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Mushroom Compound Offers Hope for Cancer in Dogs, Humans

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Penn Vet

(PHILADELPHIA) – Jeff Gillman and his German shepherd-husky mix dog Reuben have been together for 12 years, and now a deadly blood cancer threatens to separate them.

"I got him the summer after my freshman year in college and I was traveling on the West Coast bumming around hitchhiking," said the now 31-year-old lawyer from Philadelphia. "He was given to me at a farmer's market in Santa Cruz. This dog was just too much to pass up. He's my oldest and best friend."

So when Reuben was diagnosed with hemangiosarcoma of the spleen, an aggressive and invasive cancer that arises from the blood cells and typically affects the spleen, Gillman was devastated.

"I love my dog so much because I just don't think there are other living things in this world that give of themselves as much as dogs do," he said. "That's what they do. They exist to give. He is happy when he is doing for me. His love for his pack is so undying and strong, I can't help but love him back."

So Gillman enrolled Reuben in a clinical trial at Penn Vet, which is part of the University of Pennsylvania Veterinary School and carries out groundbreaking cancer research.

Much of the research will eventually translate to humans because at the molecular level, dogs are so similar to humans.

Researchers are studying a Chinese mushroom compound that has shown some of the longest survival rates ever reported for dogs with hemangiosarcoma. Before this trial, a dog like Reuben could be expected to live 86 days, but the dogs on the mushroom compound are living beyond a year.

The coriolus versicolor mushroom, also known commonly as the Yunzhi mushroom, has been used for more than 2,000 years. Its active ingredient is polysaccharopeptide or PSP, and researchers believe it has immune-boosting properties and, more recently, tumor-fighting ability.

Hemangiosarcoma originates in the blood vessels and most commonly affects the spleen. It typically affects medium and large breed dogs, such as golden retrievers and German shepherds.

"It's a very devastating disease," said Penn Vet researcher Dottie Brown. "The presentation is very acute. The dog looks completely normal, running around the yard and then literally collapses in a short period of time and gets into an emergency room situation. Usually it is growing in the abdomen and also the spleen and no one sees it, then it breaks open and bleeds."

"Owners go from one minute thinking it's a healthy dog and the next facing a grave diagnosis," she said. "Most without treatment, removing the spleen, live about three months. It's very short."

Brown is working with I'm-Yunity, a formulation of PSP manufactured by Chinese Medicine Holding, that has been tested for consistency and good manufacturing processes. It may also pursue large-scale clinical trials in humans.

"They believe very strongly that it has definite therapeutic benefits and want to apply rigorous science so the Western world is aware of it," she said. "Unfortunately, there are lots of products on the market that say they have PSP in them and we don't know if they do or how much."

PSP is an alternative therapy and therefore is not regulated by the federal Food and Drug Administration.

The initial study looked at 15 dogs, giving three groups of five dogs different dosages.

"We looked to see how long the tumor would take to spread as well as how long the dog lived," said Brown.

Typically, a dog with the disease survives "anywhere from three weeks to three months" without removing the spleen, according to Brown. But in the study, the dogs that received the highest doses "doubled" the survival time, she said.

So far, the mushroom therapy, looking at blood counts and chemical screens, has shown no side effects.

"We follow their baseline every month until they died and we didn't see any abnormalities," Brown said.

The way these dog tumors spread is comparable to how they metastasize in humans, according to Brown.

"We believe if we can definitely show this can decrease the spread of tumors, it will be applicable in other kinds of tumors, not just hemangiosarcomas in dogs, cats and people," she said.

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