



## RESEARCH PROGRESS REPORT SUMMARY

**Grant 02780:** Bladder Carcinogen Exposures in Pet Dogs

**Principal Investigator:** Lauren Trepanier, DVM, PhD

**Research Institution:** University of Wisconsin, Madison

**Grant Amount:** \$149,145

**Start Date:** 3/1/2020      **End Date:** 2/28/2023

**Progress Report:** Mid-Year 3

**Report Due:** 8/31/2022      **Report Received:** 8/29/2022

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*(The content of this report is not confidential and may be used in communications with your organization.)*

### **Original Project Description:**

Bladder cancer is an aggressive cancer that affects ~ 20,000 dogs per year, and often leads to euthanasia. Certain breeds have a higher incidence of bladder cancer but genetic studies even in the highest risk breeds have been inconclusive and still indicate influence from environmental exposures. The investigators propose that specific household environmental chemical exposures contribute to the risk of bladder cancer in dogs. In this study, they will measure urinary concentrations of five different chemicals that are known or suspected to be bladder carcinogens, in dogs with bladder cancer compared to unaffected dogs. The investigators will determine whether the presence of certain chemicals is associated with household exposures, based on owner questionnaires and household proximity to industrial sites. Finally, they will determine whether urinary chemical concentrations are linked to early DNA damage in the urinary cells of healthy dogs that do not have bladder cancer. The overall goal of this study is to provide veterinarians and dog owners with evidence-based bladder cancer prevention strategies.

**Publications:** None at this time.

### **Presentations:**

December 2020. Translational Medicine: How Our Environment May Increase the Risk of Cancer for Dogs and People. Podcast interview, What Your Dog Wants You to Know.

<https://www.caninecanceracademy.com/podcast-ep-28>



January 2021. Environmental Cancer Risk in Dogs and People. CTSA One Health Alliance Interview: One Health: Untold Stories.

Several presentations discussing the funded project:

- 2021 AKC Canine Health Foundation National Parent Club Conference (8.14.21)
- 2021 Iowa State University (9.9.21)
- 2021 Tufts University Canine Club (remote, 9.14.21)
- 2022 Invited platform presentation at the ACVIM Oncology Colloquium, June 2022 (standing room only)
- 2022 Invited presentation to the Massachusetts VMA about this work (scheduled for November 13, 2022)
- 2022 Invited presentation to the Humane Society VMA about this work (scheduled for December 7, 2022)

**Report to Grant Sponsor from Investigator:**

Bladder cancer case recruitment has been steady through our alliance with Antech, which is attaching our study flyer to all BRAF urine tests that are positive for bladder cancer. We are now enrolling 2-3 dogs with bladder cancer per month. We also have a list of possible matched controls through our expanded outreach through Facebook. We have recorded questionnaire data encoded for all dog kits that have been returned to us.

We also obtained additional internal funding to add analyses of arsenic in tap water and household dust, acrolein in household air, and metabolites of acrolein and arsenic from owner urine, in a subset of dog households. Our hypothesis is that these household and owner chemical exposures will be higher in TCC case homes compared to TCC control homes. These data will be included in the final publication.