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BOXER Update

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Hemangiosarcoma Research

May Help Identify Affected Boxers & Provide Treatment

“Georgia” was an eight-time Master Agility Champion (MACH) when she was diagnosed with hemangiosarcoma on Sept. 10, 2014. The 6 ½-year-old female, the highest-achieving agility Boxer in breed history, took on the aggressive, insidious cancer by earning a ninth MACH title.

When owner-handler Todd Buchla lifted Georgia (MACH9 Cherkei’s Too Hot To Handle, CD, BN, RE, MXS3, MJG3, MXF, TOX, T2B3, CA) to celebrate her victory, the crowd cheered and many cried. The cancer took her life three and a half months later.

“Despite chemotherapy and the latest treatments, Georgia died in such a short time,” says co-owner Sherry Buchla, of Marietta, Georgia. “The cancer had already spread to her spleen, liver and lungs when it was discovered, so she was not a candidate for surgery. As with many Boxer owners, we had heard of hemangiosarcoma but had never taken time to learn more about it.”

In reality, treatment options and the outcome for dogs with hemangiosarcoma have changed little over the past 30 years. Sadly, there are no reliable tests or imaging technologies to identify the cancer before it causes clinical signs.

One of the most challenging cancers to understand, hemangiosarcoma appears to originate from a cell in the bone marrow that typically settles in the thin layer of cells that line the interior of blood vessels. Tumor cells, thus, have access to the blood supply, allowing them to potentially metastasize to virtually any other organ in the body.

The disorganized growth of tumor cells in the walls lining blood vessels disrupts

normal blood flow, leading to blood clots and hemorrhaging. Mini-hemorrhages can heal quickly with dogs showing only mild signs, but severe hemorrhaging from within a tumor can be fatal.

A silent disease, hemangiosarcoma develops slowly and painlessly. The only hints that a dog may have the cancer are recurring lethargy and pale mucous membranes due to anemia. Most dogs have an advanced form of the cancer when it is discovered, explaining why severe internal bleeding and sudden death are not unusual.

Boxers have an especially high risk for hemangiosarcoma, as do Golden Retrievers, Portuguese Water Dogs and several other breeds. The prevalence of the cancer has prompted more than 40 national parent breed clubs to make hemangiosarcoma a research priority. The [American Boxer Charitable Foundation](#) is one breed organization helping to advance learning by funding research.

“This cancer is overwhelming for Boxer breeders and owners because it is not easy to detect and there are no effective treatments or therapies,” says Joyce Campbell, DVM, a trustee of the American Boxer Charitable Foundation. “We are so grateful to be working with Dr. Jaime Modiano and his team at the University of Minnesota to try and learn more about this heartbreaking cancer.”

An Impossible Cancer to Cure

Hemangiosarcoma occurs most commonly in dogs older than 6 years of age and is virtually impossible to detect early. The majority of dogs die before treatment



“Our goal is to better understand how the blood test can be used to detect this cancer in dogs and to confirm the use of the test to predict cancer progression in treated dogs.”

Jaime Modiano, VMD, PhD, Perlman Endowed Chair in animal oncology at the University of Minnesota



A proud sponsor of the AKC Canine Health Foundation since 1997, Purina works with the Foundation to help advance canine health research so dogs may live long, healthy lives.

can begin. Without treatment, dogs may die in one to two weeks, and the expected survival is four to six months. Tumors in about 50 percent of cases start in the spleen. Other internal organs commonly affected include the heart, liver, lungs, kidneys, mouth, muscle, bone, brain, and bladder. Tumors that occur in or under the skin typically are less aggressive.

The standard of care for hemangiosarcoma is surgical removal of the primary tumor and/or chemotherapy, depending on the tumor location. Treatment is meant to prevent fatal blood loss and to extend life but is seldom curative. Chemotherapy delays the recurrence of metastasis, which occurs in virtually every dog diagnosed with the cancer.

Humans develop a similar cancer known as angiosarcoma. Most human patients succumb to the tumor within three years of diagnosis. The aggressive, soft-tissue sarcoma is also challenging to study because it is rare, accounting for less than 1 percent of sarcomas. As with canine hemangiosarcoma, this cancer metastasizes freely because the malignant cells are in constant contact with the bloodstream.

New Study Offers Promise

The American Boxer Charitable Foundation is helping to support a recently approved three-year \$432,000 grant in which researchers will focus on developing an early detection test to identify hemangiosarcoma cells in the blood and a treatment to attack hemangiosarcoma cancer stem cells that establish and maintain the cancer. The [AKC Canine Health Foundation](#) is administering and managing the grant, with funding provided by the Golden Retriever, Boxer and Portuguese Water Dog foundations.

“Our goal is to better understand how the blood test can be used to detect this cancer in dogs and to confirm the use of the test to predict cancer progression in treated dogs,” says lead investigator Jaime Modiano, VMD, PhD, the Perlman

Endowed Chair in animal oncology at the University of Minnesota.

Previous research by Dr. Modiano and his team identified regions of the genome associated with heritable risk for hemangiosarcoma in Golden Retrievers. “We showed that the cells that give rise to this cancer are highly adaptable and can easily change their behavior in response to cues from the environment,” Dr. Modiano says. “This unique trait fuels the aggressive, metastatic behavior of this tumor and its resistance to therapy.”

The researchers found that by reducing the tumor’s ability to recruit inflammatory cells, they could inhibit its ability to become established and create disease. A breakthrough came with the discovery of a genetically engineered lethal bacterial toxin, called eBAT, which specifically destroys the hemangiosarcoma cancer stem cells and makes the environment inhospitable for the cancer.

“We linked the toxin to two receptors that are rarely present at the same time in normal cells but almost always occur together in hemangiosarcoma cells,” explains Dr. Modiano. “This highly targeted delivery system allowed the toxin to kill highly chemotherapy-resistant sarcoma cells.”

For information about participating in the research that begins March 1, please contact Amber Winter, study technician, at 612-624-1352 or alwinter@umn.edu.

“Our goal is to reduce the health burden of this cancer in dogs and humans,” Dr. Modiano says. “Few cancers are more deadly. The frequency of this cancer underscores the need for developing specific treatments in dogs and opens the door to help improve our understanding of sarcoma tumors that occur infrequently in humans.” ♦

Purina thanks Dr. Joyce Campbell, chair of the American Boxer Club Health and Research Committee and a trustee of the American Boxer Charitable Foundation, for helping to identify this topic for the *Boxer Update*.



The Georgia Buchla Cancer Research Fund

“Georgia,” the beloved 6½-year-old female Boxer belonging to Todd and Sherry Buchla, of Marietta, Georgia, died of hemangiosarcoma on Dec. 27, 2014, just three and a half months after being diagnosed with the deadly cancer. She had made a mark in her breed as the highest-achieving agility Boxer. After she passed away, her owners saw an opportunity to help others through her story.

“When Georgia was diagnosed, we knew we could bring many folks together for a common cause to help raise funds for cancer research and to educate people about hemangiosarcoma and other canine cancers,” says Sherry Buchla, who made a video celebrating Georgia’s MACH9 title coupled with the announcement of her diagnosis of hemangiosarcoma.

Through the video and a tribute video made after Georgia’s passing that was shown at the American Boxer Club National Specialty in 2015, more than \$28,000 has been raised for canine cancer research through January 2016. In addition, the Buchlas created the Georgia Buchla Cancer Research Fund website.

“The mission of the website is to assist dog owners who are faced with a cancer diagnosis, as well as to offer information on various canine cancer research projects and clinical trials,” says Sherry Buchla. “We also provide information on how to donate blood/tissue samples and to assist further cancer research.”

MACH9 Cherkei’s Too Hot To Handle, who died at age 6½ from hemangiosarcoma, left a mark as the highest-achieving agility Boxer in breed history,

PPCP Raises More Than \$3 Million for Canine Health Research

Since it began in 2002, the Purina Parent Club Partnership (PPCP) Program has raised more than \$3.07 million to support canine health research funded by the AKC Canine Health Foundation. Boxer enthusiasts who are members of *Purina Pro Club* and who have designated Boxer as their breed of dog and submitted [weight circles](#) from qualifying *Purina* brand dog foods have contributed to the \$65,206 given to the American Boxer Club through PPCP since 2002. An annual donation based on the value of the submitted weight circles is split between the parent club's Donor Advised Fund at the Foundation for canine health research and the parent club for education, research and rescue efforts.

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Ann Viklund of Purina, center, presents the 2015 PPCP donation to Dr. Diane Brown, CEO, and Dr. Duane Butherus, chair, of the AKC Canine Health Foundation.



'Rumor' Wins 2015 Purina Pro Plan Champions Cup

The No. 1 all-breed show dog in the country in 2015, the German Shepherd Dog "Rumor," also tallied the most points to win the *Purina Pro Plan* Champions Cup. Among her prizes, Multi-BIS/Multi-BISS GCH Lockenhaus' Rumor Has It V Kenlyn received \$10,000 and an original oil painting by accomplished canine artist Linda Draper. The 4-year-old female, who was handled by breeder-owner Kent Boyles of Edgerton, Wisconsin, won 175 Bests of Breed, 154 Herding Group Firsts, 93 Bests in Show, and 33 Reserve Bests in Show in 2015.

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GCH Lockenhaus' Rumor Has It V Kenlyn, the No. 1 all-breed show dog in 2015, wins the Purina Pro Plan Champions Cup.

Purina Pro Plan Introduces BRIGHT MIND for Adult Dogs

Purina Pro Plan recently launched *BRIGHT MIND* Adult Formulas to help support the cognitive health of adult dogs. The breakthrough nutrition includes a blend of brain-supporting nutrients, DHA and EPA, B vitamins, antioxidants, and arginine to help support a dog's cognition throughout adulthood. *Purina Pro Plan BRIGHT MIND* Adult Chicken & Rice Formula and Adult Small Breed Formula have optimal levels of high-quality protein, including chicken as the first ingredient, and fat to help maintain ideal body condition. These dog foods also have vitamin A and linoleic acid, an omega-6 fatty acid, for healthy skin and coat, and EPA, an omega-3 fatty acid, and glucosamine for joint health and mobility.

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Want to Reach the Editor?

Have comments about the *Boxer Update*? Send them to: Barbara Fawver, Editor, Nestlé Purina PetCare, 2T Checkerboard Square, St. Louis, MO 63164 or via email at editor@purina.nestle.com.

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