health-care costs, disability-affected life years and lost work productivity. The knee is most frequently affected, with over 900,000 cases of acute injury reported each year in the United States. There is no cure for post-traumatic osteoarthritis, and most patients require total joint replacement surgery when they reach end-stage disease.

Santangelo, an assistant professor in the Department of Microbiology, Immunology and Pathology at CSU, said that while having osteoarthritis might not be a direct cause of death, it limits a person's mobility and can cause depression. Ultimately, it can have a very negative effect on a person's health and well-being.

“Chronic pain is something, until you experience it, you don't realize how debilitating it can be,” she said. “It can severely limit the ability for a person to go about normal daily functions.”

Santangelo said her goal is for people to maintain functional, pain-free mobility throughout aging for as long as possible.

Her research will explore injury-induced osteoarthritis, which affects military personnel and civilians. She plans to examine medications that are already approved by the U.S. Food and Drug Administration, though not necessarily for osteoarthritis. She will also explore human synovial fluid, which is found in people's joints, to characterize what is in the fluid that is inviting inflammation.

“It would be great if we could prevent this type of osteoarthritis from occurring,” she said. “If we could lessen the pain, it would add a tremendous amount to a person's quality of life. It never ceases to amaze me how much we take our mobility for granted, until something happens with it.”

Santangelo will collaborate on the project with researchers at the University of Colorado Denver and Rush University Medical Center in Chicago. She said this award means a “tremendous amount” to her.

“Our team has the potential to make an impact, and I am thankful for the Boettcher Foundation and CSU for supporting this work,” she said.

An extended version of this story first appeared on the Colorado State University website.

