

Portuguese Water Dog Foundation, Inc.



2013 FALL UPDATE

AKC CHF CO-SPONSORED RESEARCH PROGRESS REPORTS

00768: A Collaborative Study by Veterinary Oncologists, Pathologists and Diagnostic Laboratories to Enhance the Detection, Diagnosis and Treatment of Canine Lymphoma

Ted Valli, DVM
University of Illinois

Project Final Report: Canine lymphoma is the neoplasm most often treated by chemotherapy, yet there is little data relating response to therapy of its different subtypes. This study is based on 1043 cases of canine biopsies where lymphoma was the clinical diagnosis. All cases were phenotyped by staining with CD3 and CD79alpha. Cases with histiocytic proliferation were stained with CD18 and 12 cases were examined by PCR to verify clonality. Survival data was obtained on 466 dogs where time or cause of death or time of last follow-up when known to be alive was available; additional covariate information included phenotype, stage and grade of lymphoma, and treatment protocol. One hundred dogs were still alive at last follow-up. Because of the many subtypes of B and T-cell lymphoma the cases were grouped into 7 diagnostic categories that included: 1. benign hyperplasia, 2. low grade B-cell, 3. high grade B and T-cell, 4. Low grade T-cell, 5. centroblastic large B-cell of all mitotic grades, 6. immunoblastic large B-cell of all mitotic grades and 7. high grade peripheral T-cell. Grouping was determined by histologic grade (based on mitotic rate/400X field, with low grade 0-5, intermediate 6-10 and high grade >10) and clinical grade for survival function estimation. No impact on survival was found with size or breed of dog and sex.

All diagnostic categories of indolent or low grade type had low mitotic rates, while those with clinically high grades were high. The diagnostic category with the most cases was large B-cell lymphoma. This category, with a broad range of mitotic rates, was also evaluated for survival based on clinical stage of tumor. Treatments for high, intermediate and low grade lymphomas were divided into two groups based on the presence or absence of hydroxy-daunorubicin to evaluate survival analysis using the most populous group (5) for reference. Patients with T-zone lymphoma had the longest median survival (223days) while the shortest median survival was in patients with peripheral T-cell subtype (162 days).

The reference group of centroblastic large B-cell was sub-divided by clinical stage, median survival of 328 with low stage, 223 days with intermediate stage, and 202 days with advanced stage. Animals with T zone lymphoma were probably diagnosed in later stages of disease because of the lack of signs associated with progression. As with human lymphomas, a histological diagnosis with immunophenotyping is a minimal requirement for diagnosis of a specific subtype. Lymphoma can be diagnosed by cytologic examination, but a specific subtype cannot be determined by this method or flow cytometry. §

00790: MicroRNA Profiling & MicroRNA-Based Treatment of Canine Cancers

William C Kisseberth, DVM PhD
Ohio State University

Project Final Report: MicroRNAs (miRNAs) are small non-protein coding RNAs that have been implicated in humans as having a fundamental role in cancer initiation and progression. Osteosarcoma (OSA) is the most common bone tumor in dogs, and although breeds such as Rottweilers and Greyhounds are at higher risk for developing OSA, the understanding of its molecular etiology is limited. In this study, we determined that canine OSA possess a unique miRNA expression signature distinct from that found in normal canine osteoblasts and that these dysregulated miRNAs contribute to OSA pathogenesis and progression. Notably, we identified 84 miRNAs that were *(continued on page 2)*

Financial Founders

Carole Doerr-Allen
Jim & Ann Gardner Arens
Joan C. & Paul S. Bendure
Norman & Susan Bogdanow
Dr. Virginia Brown
Cathy Cates & Charles White & Skyline Art, Inc.
Janet Danford-Comer & The Ralph E. Danford Trust
Adelaide & Lorenz Cueni
Jane & Stu Freeman
Hank & Rita Galaska
Mary C. & Bill Harkins
Theresa D. Herman
Linda Hanson & Mike Korchinsky
Pat Hogan
Linda K. & Krista K. Hunt
Maralee Johnson
Andrew & Angela Kalmanash / Ruff Wave PWDs
Jayne L. Kenyon
Carolyn Miller Knutson
Jessie & Chuck Kushell in memory of CH Camerell's Duel at Diablo
Joan & Richard Lehach in honor of Pico do Mar & Cutwater Night Rider
Joan Lehman, "Southfield"
Carol M. Mattingley & Ann Bowley
The McEwen Family Foundation
Art & Jane McEwen in honor of "Delilah"
Norm & Jan Mosher in memory of Camerell's Dominicao & CH High Meadow Alexis of Brinmar
Maryanne B. Murray & Linwood A. Kulp, Jr.
J. D. & Ann Northway in memory of "Cassie"
John P. Piper & Deborah J. Tuttle
Dorothy Rouse-Bottom in honor of CH Carousel Fayre Britomart & CH Celey's Septimius Severus, her son Robert & Virginia Santoli
Joseph & Maria C. Schoenfelder
Charles & Marge Schreiber
B. J. Ridings Shaffer
Elaine Suter
Susan Shaw Teasley
Gerri Zuckerman

OMISSION! IN THIS ISSUE:

We inadvertently left off both the Keystone Portuguese Water Dog Club and the Nutmeg Portuguese Water Dog Club from the donor list, Commodore section (\$1,000 +) in our Spring 2013 Newsletter. We sincerely regret that error. We have included both clubs in this current issue.

AKC CHF PROGRESS REPORTS	1-3
MAF PROGRESS REPORTS	4
DONATION FORM	5
HONOR ROLL OF DONORS	6-8

AKC CHF PROGRESS REPORTS (CONTINUED FROM PAGE 1)

expressed significantly higher or lower in OSA cells compared to normal osteoblasts (bone cells). Several of these miRNAs, have previously been identified as having a role in a variety of human cancers, including miR-155 and miR-21. Particularly interesting was the identification of miR-9 as being highly expressed in primary OSA tumors. This miRNA was simultaneously identified by us as being highly expressed in aggressive canine mast cell tumors (primary tumors that metastasized) compared to mast cell tumors that did not metastasize. We then focused our efforts on understanding the role of miR-9 in canine OSA. To do this we developed methods to alter the expression (levels) of miR-9 in normal osteoblasts and in OSA cells in vitro. We were able to show that by increasing expression of miR-9 in OSA cells that we increased their invasive properties, a key biological feature in the metastatic process. Based on these findings, our laboratory is continuing to explore the consequences and functions of miR-9 dysregulation in OSA and other canine cancers. This work has resulted in the development by our laboratory of a genetically engineered mouse where miR-9 can be overexpressed in selected specific cell types (e.g. osteoblasts) in vivo. By understanding miR-9 functions in OSA more fully, we should be able to develop strategies for effectively targeting miR-9 therapeutically, for example with "antagomiRs" that have been chemically modified, or by developing nanoparticle antagomiRs to inhibit miR-9 in vivo. These goals will form the basis of our subsequent proposal to the AKC-CHF. §

01131: Genetic Background and the Angiogenic Phenotype in Cancer

Jaime F Modiano, VMD PhD

University of Minnesota

Project Final Report: Certain dog breeds are prone to develop certain types of cancer; yet, there has been little progress to define genes or other factors that account for this risk. Our recent work on hemangiosarcoma was the first to demonstrate that a dog's genetic background, defined by "breed," can influence the profile of genes that are expressed by tumors. Among other important implications, this implies that certain breeds are diagnosed with specific cancers more frequently than others because of the behavior of tumors after they arise, and not simply because they arise more frequently. Specifically, this may apply to the observed predisposition for hemangiosarcoma seen in Golden Retrievers, German Shepherd Dogs and **Portuguese Water Dogs**. Here, we continued to test this premise by evaluating genome-wide gene expression profiles in samples from dogs of various breeds. Our results suggest that, while there are subtle differences that are influenced or modulated differently in tumors from dogs of different breeds, these differences may disappear when tumors are considered in their context as "tissues" that include microenvironment constituents. Rather, there appear to be distinct subtypes of hemangiosarcoma (perhaps with different biological behavior and prognosis?), which might arise from different cells of origin, or more likely, which develop in response to adaptation of the hemangiosarcoma cells to environments that show different patterns of inflammation, angiogenesis, coagulation, and hypoxia, each of which alters not only the predominant or favored differentiation of the tumor cells themselves, but also the way they instruct microenvironment cells to create a favorable niche. This underscores the importance of looking at these tumors in their context as "new tissues" or "new growths" rather than at the cells in isolation as we work to develop more effective strategies for detection, diagnosis, and therapy. To follow on this premise, we evaluated new therapy approaches that target both tumor and microenvironment compartments. Specifically, one such approach also shows efficacy to kill tumor-initiating cells. Data funded by this project grant and others allowed us to validate the therapy and move it to the clinic. Angiosarcoma Awareness, Inc. provided the initial funds to support a dose finding and efficacy trial where we will treat ~20 dogs with hemangiosarcoma using a bispecific ligand targeted toxin. We completed production of the molecule under "Good Manufacturing Practices" (i.e., suitable for use in human patients) and enrollment is ongoing. Finally, we identified other potential drugs to treat this disease - or perhaps more likely, the pathways they disrupt as potential targets for development of new therapies. §

01429: Mechanistic Relationship of IL-8 in Cell Proliferation & Survival of Canine Hemangiosarcoma

Jaime F Modiano, VMD PhD

University of Minnesota

Project Final Report: The hypothesis tested in this project was that interleukin-8 (IL-8) promotes growth and survival of hemangiosarcoma cells. This hypothesis was based on our previous results showing significant enrichment of IL-8 gene expression in hemangiosarcoma cells compared to normal endothelial cells isolated from non-malignant hematomas. Here, we confirmed that IL-8 is constitutively expressed by canine hemangiosarcoma cells in laboratory culture, as well as by primary tumors (fresh frozen samples). However, the levels of IL-8 are moderately variable among tumors.

Hemangiosarcoma cells in culture and primary hemangiosarcoma tumors also express IL-8 receptors (IL-8Rs). The receptors are expressed at comparable levels by virtually all the cultured cells and all the tumors, suggesting changes in expression of the receptor are unlikely to contribute to malignant behavior. We also confirmed that IL-8 binds to IL-8 receptors, and this interaction has functional consequences: IL-8 promotes signal transduction (calcium mobilization) in cultured HSA cells, and when we added IL-8 to cultured cells, they were able to "sense" this IL-8 excess and downregulated the expression of their own IL-8 gene. In contrast, if we blocked the interaction of their own secreted IL-8 with the receptor, they increased the amount of IL-8 gene expression. This is a classic response of compensatory regulation to negative feedback. Expression of a gene whose protein product turns on IL-8 gene expression followed the same pattern. It was downregulated when IL-8 was present in excess and induced when IL-8 was prevented from interacting with its receptor.

Despite its biological activity, IL-8 did not promote growth of hemangiosarcoma cells in culture, and IL-8 blockade did not hinder IL-8 growth in culture. When cells were deprived of nutrients and growth factors, they did not compensate by increasing production of IL-8; instead, IL-8 expression was reduced. And the addition of IL-8 did not prevent these nutrient-deprived cells from dying, and neither did it prevent cells treated with chemotherapeutic drugs from dying. Together, the data suggested that IL-8 did not directly mediate growth or survival of hemangiosarcoma cells in culture, refuting the initial hypothesis.

We then compared the gene expression profiles of cells and tumors that expressed high levels of IL-8 (and thus were adapted to growing in an environment rich in IL-8) with those of cells and tumors that expressed lower levels of IL-8 (adapted to growing in environments with relatively scant IL-8). The data show that cells adapted to high IL-8 environments had gene expression profiles indicative of greater inflammation, coagulation, fibrosis, and angiogenesis. These data suggested that IL-8 could be important to modulate the microenvironment and provide a suitable tumor niche. Experiments from an independent, complementary project funded by the National Canine Cancer Foundation showed that indeed, blocking IL-8 hindered the ability of hemangiosarcoma cells to establish a tumor niche in vivo. Finally, preliminary data suggest that IL-8 also may be necessary to maintain the tumor-initiating populations of canine hemangiosarcoma, by enhancing self-renewal. This hypothesis is under investigation in our newly funded project supported by AKC CHF. §

01684-A: Plasma cortisol concentration in dogs with pituitary dependent hyperadrenocorticism and atypical Cushing's syndrome

Linda Frank, DVM

University of Tennessee

Project Final Report: Twenty-eight dogs were enrolled in the study to compare cortisol concentrations among healthy dogs, dogs with excess cortisol associated with pituitary dependent Cushing's syndrome and dogs categorized as having "atypical" Cushing's syndrome. The latter is diagnosed when dogs have clinical signs suggestive of excess cortisol (drinking a lot, infections, losing hair) but increases in peak cortisol concentration are not detected with routine tests. Nine hourly blood samples were collected from each dog through a catheter. The serum was saved and then sent to a lab for determination of cortisol concentrations. The cortisol concentrations from dogs within each group will be statistically compared to see if dogs with "atypical" Cushing's syndrome have similar cortisol levels to those with pituitary dependent Cushing's syndrome. (continued on page 3)

The Spring and Fall Updates are publications of the Portuguese Water Dog Foundation, Inc.

P. O. Box 203

Parker Ford, PA 19457-0203

www.pwdfoundation.org

← The mission of the Portuguese Water Dog Foundation is to generate significant resources to fund research into genetic and other canine diseases that will improve the life and health of all Portuguese Water Dogs. →

(continued on page 3)

AKC CHF PROGRESS REPORTS CONTINUED FROM PAGE 2)

01759: Targeting Multipotency to Arrest Hemangiosarcoma Progression and Improve Outcomes

Jaime F Modiano, VMD PhD

University of Minnesota

Project Update: We are on track to achieve the milestones laid out for this project. We have made considerable progress on the first aim and have completed initial experiments for the second aim. Our data suggest that IL-8 and CXCL12 mediate maintenance of the cancer stem cell phenotype, as well as interactions between hemangiosarcoma cells and the microenvironment. Our preliminary data suggest that applications for clinical use may be possible and feasible, but they will likely require precise timing and effective targeting. §

01787: Clinical advancement of RNA-transfected CD40-B cell vaccine technology for cancer therapy

Nicola J Mason, BVetMed, PhD

University of Pennsylvania

Project Update: The goal of this proposal is to build on our previous work developing a cell-based vaccine that aims to stimulate potent tumor specific immune responses that will kill lymphoma cancer cells. Our previous work has shown that white blood cells known as B cells found in the peripheral blood can be activated and grown outside of the body using special "feeder cells" that express an important molecule known as CD40L. The stimulated B cells (known as CD40-B cells) can be loaded with genetic material (RNA) that has been extracted from the patient's tumor. When re-injected back into the patient, the CD40-B cells are able to present the tumor material to the body's immune system and stimulate an anti-tumor immune response. We have shown in a phase I clinical trial that this approach has produced promising results with respect to prolonging overall survival in dogs with lymphoma. We now aim to improve on this vaccine in two main areas; 1) we aim to improve the ease of vaccine production since our current methods are time consuming and require specialized laboratory equipment. This will enable us and other researchers with access to basic laboratory equipment to generate this vaccine and treat more patients, 2) we aim to improve the vaccine's ability to stimulate anti-tumor immunity. Our current methods of generating the vaccine from lymphoma patients are labor-intensive and require specialized laboratory equipment that is not available in most facilities. Therefore, we are evaluating second-generation feeder cells that stably express CD40L (either the human or canine CD40L) as well as non cell-based techniques for canine B cell culture. Success in either of these areas will improve on our current process and ideally will enable vaccine production to occur in any basic laboratory without the need for expensive equipment. We are also testing the hypothesis that the vaccine's ability to stimulate anti-tumor immunity could be improved by altering the culture conditions used to generate the canine B cells (ie. the vaccine), through the use of a potent immune adjuvant (CpG DNA). In the first 6 months of this work, we have made progress towards these goals. Our progress to date is summarized as follows: 1) We have employed more stable, second generation "feeder" cells that express human CD40L (KTC40L) and have shown that these cells can activate canine B cells and cause them to proliferate in the same way as our first generation feeder cells. However, these second generation feeder cells are easier to grow and maintain in culture since they do not require antibiotic selection and are less sensitive to alterations in culture media acidity. 2) We are in the final stages of generating a different stable "feeder" cell that expresses the canine form of CD40L, rather than our current human CD40L system, and in the next 6 months we will test the hypothesis that these canine CD40L expressing cells are superior to human CD40L expressing cells in generating canine B cells for cancer vaccines. 3) We have initiated experiments to evaluate a soluble form of CD40L that may be able to replace the requirement to use feeder cells for B cell culture altogether. If successful this would eliminate the need for a gamma irradiator (these are not readily available to many institutions and clinics) and for regular technical maintenance of feeder cell cultures. 4) We have begun experiments to evaluate the effects of bacterial DNA, known as CpG, to our CD40L stimulated B cell cultures and our preliminary results suggest that CpG promotes the production of greater number of B cells and induces greater expression of B cell surface molecules that are necessary to stimulate anti-tumor immunity. These early results suggest that the addition of CpG to our B cell cultures may improve vaccine production and efficacy. Together, this optimization work will direct the protocol we will use for a second generation B cell vaccine that will be utilized in our next CD40-B cell clinical trial. We aim to start recruitment for this trial in the Fall of 2013. §

01822: Developing resources and exploring the role of the epigenome in canine cancer

Dr. Robert K Wayne, PhD

University of California, Los Angeles

Project Update: We are well on our way towards achieving the first

glimpse of the dog's regulatory genome through our survey of methylation patterns. DNA methylation plays a central role in regulating gene expression, and our goal is to identify the basic general structure of gene expression among various distinct breed lineages (e.g. sight hounds, spaniels, ancient/spitz). We have currently collected sequence data from 60 dogs representing 23 breeds (see Table 1), and will complete the analysis that identifies cytosines that are either methylated or unmethylated by the end of July 2013. Thereafter, we will begin an extensive analysis of where patterns of methylation differ between categories of dogs, identifying specific families of genes that appear to be differentially regulated. We will establish a public web-based resource to serve as a repository for these dog methylomes, in the hope that this data will contribute to the growing resources that are currently available for investigating canine disease etiology. Ultimately, these data are a new tool for understanding how gene regulation through methylation affects phenotype, disease and overall canine health.

List of breeds and sample size for methylome study: Afghan Hound-3, Akita-4, Bassett Hound-2, Borzoi-2, Boxer-4, Boz(Turkish breed)-2, Basenji-3, Chinese Crested-2, Dingo(semi-domestic)-2, English Springer Spaniel-2, Labrador-3, New Guinea Singing Dog(semi-domestic)-4, Pekingese-4, Pomeranian-1, Phu Quoc(Vietnamese village dog)-1, Portuguese Water Dog-2, Pug-4, Samoyed-4, Scottish Terrier-2, Shar-pei-4, Siberian Husky-2, Standard Poodle-2 & Shetland Sheep Dog-1. §

MAF PROGRESS REPORTS (Cont'd from page 4)

D13CA-062: Evaluating the Source of Canine Hemangiosarcoma's Resistance to Chemotherapy

Erin B. Dickerson, PhD

University of Minnesota

Project Update: Hemangiosarcoma, a highly metastatic and incurable cancer, can affect dogs of any age and breed. Its prevalence is particularly high in Golden Retrievers, Portuguese Water Dogs and German Shepherd Dogs. Despite many attempts to find effective treatments, the survival rate for dogs with hemangiosarcoma has remained relatively unchanged for the past three decades. Recent evidence suggests that populations of cancer stem cells in hemangiosarcoma and other cancers give rise to tumors, promote tumor growth and are the main culprits behind drug resistance and disease recurrence. Researchers are examining how CSF-1R, a marker present on the surface of some hemangiosarcoma stem cells, may contribute to the maintenance and survival of these cells in tumors. Their preliminary results suggest that cancer stem cells containing CSF-1R on their surface are more resistant to chemotherapy than are the cells without this marker. Researchers believe this may help explain the high incidence of drug resistance and tumor recurrence in dogs with hemangiosarcoma. Further evaluation is needed to confirm this finding. Identifying the mechanisms that maintain the hemangiosarcoma stem cell population is an essential first step in understanding cancer stem cell survival and determining ways to eliminate these cells. If researchers show that CSF-1R helps maintain and regulate the hemangiosarcoma stem cell population, this marker will become a viable target for overcoming the chemotherapy resistance and treatment failures of hemangiosarcoma. §

D13CA-400: Searching for Ways to Control Hemangiosarcoma Cancer Cells in Dogs

Jong Hyuk Kim, DVM, PhD

University of Minnesota

Project Update: Hemangiosarcoma is a highly metastatic and incurable cancer that can affect dogs at any age. It is particularly prevalent in certain breeds such as Golden Retrievers, German Shepherds and Portuguese Water Dogs. Unfortunately, hemangiosarcoma is a disease that is poorly understood and for which there are currently no good treatment options. One of the main reasons why therapies fail may be due to the existence of cancer stem cells. These cells are responsible for initiating and maintaining the cells within the tumor and they are also highly resistant to most chemotherapy. Researchers at University of Minnesota, are examining the role of small molecules that may serve as signals in the regeneration of hemangiosarcoma stem cells. Specifically, investigators are evaluating the potential to control the activity of hemangiosarcoma stem cells by altering these molecular signals in a way that stops stem cell regeneration and enhances sensitivity to chemotherapy. So far, preliminary data show that one signaling pathway under study has distinct effects on the regeneration of hemangiosarcoma cancer stem cells in the lab. This signaling pathway seems to affect the stem cells' efficiency informing a sphere as part of the self-renewal process. If this signal can be altered, it may reduce the stem cells' ability to renew and maintain the tumor. Further research is needed to confirm the results. This study is providing valuable insight into the properties of cancer stem cells that could help in the development of tests to predict a patient's outcome and appropriate therapies to treat canine hemangiosarcoma. §

MAF CO-SPONSORED RESEARCH PROGRESS REPORTS

D09CA-060: Characterization of MicroRNA Dysregulation in Canine Mast Cell Tumors

Cheryl A. London, DVM, PhD

Ohio State University

Project Update: Overexpression of RNA Molecule Associated with Aggressive Mast Cell Tumors in Dogs.

Mast cell tumors (MCTs) are the second most common malignant tumors in dogs. Despite advances in treatments, the most aggressive forms of MCTs are frequently fatal. Because the behavior of these tumors can range from relatively benign and easily cured to aggressive, invasive and highly metastatic, it is important to determine the type of tumor. Unfortunately, making this determination has proven challenging.

Researchers are developing a way to predict the behavior of MCTs. They analyzed the expression of microRNAs (miRNAs), which are small non-protein-coding RNA molecules, in benign and aggressive MCTs in dogs. These miRNAs have been shown to be involved in the initiation and progression of cancer in humans. In this study, researchers compared malignant tumors with benign tumors and identified 51 miRNAs that are differentially expressed in these tumors. They also learned that overexpression of one of these, miR-9, is associated with highly aggressive tumor behavior. Data revealed that MCTs that metastasized and caused the death of affected dogs had substantially higher levels of miR-9 than MCTs that were cured with surgery alone.

They have made significant progress toward defining the role of miR-9 in canine MCTs. §

D10CA-002: Determining the Correct Dosing for a Novel Drug to Treat Canine Lymphoma

Alfred M. Legendre, DVM

University of Tennessee

Project Final Report: Lymphoma, a type of white blood cell cancer that occurs commonly in dogs, is rarely cured because the cancer becomes resistant to chemotherapy. Doxorubicin, a commonly used chemotherapeutic drug, is very effective, but it can damage the heart, thus limiting the total amount that can be given safely. In recent studies, AD198, a new anthracycline drug that is similar to doxorubicin, showed promise in treating mice with lymphomas that were resistant to doxorubicin without damaging the heart.

Researchers tested the safety and effectiveness of AD198 in tissue cultures. In these laboratory tests, the lymphoma cells that were resistant to doxorubicin were also resistant to AD198. This finding is contrary to similar studies done in mice with doxorubicin-resistant lymphomas.

They also concurrently evaluated the effectiveness of AD198 in dogs with resistant lymphoma. Along with other drugs commonly used to treat lymphoma, increasing doses of AD198 were given to dogs with doxorubicin-resistant lymphoma. Similar to the results of the laboratory tissue-culture experiments, canine lymphomas that were resistant to doxorubicin chemotherapy were also resistant to AD198. Given these findings, the researchers do not recommend AD198 as an alternative treatment option for dogs with drug-resistant lymphomas and the study was terminated. §

D12CA-026: Developing a New Delivery System for Lymphoma Treatment

Nicola J. Mason, BVetMed, PhD

University of Pennsylvania

Project Update: Although the current treatment regimen for lymphoma of multiple chemotherapy drugs induces remission in about 75 percent of patients, most dogs ultimately relapse within six to nine months of diagnosis.

Rituximab, an antibody-targeting drug, has substantially improved survival times for people with various types of B-cell lymphoma. However, rituximab cannot be used in dogs because it does not recognize canine B cells and is rapidly destroyed by the dog's immune system.

Researchers are developing a novel system to generate canine-derived antibody fragments similar to rituximab that will specifically target canine lymphoma cells and not be rejected by the dog's immune system. So far, they have successfully generated "target" cells that stably express canine CD20, the same molecule that rituximab targets in humans.

Researchers are now screening canine antibody fragment libraries for fragments that will bind tightly to these cells. Development of a canine-derived antibody fragment will provide a system that allows for targeted delivery of cell-killing agents to the malignant B-cells thereby allowing for increased chemotherapy doses, reduced side effects and improved outcome for dogs with B cell lymphoma. §

D12CA-033: Evaluating a Novel Drug for Lymphoma

Barbara Biller, DVM, PhD

Colorado State University

Project Update: Lymphoma is one of the most common cancers of dogs, accounting for an estimated 25 percent of all canine cancers. In humans with lymphoma, the use of therapeutic antibodies has led to significant advances in treatment. Antibodies are proteins normally produced by the immune system to identify and neutralize foreign substances, such as viruses. These therapeutic antibodies can also be designed to selectively target and kill malignant cancer cells. Although widely used for treatment of lymphoma in people, similar treatments are currently not available for canine patients. Researchers from CSU, the Garden State Cancer Center and Immunomedics Inc. recently developed a therapeutic antibody that effectively kills canine lymphoma cells.

The research team is conducting a clinical trial to evaluate the antibody's safety and effectiveness in dogs with B-cell lymphoma. So far, 10 dogs have received the antibody infusion and have completed the trial. The cancer was temporarily stabilized in three of these dogs. This is significant as lymphoma usually progresses very quickly when no chemotherapy is given or when chemotherapy is no longer effective. Researchers plan to enroll a total of 15 to 18 dogs to test and compare five different antibody dosing levels. If results of this study are favorable, future clinical studies will be designed to assess the efficacy of multiple treatments with therapeutic antibodies, either when used as a single-agent therapy or in combination with conventional chemotherapy. §

D12CA-302: Understanding the Role of Specific Cells in Lymphoma Spread

Daisuke Ito, DVM, PhD

University of Minnesota

Project Update: Diffuse large B cell lymphoma (DLBCL) is among the most common types of lymphoma in dogs. The median survival time for dogs with DLBCL when treated with multi-agent chemotherapy has not changed for more than 20 years despite efforts to identify better chemotherapy protocols. Researchers are developing a new strategy to improve survival times for dogs with this cancer. Specifically, they are studying a signaling pathway involved in tumor cell survival. A signaling pathway is a group of molecules in a cell that work together to control one or more cell functions, such as cell division or cell death. Over activation of a particular pathway has been demonstrated in aggressive human DLBCL and is considered a promising target for DLBCL treatments in dogs.

During the first year of study, the researchers demonstrated that this pathway is highly active in canine lymphomas, suggesting that it is a potential new chemotherapy target. In the second year of study, the researchers have established a method of screening candidate drugs that target the signaling pathway. Their goal is to determine the efficacy of any drugs against tumor cell survival in a laboratory setting and to narrow the number of candidate drugs to the most potent compounds for further study. Findings from this research may help identify new therapies to treat DLBCL in dogs. §

D13CA-044: Development of a Model to Predict the Optimal Therapy for Osteosarcoma in Dogs

Daniel L. Gustafson, PhD,

Colorado State University

Project Update: Methods to predict tumor response to a given chemotherapy protocol have historically focused on a few traits that could be measured in biopsy samples. Recent approaches have looked at the activity of genes within tumors to predict the sensitivity of a tumor to a given drug. Because a large proportion of dogs treated for osteosarcoma eventually succumb to the cancer in spite of treatment, a method to optimize chemotherapy selection could improve outcomes for dogs with this type of cancer.

Researchers are developing a model to determine whether an osteosarcoma tumor from an individual dog is sensitive to a specific chemotherapy drug. This project is based on the idea that the genetics of human and canine cancers are similar enough that the wealth of data that exists on human cancer genes and drug sensitivity can be mined and compared to canine cancers to aid in chemotherapy selection for dogs. Researchers are currently collecting genetic information along with drug sensitivity data from canine cancer cell lines for comparison to human data. This information, along with data from archived canine osteosarcoma tumors, will be used to build a "gene expression model" to test whether drug responses can be predicted by the genetic information in the dog's tumor.

If results are successful, canine patients could be treated with the drug that would be most effective for their particular cancer. This type of approach, known as precision medicine, would allow for tailored therapy that better controls cancer growth and spread and minimizes the possibility of using a drug that is ineffective and causes unwanted side effects.

(continued on page 3)

DONATION FORM



The Portuguese Water Dog Foundation, Inc.
P.O. Box 203
Parker Ford, PA 19457-0203
Tel 610-707-2589

The Portuguese Water Dog Foundation, Inc. needs your help and support to fund research to improve the quality of life and health of our Portuguese Water Dogs. Your **tax-deductible** donation, **in any amount**, would be greatly appreciated. In addition to personal donations, a donation may be made in memory or honor of a friend or loved one, whether human or canine. Donors' names will be kept anonymous upon request.

Donor levels are: Deck Hand (up to \$49) - **Sailor** (\$50 to \$99) - **Boatswain** (\$100 to \$249)
First Mate (\$250 to \$499) - **Captain** (\$500 - \$999) - **Commodore** (\$1,000 or more)

Yes, I want to do my part to help Portuguese Water Dogs.

Enclosed is my donation, in the amount of \$ _____

Please check one of the following:

____ Enclosed is my check payable to PWDF ____ Please charge my credit card (fill in info below)

Credit Cards can also be faxed (24/7) to: 610-495-9773 OR they may be used to DONATE ONLINE at www.pwdfoundation.org (our website and our fax number are secure & safe)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____ Telephone: _____

Email address: _____ **(YOUR email needed for tax receipt PLEASE help us SAVE postage)**

Type of card: VISA____ MasterCard____ AMEX____ Discover____

Card Number: _____ Expiration Date: _____

Credit Card Security Code **Required** (last 3 digits printed above the signature—AmEx 4 digits printed on front of card): _____

Name on card: _____

Cardholder's Signature: _____

Card Address (ONLY if different than above): _____

Donor should be listed as: (your name) _____

Donation is: in memory of in honor of Congrats on your new title Happy Birthday to Thank You to _____

Please notify the following person(s) of my gift:

Name: _____

Address _____

City: _____ State _____ Zip _____

MAIL CHECKS TO: PWDF, Inc. P.O. Box 203, Parker Ford, PA 19457-0203

THANK YOU for your generosity and support of the Portuguese Water Dog Foundation, Inc.

Recognized under IRS 501(c) 3 Tax Status - Donations to the Foundation are tax-deductible

Tear Here

Commodore \$1,000+

- 2012 PWDCA National Specialty hosted by the Portuguese Water Dog Club of Greater Chicagoland
- Deb Bender/Calimel
- Sue Hopkins, Chulsa Kennels
- Friends of Sarah Kahn & Ace
- GOOGLE
- Keystone Portuguese Water Dog Club
- Nutmeg Portuguese Water Dog Club, Inc. sincerely thanks all the PWD lovers who purchased the Nutmeg 2013 calendar
- Susan Paulini as a Thank You to Rolli Grayson and to Curtis Parham
- Pouch Cove Portuguese Water Dogs
- Rio Salgado Portuguese Water Dog Club & the volunteers & participants at the May 2013 Ailsby/McDermott Water Workshop

Captain \$500-\$999

- Robert Knight in memory of Slippers & Lillian
- Jan & Norm Mosher in memory of BISS CH Watermark Toby's Black Jack AOM AWD POM CGC TDI
- Francie & Peter Newfield in honor of Melanie Groth & Lucy
- Nutmeg Portuguese Water Dog Club in appreciation of Lauren McDermott's superb Water Workshops
- Portuguese Water Dog Club of the Twin Cities in memory of our beloved PWDs who left us in 2012
- Nancy Schlemmer in memory of Buddy – Tesouros Emerald Cs Buccaneer
- United Sunshine State Portuguese Water Dog Club

*(Honor Roll continued on pages 7 & 8)***“Groomed For A Cure”** campaign for hemangiosarcoma research *(DONORS 3/1/13 - 8/31/13)***\$250-\$499**

- Chuck & Candi Bubert in memory of our very special girl Gertie
- Betsy Schimpff in memory of Questar's Moon Over Mandala

\$100-\$249

- Florbela Allen in honor of Karma Tickle The 88 Imagine “Lennon” – Karma PWDs Puppy Pledge
- Karen Kirby Ash in memory of CH Saltydawg N Driftwood Lets Do It “Comet”
- Chelsea & Cooper Benson in memory of their wonderful Oreobay parents UGRAC4H/AKC CH Deewal Oreobay Speedwagon Aries CD RN OA OAJ BROM TDIA “Oreo” & UKC ACHX AKC CH Marshviews My Girl Sloopy RN CD OA NAJ CGC TDIA “Sloopy”
- Barbara & Joe Connolly in honor of Karma Tickle The 88 Set Fire To The Rain “Adele” – Karma PWDs Puppy Pledge
- Yvonne & Dennis Ferreira in honor of Karma Tickle The 88 Great Balls of Fire “Jerry Lee” – Karma PWDs Puppy Pledge
- Robin & Tracy Gagnon in honor of Karma Tickle The 88 Skyfall “Adele” – Karma PWDs Puppy Pledge
- Kate & Steve Gerencser in honor of Karma Tickle The 88 Bennie And The Jets “Fisher” – Karma PWDs Puppy Pledge
- Vicki & Ken Goldberg in honor of “Buoy” loved & missed by Carol Mattingley & Ann Bowley
- Kimberly Hanson
- Susan Kingon in honor of Karma Tickle The 88 This Girl Is On Fire “Teal” – Karma PWDs Puppy Pledge
- David & Gina Maloney in honor of Karma Tickle The 88 Piano Man “Billy” - Karma PWDs Puppy Pledge
- Melinda Miller in memory of Reese 2004-2013
- Kit Murphy & Phil Arensburg in memory of Nico & Bruxa
- Richard Oberndorf & Michelle Broido in memory of Raven
- Tabby Thompson in memory of Dutch
- Sandra Pond
- Tabby Thompson in memory of UKC HIT UACH AKC CH Marshview's My Girl Sloopy CD RN OA NAJ
- Lisa Wilkinson

\$50-\$99

- Carlos & Kim Aguiar
- Karen Ash in memory of Sierra, Whitney & Lucy
- Leanne, Spice & Ivy Bertino
- Ann Camp
- Roslyn Eskind in memory of Mindy's Samson
- Bill & Sue Evans – Merlin & Sophie groomed in memory of Meia, Sculler & Fred, all lost to hemangiosarcoma in the last 3 years
- Melinda Harvey in memory of Redwoods Infinite Sea, Pi

\$50-\$99 (continued)

- Bob & Adina Mathewson as congrats on your new championship Sweetpea
- Connie Millard
- Constance Rego
- Saltydawg PWDs in memory of CH Friendship N Northstar's Lilly CGC

Up to \$50

- Benita Bottom-Switchen in honor of Galileo's new clip
- Chuck & Candi Bubert in honor of Chugger
- Chuck & Candi Bubert in honor of Jack's MACH11
- Chuck & Candi Bubert in memory of our buddy Porter
- Sigrid Bundy in memory of CH Benhil's Kahlua 'n Cream & Cornus Kessi (Wh Dachshund), both victims & missed dearly
- Mr. & Mrs. Fredric C. Burton, II in honor of Oreo & Pesci
- Nigel Clark-Dixie is shave down to honor Sloopy who we lost to hemangiosarcoma in December 2012
- Barbara & Joseph Connolly in honor of our new Karma puppy
- Roberta Croce
- Auntie Anat Cunha in memory of Marley Nickerson - Beira-Mar Bom Bom, July 27, 1999 - April 8, 2013
- Mommy & Daddy Cunha - Karma PWDs wishing a Happy 3rd Birthday to our sweet Eight!!
- Sandra Fournies
- Fred & Susan Forman in memory of Magellan
- Ann Harrison & Minx
- Kara Kolster DVM
- Jo-Anne Kruzynski
- Nancy Kurkjian in honor of Jeter's first PACH points & first 2 MXP legs
- Nancy Kurkjian in honor of Jeter as the Courier “Cover Boy”
- Nancy Kurkjian in honor of Roxie
- Nancy Leon
- Pam Marshall
- Jane & Art McEwen in memory of Delilah & Sampson
- Mary Beth McManus
- Judith Miller & Richard Corman in honor of Huck Finn (Navio's Born To Run AX AXJ OF)
- Michelle & Jim Montgomery
- Angie Robinson
- Jerry Rollyson in honor of CH Glenwood Chuva's Doroteia CD RE WWD BROM
- Elizabeth Shannon
- Valerie Tangen
- Deborah Totten in honor of my sweet boys Hudson & Reggie
- Barbara Williams & Joyce Polak
- Lisa & Tom Wolford

First Mate \$250-\$499

- Donna Boles in honor of my beautiful dog Munson
- Colorado Portuguese Water Dog Club
- Jim & Judy Kamman
- Carolyn M. Knutson
- Sarah Leatherman wishing a Happy Birthday to Luna my sweet girl
- Overboard Portuguese Water Dog Club in memory of our members dogs who have passed on.
- Dr. Mark & Jill Roudebush

Boatswain \$100-\$249

- Belouro Reg'd PWD group in memory of Melanie M. Williams, DVM, DACVO
- Ann Benninger in memory of CH Dacher's Winsome Reuben CDX RE AX MXJ MJB OF CGC WWD GROM
- Howard & Michelle Blank in memory of CH Watermark Toby's Black Jack
- C. E. & Ann W. Brady
- Kenneth Buckwalter
- Rhea & Glen Case in memory of Molly, Galaxy Face of Venus: We'll miss you & love you always
- Rhea & Glen Case in honor of Janet Warnsdorfer, Thank you for our beautiful Molly, Face of Venus
- Joanne Chilton in memory of Trinket
- Kay Clark in memory of CH Del Sur Sail Away Color Me Pimenta "Pepper" 3/24/02 - 7/21/13
- Susan & Carl Craig in memory of "Reuben": CH Dacher's Winsome Reuben CDX RE CGC AX MJX OF WWD GROM
- Amanda Ford as a Thank You to the United Sunshine State Portuguese Water Dog Club for the opportunity to judge my first solo water trial
- Fred & Susan Forman in memory of Cypress Bays Aviator Magellan
- Vicki & Ken Goldberg as a Thank You to Ginnie Santoli for unconditional support & Guidance day or night!
- Vicki & Ken Goldberg as a Thank You to Kathy Ferrandino "Fair Skies PWDs" for an adorable & loving puppy
- Vicki & Ken Goldberg in memory of "Teaky" Windruff Teak Tack Tow BN RA CGC WWD
- Melanie Groth in memory of KISMET Int Am CH Vindouro's Once In a Lifetime RN AWD - You are missed...
- Melanie Groth in memory of Zoltar - A Gentleman For Life - CH Vindouro's Your Wish Is Granted RN WWD
- Joyce, Riot & Mai Tai Hart in memory of CH Kimlyn Discovery UD AX AXJ AWD GROM
- Melinda Hatton in honor of Lilly
- Ruth Hufbauer in honor of Aspencove Shania's Cowgirls Don't Cry
- Morgan Jennings in support of #01759
- Patty Johnson in memory of CH Encanto Delta's Daughter UDX TD CDX
- Scott & Liz Kantor
- Jane Klip in memory of Dr. Terrell Dye
- Marion Krupka in memory of Razzi who died Feb 14, 2013 of hemangiosarcoma (spleen)
- Otto A. Kuehne & Cynthia A. Kuehne in honor of Joan Bendure for cancer research
- Nancy & Michael Kurkjian in memory of Amigo's Mars MX MXB MXJ MJB XF CGC - Jazz - always in our hearts
- Bobbe Kurtz in memory of my precious "Siren" of Starview
- Stephen Lawroski & Monica Hadrian in memory of Onyx
- Thomas & Linda Majcher
- Tom & Tina March
- Judy & Mike Modguno in memory of Seaport Vanuatu (Annie) AKC #WR078274102 - April 13, 2013 of hemangiosarcoma
- The Morrissey Family in memory of Bella
- Denise & Sandy Ratner in memory of Madsen, a very special PWD
- Linda Reimen in memory of Bo'sun (Armada's Boatswain Helm's Alee)

Boatswain \$100-\$249 (continued)

- Janine Richter
- Monica & Peter Rowsom in honor of Caly - Windruff PWDs Puppy Pledge
- Judy & Barbara in memory of Pi
- Robert & Virginia Santoli for Addison's research
- Cheri Scofield in memory of Sun Joys Magnus & CnSands Hanes lost to cancer & loved forever
- Joan Sennett & Dick Tewes in memory of our beloved Schooner
- Donna E. Shalala in memory of Cheka
- Southern California Portuguese Water Dog Club as a Thank You to Janis Watts for judging our 2013 Independent Specialty
- Southern California Portuguese Water Dog Club in memory of: CT Dreamstar Femme Fatale-VCD3 RE MX MXJ MXP MJP2 OF CWDX GROM - Carmen
CH Sunnyhill Jovial Jagador - Cody
Mariner Happy Scamper WWD - Flora
Multi BIS BISS BOSS CH Deleao's Amadeus of Kimlyn CD NAP NAJP NA NAJ WWD TDI SROM - Mo
Seashells Malibu Rum - Raley
MBISS BIS CH Questar's Thunder and Lightning CGC RN NA NAJ AOMs CSLI-F - Rascal
Starview's Sea Siren - Siren
Farallon High Flyin' Kiddo - Trixie
- Southern Connecticut Agility Team, Inc. in memory of Melinda Harvey's Pi
- Wendy Spradlin in memory of Rascal
- Connie & Hale in memory of CH Sunnyhill Morgan By The Lee RE BN WWD MX MXJ SROM
- Kersten & James Terry in memory of Kika, Nautiques Neptonian Nymph OA AXJ NAF
- In honor of Pam Marshall to thank her for all her help & continued support of Vista do Lago's Water Camp
- Claire P. von Meysenbug in honor of all Portuguese Water Dogs
- Brad & Daphne Wagnon in memory of Katie
- Tom & Peggy Weissenborn in honor of Baron, Ripley & Jeremy
- Todd & Christine Williams in memory of Molukie

Sailor \$50-\$99

- Anonymous
- Leonard & Mary Jo Attisano
- John & Geri Azevedo in memory of BIS BISS CH Deleao's Amadeus of Kimlyn CD NAP NAJP NA NAJ WWD SROM
- John & Geri Azevedo in memory of CH Dacher's Winsome Reuben CDX RE AX MJX MJB OF WWD GROM
- John & Geri Azevedo in memory of CT Dreamstar Femme Fatale-VCD3 RE MX MXJ MXP MJP2 OF CWDX GROM
- John & Geri Azevedo in memory of CH Roughrider Patife Detrian'A CD RAE3
- Julie Bailey in honor of the PWD PSG
- Ann Benninger in memory of CH Cortereal Seakiss Of Starview VCD1 RE OAP AJP (Gaby)
- Eliot & Mary Brown
- Mary Jo Burgess
- Tom, Michelle & Lucky in memory of Webster "Walter" Shear
- Nigel Clark/OreoBay PWDs in honor of the PWD PSG
- Bob and Jean Combs - Baymist PWD in memory of CH Belavista Alegria "Ali" De Alto Mare 7-26-98 to 1-27-2013
- Barb Crowther in memory of CH Abeja Manoel Pardal Rivero CD RE NAP NJP THD, "Bandit"
- Libby & Nick Devlin wishing a Happy 14th Birthday to Ragmop
- Julia & Joe Ensley in memory of Toby
- Roslyn Eskind in honor of the PWD PSG

Sailor \$50-99 (Continued)

- Fred & Susan Forman in honor of the PWD PSG
- Karen & Ed Giles in memory of CH Windruff's Senecan Moonwalker (Moon)
- Frank & Gillian Goldschmidt in honor of the PWD PSG
- Patrick Gross & Stacy Sola in memory of "Nora" – Amarinhar Nora of Kalista CD AX AXJ NAP NJP AWD SROM
- Kimberly Hanson in memory of Brutus, loved by Karen Moench
- Kimberley Hanson in honor of Chuck Bubert & Jack
- Linda Hinkle in honor of the PWD PSG
- The Holte Family in honor of Boomer
- Becky & Kent Holton wishing a Happy Birthday to Leonardo Loverboy of Leelanau
- Jayne Hopkins in honor of the PWD PSG
- Nadine Hunter, Cortereal in honor of the PWD PSG
- Steven P. Jacobus
- The Janeczeks as a Thank You to Kris Cofield for introducing them to PWDs & Speedy
- Nancy Keith
- Ralph Klumpp & Family in memory of Abby
- Corine Knudsen in memory of Armada's Boatswain Helm's Alee
- Patricia & Kenneth Krushel
- Bobbe Kurtz in memory of Ch. Cortereal "Gaby" Seakiss of Starview
- Sandra Lappi in memory of BISS/BIS Can BIS Am/Can CH Driftwoods Scheming Calypso MX AXJ XF "Clipper"
- Randy and Karen Latham in memory of Bella, CH Falcor-Hytide's Cruzin' Seaward owned & loved by James & Vanessa Ward
- Debbie Lauer
- Sarah Leatherman in memory of Jaime, beloved companion of Judy Newton, Ellen Gale & Erin
- Sarah Leatherman & Luna in memory of Hoke, beloved companion of Jennifer & Eric Wilmoth
- Warren & Sandra Lloyd
- Silke Lohölter-Wilhelms in honor of the PWD PSG
- Paula & Joe Markiewicz
- Carol Mattingley & Ann Bowley in memory of Deborah Miller-Reilly's sister Kim
- Carol Mattingley & Ann Bowley in memory of "Rascal" - MBISS BIS CH. Questar's Thunder and Lightning CGC RN NA NAJ AOMs CSLI-F
- Carol Mattingley & Ann Bowley in memory of "Teaky" Windruff Teak Tack Tow BN RA CGC WWD
- Jan & Norm Mosher in memory of Elton, Kalista's Even Keel
- Peter & Anne Paige in memory of BISS CH Watermark Toby's Black Jack
- Nancy & John Pateman in honor of Pepper
- Sally & Tony Perez in memory of CH Bramblecreek Combahee "Kirby"
- Joyce Polak & Barbara Williams in honor of the PWD PSG
- Sherry N. Rady in memory of "Bandit" CH Abeja Manoel Parda Rivero CD RE NAP NJP THD CGC TDI
- Sherry N. Rady – Estrela PWDs in memory of CH Afortunado Aiden Curran
- Sherry N. Rady – Estrela PWDs in memory of CH Beacon Hill Zeta Orion Leal
- Sherry N. Rady – Estrela PWDs in memory of CH Sete Mares Breaking All the Rules
- Kathy & Mark Rosenberg in memory of Pippin Took
- Ellen Sard in memory of Gracie (Cortereal Imagine That)
- Ellen Sard in memory of Pepper & in gratitude for his loyal companionship for 13 years
- Robert & Virginia Santoli in honor of the PWD PSG
- Charles & Marge Schreiber in memory of CH Friendship N Northstar's Lily CGC
- Charles & Marge Schreiber in memory of Teaky
- Charles & Marge Schreiber in memory of Macy
- Heather Shilo in honor of the PWD PSG
- Dawn & Chris Skelly in memory of Chester & Joy
- Geri Smith in honor of Daisy

Sailor \$50-99 (Continued)

- Patricia Snyder in honor of the PWD PSG
- Ralph & Marilyn Tarbet in memory of Peja Divine Comedy of Hope (Dante)
- Robin-Lee Vieira wishing a Happy Birthday to Sequel Newport Navigator (Navy)
- Claire P. von Meysenbug in honor of all Portuguese Water Dogs
- Mary & Jim Walker in memory of Captain Morgan's sister Abbie
- Janet Warnsdorfer & Galaxy PWDs in memory of Molly - Galaxy's Face of Venus
- Liz Weidner
- Marvin & Fran Weinberger in memory of Jake
- Barbara & Ed Weisman-Geibert as congrats on "Sea Angels" new CH Marty
- Elana Winsberg & Mike Barber as a Thank You to Susan & Don Myrick
- Jerry & Kim Wolcoveick in memory of Alice Vicha & all the "Norvic" PWDs
- Diane Workman in honor of the PWD PSG

Deck Hand up to \$49

- Joseph Altendahl in memory of Nora
- Nicole Bearman in memory of Amarinhar Nora of Kalista CD AX AXJ NAP NJP AWD SROM
- Nicole Bearman in memory of Kalista's Even Keel, Elton – you will be missed
- The Charneys in memory of Bella who was one of a kind
- John & Susan Cucura in memory of MBISS BIS CH. Questar's Thunder and Lightning CGC RN NA NAJ AOMs CSLI-F - Rascal
- East Hilliard Veterinary Services in memory of Burt Shisler
- Galaxy PWDs
- Peter Garner & Patty Smith wishing a Happy 6th Birthday to "Atticus"
- Therese Gertiser
- Annie Herberholz in memory of Stargazer's One For The Money 'Lisbon' loved & missed by Jon and Carol Lesch. Happy Heavenly Birthday, Lisbon!
- Linda K. & Krista K. Hunt, Kalista in honor of Lauren McDermott/Amarinhar for 1st Place PWDCA OBAA 2012
- Linda K. & Krista K. Hunt, Kalista in honor of "Breaker" HIT Kalista's Icebreaker UD RE OA AXJ WWD GROM on his UD!!
- Linda K. & Krista K. Hunt, Kalista in honor of "Lucy" Kalista's I'm Gilded Two CDX RN NA NAJ WWD SROM for her CDX & High In Trial at the PWDCTC Specialty
- Linda K. & Krista K. Hunt, Kalista in honor of MACH Kalista's Harley Marley RN MXB MJS OF THD WWD for his MACH
- Linda K. & Krista K. Hunt, Kalista in honor of "Moby" Kalista Lands A Lunker CD BN RE AX MXJ WWD SROM on his WWD
- Linda K. & Krista K. Hunt, Kalista in honor of "Ollie" Kalista's Ready For Adventure AWD on his AWD
- Linda K. & Krista K. Hunt, Kalista in memory of "Kitty" Kalista's Almost Purrfect AX AXJ, loved & missed by Ann & Neil Covin
- Linda K. & Krista K. Hunt, Kalista in memory of "Kito" CH Hunter's Grand Master Mikito RN NA OAJ AWD SROM loved & missed by Judy Cheguis
- David & Marta Lyons in memory of Pogo
- Patricia Nesler
- Sharon Olson wishing a Happy Birthday to Laura Kessler
- John & Diane Parks in memory of BIS BISS BOSS CH Deleao's Amadeus of Kimlyn, "MO" CD NAP NAJP NA NAJ WWD TDI SROM
- Karen & Walter Paulick in memory of Splash Rowsom
- Barry & Judy Roland, Excalibur in memory of CH Excalibur's Antonio NA OAJ NJP
- Cliff & Kitty Sinclair in memory of Pepper
- Kathleen Souza in memory of CT Dreamstar Femme Fatale-VCD3 RE MX MXJ MXP MJP2 OF CWDX GROM
- Kathleen Souza in memory of Int Am CH Vindouro's Once In a Lifetime RN AWD
- Nancy Vener