

Man's best friend shares similar 'albino' gene

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Albino Doberman pinschers share a similar gene with humans who also have the condition and display the same characteristics including sensitivity to sunlight.
Credit: Michigan State University

Michigan State University researchers have identified a genetic mutation in Doberman pinschers that causes albinism in the breed, a discovery that has eluded veterinarians and breeders worldwide up until now.

Paige Winkler, a doctoral student in the College of Veterinary Medicine, co-led the study with Joshua Bartoe, an assistant professor in the Department of Small Animal Clinical Sciences, and discovered a mutated gene that is associated with a form of [albinism](#) in humans.

"What we found was a [gene mutation](#) that results in a missing protein necessary for cells to be pigmented," said Winkler. "Some defects in this same gene cause a condition called oculocutaneous albinism in humans."

This type of albinism has certain characteristics that are evident in both humans and [dogs](#).

"With an albino Doberman, you see a white or lighter-colored coat, pink noses and lips, along with pale irises in the eyes," said Winkler. "These traits are very similar to the characteristics humans display with this particular condition causing light-pigmented skin and hair, along with eye discoloration and vision disturbances."

The canine breed and people also experience the same skin sensitivity to sunlight, which results in an increased risk of skin tumors.

"We knew that the albino Dobermans typically developed these types of tumors, much like humans, but we wondered what the actual increase in prevalence was between a 'white' dog and a regular-colored Doberman," said Bartoe. "What we found was a significant increase in risk for development of melanoma-like tumors in the albino dogs."

Bartoe and Winkler studied 20 dogs of each color and discovered that more than half of the albino dogs had at least one tumor while only one of the regular-colored dogs possessed a tumor.

The results of their research could be of great importance to Doberman breeders around the world. Currently, American Kennel Club registration restricts dogs with the condition.

"Because Dobermans can carry the defective gene, but show no signs of the disorder, this has posed serious problems among breeders," said Bartoe. "But now that we've identified the mutation, we can look at the

genetic makeup of these dogs and determine if they might be carriers."

The study can be found in *PLOS ONE*.

Provided by Michigan State University

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