

# Solving Allergic Issues In Westies With A Little Help From Human Science

## WFA Awards Research Grant to Cornell Immunology Researcher to Study Atopic Dermatitis and Allergy

*By Teresa Barnes, Vice President Communications*

**A** basic science immunologist turned veterinary researcher wants to unlock the mystery of the canine immune system. She seeks to find better ways to treat a common affliction and possibly the most burdensome in the West Highland White Terrier breed – atopic dermatitis (AD) and new funding just announced by the Westie Foundation of America (WFA) will provide the support she needs to launch a new study.

According to the AKC Canine Health Foundation, 10 percent of dogs are affected by AD which is the second most common allergy in dogs behind flea bite allergy.

“We know relatively little about what the immune system in the dog does when it becomes allergic. There are exciting questions to answer that could help us to develop better treatments for dogs with allergies,” WFA grant recipient Elia D. Tait Wojno, Ph.D. said. “It is quite a burden – dogs with allergic disease. When the quality of life of dogs is negatively impacted, owners’ lives are negatively impacted.”

### A Unique Human/Canine Researcher

“We are pleased to provide this grant to Dr. Tait Wojno to support her work in allergic disease in Westies, and atopic dermatitis, in particular,” said Kay McGuire, DVM, and Vice President, Health for WFA. “The work she is doing in AD in canine medicine side-by-side with human medicine is unique and we believe is part of the future for improving the health of our Westies.”



*Elia D. Tait Wojno, PhD.*

It is the perspective that Tait Wojno brings to the table, along with her ongoing collaborations in human medicine that provide the basis for potentially dramatic improvement in canine allergy treatment. “This project offers the opportunity to make a difference in dogs’ and humans’ lives. For the work in canine allergy, I feel like the real opportunity is that the work we do in the lab will have a real clinical impact in the short term – for discovery and also to apply the knowledge in a practical and helpful way,” she said.

An assistant professor at Cornell University’s College of Veterinary Medicine in Ithaca, NY, Dr. Tait Wojno didn’t begin her research working in canine disease. In fact,

she completed a fellowship at the University of Pennsylvania, Philadelphia where she also received her doctoral training, studying immune responses during infection and allergy.

She spent years looking at human allergic conditions in the field of immunology, training that helped her better understand atopic dermatitis and allergy.

Professor William H. Miller, Jr., VMD, DACVD, believes Tait Wojno’s work and her expertise are the right fit to help figure out AD in Westies. “With her experience in innate immunity, she’s in a very good position to help define the array of allergic mechanisms in allergic dogs,” said the Medical Director in the Companion Animal Hospital in the College of Veterinary Medicine at Cornell University. “Her long term findings may lead to the development of new treatments.”

*(Continued on page 19)*

*(Solving Allergic Issues continued from page 18)*

Specifically, the goal for Tait Wojno's research project is to identify an immune cell profile of an allergic Westie and determine how it differs from that of a healthy Westie. She believes her team may be able to identify an immune cell profile in the blood of allergic dogs. This profile may also exist in dogs that don't yet show signs of allergies but will develop them. This work will provide researchers with a better understanding of the immune responses that underlie allergy in dogs, which will improve our ability to identify biomarkers of disease, develop new therapies, and come up with ways to measure response to therapy. "Having a way to measure if therapy is successful early on could be important," she said.

The work in the study, Tait Wojno believes, could also help lead to better diagnostic tools. Though readily diagnosed by doctors who treat Westies, AD in the general veterinary practice,



she says, may be less familiar and making such a diagnosis in a first visit can be complicated. She says looking to see if an immune cell profile in the blood could be used as a diagnostic factor, thereby improving the accuracy and speed of making the diagnosis.

Ultimately, Tait Wojno hopes this work will help improve lives of all who suffer from atopic dermatitis. "AD - we talk about it a lot in human and veterinary medicine," she said. Though with the disease, dogs and humans are not dying from the condition, she says the negative impact on quality of life is clear. "Human literature shows lost work hours, negative financial impact, time lost at home. This creates a very significant burden. Data in dogs shows that the same is true for canine allergy. As much as we can measure their mental health, their happiness – the burden of disease in dogs is really significant and has a negative impact on the dog and the owner, as well."

### **The WFA Research Project**

"This project with the WFA, I am really excited about it," Tait Wojno said. "When I first started here at Cornell, we were looking at any dog that walked in the door with allergic disease [atopic dermatitis]. We can now identify differences in the immune cells in the blood in allergic dogs, which is important as it could allow us to identify dogs that are going to become allergic in the future. The new tools in the lab that we have developed to study canine allergy are going to help us to do more sophisticated allergic analysis and to build a picture of what the allergic immune system looks like in [canines]."

Tait Wojno says working with Westies adds an important element to her work in allergic disease in canines. "This project allows us to work with a group of dogs that have pedigrees, and so we can look at genetic information and immune profiles in a single breed -- looking at the gene and environment interaction."

### **Studying Children And Dogs**

As a post-doctoral fellow, Tait Wojno focused on how the immune system operates when things are normal and how it can become dysregulated and cause problems. Her work in humans specifically focusing on pediatric allergy and children with food and respiratory allergies, prepared her for the move she would soon make to add veterinary research to her repertoire.

Having a rich history of working in human populations has prepared her for a growing area of collaborative human/veterinary medicine known as One Health. "More and more people are embracing this idea that if we look at naturally-occurring diseases in other species, we can learn a lot about human disease," Tait Wojno said. She says the advances in the cancer space provide a good example of the potential to make significant progress. "Looking at how breakthroughs

*(Continued on page 20)*

(Solving Allergic Issues continued from page 19)

in naturally-occurring canine lymphoma have been applied successfully to human medicine, we know that if we solve problems in dogs, we can help humans and if we help solve problems in humans, we can help dogs,” she said.

After completing her doctoral training in immune responses to parasite infection, she began her post-doctoral fellowship, this time at University of Pennsylvania and Weill Cornell Medicine at Cornell University in New York. It was in her work there that she began to see the immense need for better understanding of immune-related disease in the canine health space.

Tait Wojno joined the Baker Institute for Animal Health at the Cornell University College of Veterinary Medicine as a junior faculty member and has been there for three years. “Being part of the Institute and the College of Veterinary Medicine has allowed me to bring together my interest in allergic disease and work focused on dogs,” she said.

### Starting The Study

With the help of the WFA, Tait Wojno is optimistic about the potential to translate this research into canine clinical practice.

“We are hopeful. We are going to continue our study here across breeds. We are interested in identifying if there are differences between Westies and larger breed populations. In humans, we are moving towards personalized medicine. In dogs, can we do the same? Are there treatment options and management strategies we want to apply to some breeds and not others?”

Tait Wojno’s team has already begun recruiting for the initial study. For the first year, they will seek to enroll 25 healthy and 25 allergic Westies, she says. “We would love to continue working with the WFA.” She says there is great potential to do some additional and longer-term studies that could reveal even more about allergic issues affecting Westies and other canines “following litters as they develop and grow and become adults and providing additional opportunities to work with breeders and the kennels.”

Alongside her work in canine allergy, Tait Wojno’s work in basic immunology and diseases that affect humans allows her to pursue the complicated areas of allergy and immunology. She holds two sought after R01 grants from the National Institutes of Health related to immunity and infection.

## Mark Your Calendar — Annual Health Seminar



Presented by the

Westie Foundation of America

Kimberton Fire Hall (compliments of the WHWTCA)

Thursday, October 4, 2018 — 6:30pm

Light Supper provided prior to the Presentation

## InFertility in the Bitch

Common causes of perceived or true reduced fertility. • When should it be explored and what are the steps?  
What is reduced fertility? • How to interpret, manage, and incorporate (or not) for a breeding program.

### Featured Speaker: Carol Margolis, DVM

Lecturer in Pediatrics, Medical Genetics and Reproduction  
University of Pennsylvania, School of Veterinary Medicine