

# Paws to consider

December 2001

Newsletter of the Program in Canine Cancer at the AMC Cancer Research Center

As the year 2001 ends, we wish to share news and accomplishments from our program with you. The year was highlighted by an exciting conference that focused exclusively on canine cancer - the first of its kind! We also had a very productive year scientifically and were most excited by the successful completion of our first clinical trial for gene therapy. We wish to thank all those who have contributed to our studies, both financially and by allowing your pets to participate. Your support makes our work possible.

Sincerely,

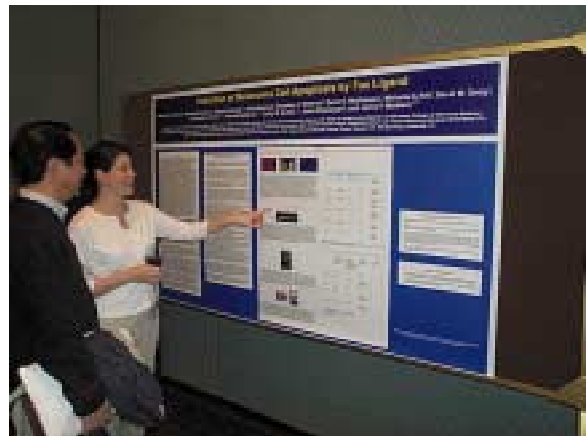
*Jaime, Susan, Stacie, Ashley*

## AMC Cancer Research Center hosts an international meeting on canine cancer

On May 21 and 22, 2001, 107 scientists, veterinarians, and health representatives for several AKC Breed Clubs gathered at Keystone Resort, CO to learn about new advances in research on canine cancer. The theme, "Genes, Dogs, and Cancer" focused on research into genetic factors that contribute to the origin and progression of cancer, new methods that can assist in diagnosis, and new strategies for treatment. The AMC Cancer Research Center hosted the conference as a component of the American College of Veterinary Internal Medicine Forum. The AKC Canine Health

Foundation and Heska, Corp. were major sponsors for the meeting.

By all criteria, the conference was a tremendous success. The quality of research presented in every area was



*Stacie Bianco, from the AMC Cancer Research Center, discusses her research results with Masaru Okuda, from Yamaguchi, Japan.*

outstanding. In addition, the meeting was characterized by free exchange of information among all the participants. We hope that this spirit will continue long after the meeting, resulting in new collaborative research, shared resources, and rapid research progress.

A "White Paper" summary from the meeting is available through the AKC Canine Health Foundation. The scientific abstracts can be obtained from the International Veterinary Information Services web site at <http://www.ivis.org/>



## Scientists at AMC pioneer new treatment for canine melanoma

Five years of arduous research into the origins of canine melanoma culminated in a successful clinical trial earlier this year (also see the “Success Story” below). Scientists in Dr. Modiano’s laboratory at the AMC Cancer Research Center and their collaborators defined a number of distinct genetic abnormalities that make melanomas resistant to “apoptosis” or cell suicide. The observation that different defects led to the same tumor characteristics suggested that gene therapy could be used to treat the disease. During the early part of 2001, a Phase I clinical trial was conducted in collaboration with GlobeImmune, a pharmaceutical company in Denver, Animal Hospital Center in Highlands Ranch, and the Animal Cancer Center of Colorado State University, that not only demonstrated the gene therapy was safe, but also that this approach holds promise to treat dogs with melanoma and other types of cancer.



*Beans and Gates*

The results from this study, reported by Stacie Bianco at the “Genes Dogs and Cancer Meeting,” showed that gene therapy caused the tumors to shrink in two of five dogs treated. Two other dogs saw no change in the tumor size, but when each of these four dogs was then treated with standard therapy (surgery and/or radiation), they all achieved complete remission. The tumor in the fifth dog was too advanced for standard treatment, so this patient received only palliative treatment. At press time, there was no evidence of recurrence in any of the four dogs that achieved complete remission. The research team now plans to extend this treatment approach to dogs with other types of cancer that respond poorly to conventional therapy, such as osteosarcoma (bone cancer). It is anticipated that the next phase of clinical trials will open in the second half of 2002. 🐾



*Pride-ette and Sarge*



## Research Updates

In addition to melanoma, our group has been studying the genetics of *lymphoma*, (cancer of the lymph glands), *osteosarcoma* (bone cancer), and *hemangiosarcoma* (cancer of blood vessels). During the past 20 months, 74 golden retrievers (healthy and affected) from 10 families (including 3 families with multiple affected dogs), 47 Rottweilers (healthy and affected) from 10 families (also including 3 families that had multiple affected dogs) and more than 30 dogs from other breeds that met specific criteria for study were enrolled in these projects. We have established a repository of samples that includes genomic DNA from 92 dogs and more than 80 tumor cell lines. These samples are in current use by our laboratories and those of our collaborators, and are available for distribution to other research scientists.

Our results to date suggest that specific genes are targets for mutation in each of these diseases. However, we do not yet have evidence that these mutations are transmitted in a heritable fashion. While it is difficult to predict whether these genes will in fact define heritable risk factors for cancer, their analysis may be useful to predict prognosis and response to therapy. In addition, the identification of molecular abnormalities in these tumors will pave the way for the development of tailored therapies, similar to the gene therapy described above, that could improve the outcomes and reduce the toxic side effects of cancer treatments.

For more information on these studies, and to obtain details on eligibility criteria for enrollment, please contact Dr. Modiano at the AMC Cancer Research Center. 🐾

## Thanks to Contributors

These studies were supported in part by grants from the AKC Canine Health Foundation, Morris Animal Foundation, and the National Institutes of Health. We also wish to acknowledge the generous contributions of individuals who have provided financial support for these studies:

- NOR CAL Golden Retriever Club
- Deborah Blumenfeld (in memory of Lady Bird II of Stonewall)
- Friends of Andrea Dec (in memory of Dylan and Gunner)
- Sandra Kim Hoffen (in honor of Ch. Faera's Future Classic "Thunder")
- Denise and Michael Mitchell (for Bruno)
- Houston Obedience Training (HOT) DOG Club
- Susan Clayton (in the name of Blue, Scarlett, and Watson)
- Victor and Laura Franchi (in memory of Ch. Regency Lone Star "Dallas")
- Linda Weaver (in memory of Msr. Andre de Quiche "Andy") 🐾



*Thunder*





## A Success Story

### *New Treatment Benefits Dogs With Cancer*

*(Reprinted with permission from Morris Animal News,*

*11/01)*

In January of 2001, Al and Joan Stauffacher were preparing for their annual getaway to the mountains of Colorado for a ski vacation. Their constant companion, Trillie, a 13-year-old female miniature Schnauzer, was, as always, included in the family plans.

Prior to their vacation, Joan took Trillie to her veterinarian, Dr. Robin Berry, for a routine exam and dental cleaning. While completing the dental work, Dr. Berry discovered an unusual mass in Trillie's mouth that was dark and about the size of a quarter. Dr. Berry decided to take a biopsy and told the Stauffachers she would contact them with the results as soon as possible.

A few days into their vacation, the Al and Joan received a devastating phone call from Dr. Berry – Trillie was diagnosed with oral melanoma, a menacing form of cancer. The location of Trillie's tumor made surgery difficult, if not impossible, leaving the Stauffachers with some difficult decisions.

At the suggestion of Dr. Berry, the family first took Trillie to a veterinarian in Breckenridge, Colorado, and then on to an oncology specialist in Denver. All of the referring veterinarians agreed that Trillie was unlikely to benefit from surgery and suggested that the family consider joining a clinical trial led by Dr. Jaime Modiano at AMC Cancer Research Center in Lakewood, Colorado.

With funding from Morris Animal Foundation, Dr. Modiano was working in concert with veterinarians at the Animal Cancer Center at Colorado State University's College of Veterinary Medicine and Biomedical Sciences in Fort Collins, Colorado; the Animal Hospital Center in Highlands Ranch, Colorado; and Wheat Ridge Animal Hospital in Wheat Ridge, Colorado. Dr. Modiano's two-year project, titled "Molecular-Based Immunotherapy of Canine Melanoma," received co-sponsorship support from the

Orthopedic Foundation for Animals and Mr. & Mrs. Neil Van Sloun.

Trillie first visited with Dr. Steve Withrow at Colorado State University only a few days after the investigating team received final approval to initiate the clinical trial, which involves gene therapy as a treatment for cancer. The team of investigators confirmed that surgery was unlikely to be of much benefit, and while radiation therapy was an option, this carried some risk and it was difficult to predict if Trillie would respond favorably. After considering all the options, the Stauffachers agreed to pursue the gene therapy.

Seven days after the first treatment, Trillie's tumor hadn't increased in size – a good sign. Following the gene therapy, Trillie was given radiation therapy as a complement to the previous treatment. Five weeks after the initial treatment and back home in Michigan with her family, Trillie was pronounced in complete remission.

Trillie's timeline is truly amazing. Her tumor was first discovered and biopsied in January 2001. She was diagnosed with cancer in early February and immediately began treatment. Trillie's final treatment was on March 13, and on March 27 she was pronounced in complete remission.

After enjoying 10 cancer-free months, Trillie died in mid-October from complications of diabetes. A necropsy showed no evidence of tumor recurrence. Thanks to the work of Dr. Modiano and his co-investigators, Trillie was able to return home to her family and enjoy several months of soccer games and attention from the Stauffacher's grandchildren before she passed away.

"Five dogs participated in this clinical trial and only one did not achieve remission," said Dr. Modiano. "Each of the dogs and owners who participated in this study, even Honey who did not achieve remission, were in their own right a success story."

Dr. Modiano and his co-investigators are preparing several manuscripts for publication where their work will be shared with veterinarians across the world. They anticipate further study to elaborate on the gene therapy technique and improve the benefit to pets and their families. Their Foundation-funded study was completed earlier this year. 🐾

