



Understanding How Mammary Cancer Develops

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Result: Potential New Drug for Canine Mammary Cancer Warrants Further Study

Researchers from Cornell University are working to find improved treatments for dogs requiring chemotherapy following surgical removal of malignant mammary tumors. Mammary tumors are the most common cancer in non-spayed female dogs. Although surgery is often curative, certain types of mammary gland cancers are more aggressive and require adjunct chemotherapy.

With Morris Animal Foundation funding, the Cornell team studied the role of peptidylarginine deiminase (PAD) enzymes in canine mammary cancer and the anti-cancer effects of PAD inhibitor drugs. Increasing evidence suggests that PAD enzymes can change the structure and function of other proteins through a process called citrullination, which might play a role in mammary cancer development.

While the researchers found no differences in PAD expression between healthy and neoplastic canine mammary cells, they did demonstrate that canine mammary tumor cells treated with the PAD inhibitor drug, BB-CI-Amidine, had reduced viability. BB-CIA activated a pathway in the mammary cancer cells, blocking cancerous cell growth and killing tumor cells under laboratory conditions.

Given these results, the team concluded that BB-CIA has potential as a novel therapeutic for mammary cancer in dogs and warrants further study. The next step is to evaluate BB-CIA's safety and bioavailability in dogs – vital data needed before considering a clinical trial evaluating the drug in canine mammary cancer patients. (D14CA-063)