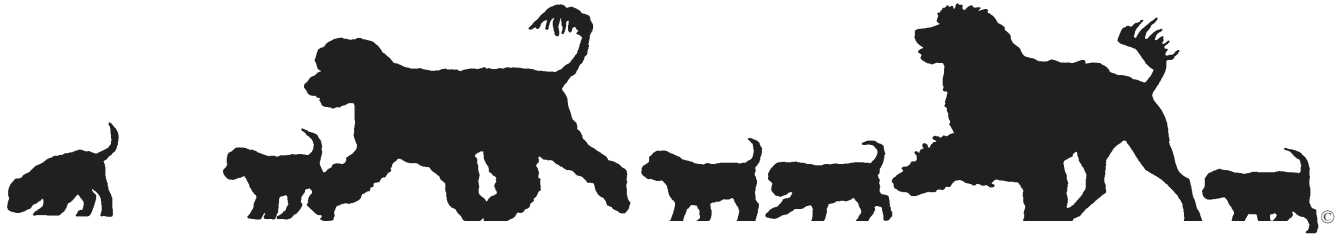


Portuguese Water Dog Foundation, Inc.



2013 SPRING UPDATE

BANNER YEAR FOR RESEARCH TO BENEFIT PWDS

Thanks to the generosity of our donors the PWDF was able to sponsor the largest amount of projects/studies in 2012/2013! We were able to co-sponsor/sponsor FIVE new and THREE for a second year/third year with AKC CHF and EIGHT new plus FIVE for a second year/third year with MAF! Along with the addition of our participation in the Rabies Challenge Fund, that brings the total to TWENTY TWO research projects!!

The majority of these are for hemangiosarcoma and lymphoma, however there are others that involve IBD, Cushing's, osteosarcoma and of course our sixth year in Rabies. More information about the current sponsorship can be found in this newsletter and on our website with this direct link (https://pwwdfoundation.org/html/active_research.html).

NEW PROJECTS CO-SPONSORED WITH AKC CHF

01759: Disrupting the Differentiation of Cancer Stem Cells to Prevent the Spread of Hemangiosarcoma

Jaime F Modiano, VMD, PhD

University of Minnesota

Project Abstract: Hemangiosarcoma is a rapidly fatal disease. The lifetime risk is alarmingly high for some breeds like Golden Retrievers (~20% will die of this disease) and **Portuguese Water Dogs** (~15% will die of this disease). The risk of hemangiosarcoma is not limited to just these breeds but is considered a research priority for 40 different breed Parent Clubs and Foundations. Despite considerable efforts to find effective treatments, the outcome for dogs with hemangiosarcoma has changed very little over the past 30 years. Recent evidence suggests hemangiosarcoma conforms to the "cancer stem cell" model, where a defined subset of cells is responsible for initiating and maintaining the tumor. These cells are resistant to conventional therapies and are very adaptable, being able to survive in a variety of tissues in the body. For this project, Dr. Modiano proposes to reduce the malignant potential of hemangiosarcoma stem cells by forcing them to terminally differentiate into cells which can no longer self-renew. He further proposes that by disrupting their ability to self-renew he will enhance the sensitivity of these cells to conventional and targeted therapies and improve the outcomes of dogs with this disease.♦

01787: Clinical Advancement of a Cancer Vaccine in Dogs

Nicola J Mason, BVetMed, PhD

University of Pennsylvania

Project Abstract: Canine lymphoma is the most common blood-based cancer in dogs with an estimated annual incidence of 30/100,000. Chemotherapy induces remission in 75-85% of patients; however, the majority of patients relapse with drug-resistant lymphoma within 8-10 months of diagnosis and most dogs die of their disease shortly thereafter. Cell-based vaccine strategies that stimulate anti-tumor immunity have shown promise in the treatment of many different cancer types including non-Hodgkin's lymphoma (NHL) in humans. (Continued on page 2)

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NEW AKC CO-SPONSORED RESEARCH (CONTINUED)

(Continued from page 1)

In a previous study Dr. Mason developed a cell-based vaccine to induce anti-tumor immunity in dogs with NHL. Initial studies were hopeful as this early vaccine significantly prolonged second remission duration and overall survival, but ultimately the vaccine did not prevent relapse. These early findings suggest that while the lymphoma vaccine stimulated anti-tumor immunity it will require immunological boosting to achieve prolonged cancer-free survival. In the current study, Dr. Mason will optimize her cell-based vaccine approach to induce functional, long lasting tumor-specific immune responses that will prevent relapse and prolong survival in dogs with NHL.♦

01822: Beyond the Genome: The Intersection of Genes and the Environment in Canine Cancer

Robert K Wayne, PhD

University of California

Project Abstract: Not all genes are active at all times. DNA methylation (the addition of methyl groups to DNA) is one of several mechanisms that cells use to control gene expression. Abnormal patterns of DNA methylation have been observed in human cancer. However, methylation remains an unexplored dimension of canine disease. This seed grant to Dr. Wayne will allow him to establish the techniques and methodologies necessary to define the pattern of normal variation in methylomes (the genome-wide collection of methylated sites) from an array-based analysis of a variety of domestic dog breeds. Differences in methylation found between breed lineages will be complemented by the study of gene expression to understand how methylation regulates levels of expression. Upon completion of this study, Dr. Wayne's laboratory will have proof-of-principle for evaluation of the canine methylome. Ultimately, he intends to establish a public web-based resource to serve as a repository for the dog methylomes. The collection of methylomes they generate will contribute to the growing resources that are available for investigation of disease etiology as well as advancing therapeutic approaches. These data will provide a new resource for understanding how gene regulation through methylation affects phenotype, disease and overall canine health.♦

01849: Filling the Gaps in the Canine Genome

Shaying Zhao, PhD

University of Georgia

Project Abstract: The sequencing of the genome of man's best friend in 2005 has provided an invaluable resource to the canine research community, and has reinforced the position of the dog as an important model organism to study human physiology and disease. Unlike the human and the rodent models (the mouse and the rat), dog genes had been sequenced very few prior to its whole genome sequencing. Consequently, the dog genome has been annotated for its gene content primarily based on mapping the gene-related sequences from the human, the mouse, the rat, and other non-dog species to the dog genome. While providing the research community with an unprecedented large set of dog genes, the definition of DNA

(Continued in next column)

(Continued from previous column) sequences as coding sequences (i.e. gene annotation) has substantial errors and is missing in dog-specific information in many aspects. This significantly hinders research in many fields such as disease gene discovery and cancer-causative gene mutation identification, where functional information about a gene is required to make progress. Recently emerged next-generation sequencing (NGS) technologies provide an unprecedented opportunity to correct these errors and to supply the missing information in the current dog gene annotation in a time- and cost-effective fashion. We propose herein to use state of the art NGS strategies to identify genes/transcripts expressed in major dog tissues and cell types. The valuable data, along with more refined sequence alignment between the dog and other species, will be used to build the most accurate and complete annotation of the dog genome for its gene annotation. The project will significantly facilitate research in areas of canine health most significant to the AKC Canine Health Foundation constituency and lead to important RNA-based (transcriptomic) and protein-based (proteomic) research in the future.♦

AKC CHF UPDATES

Grant: 01684-A: Plasma Cortisol Concentration in Dogs with Pituitary Dependent Hyperadrenocorticism & Atypical Cushing's Syndrome

Linda Frank, DVM

University of Tennessee

Report to Grant Sponsor from Investigator: Twenty-five of 30 dogs have been 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. Still needed are 4 dogs with "atypical" Cushing's syndrome and 1 dog with pituitary dependent Cushing's syndrome. Once all dogs have had

samples collected, the samples will be analyzed for cortisol concentration and statistically compared to see if dogs with "atypical" Cushing's syndrome have similar cortisol levels to those with pituitary dependent Cushing's syndrome.♦

Grant: 01131: Genetic Background and the Angiogenic Phenotype in Cancer

Jaime F Modiano, VMD PhD

(University of Minnesota)

Report to Grant Sponsor from Investigator: 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

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 4)

NEW PROJECTS CO-SPONSORED WITH MAF

D09CA-913: Assessing Therapeutic Targets for Adrenocortical Tumors

Dr. Miriam J. Kool, DVM

University of Utrecht, The Netherlands

Project Abstract: This study is looking at new therapeutic targets for medical treatment of cortisol-secreting adrenocortical tumors, which cause Cushing's disease, one of the most common canine endocrine disorders.

D10CA-016: Investigating a Noninvasive, At-Home Diagnostic Technique for Gastrointestinal Disorders

Pedro L. Boscan, DVM, PhD

Colorado State University

Project Abstract: Gastrointestinal disorders are common in dogs and are often associated with a change in the rate food moves through the stomach and intestines. This study uses a noninvasive, wireless sensor capsule to determine the gastrointestinal transit in dogs. The information will help veterinarians to better diagnose gastrointestinal diseases, including bloat, gastritis and inflammatory bowel disease, while dogs are in their home environment.

D12CA-033: Evaluating a Novel Drug for Lymphoma

Barbara Biller, DVM, PhD, Diplomate ACVIM (Oncology)

Colorado State University

Project Abstract: Lymphoma accounts for an estimated 25 percent of all canine cancers. This study investigates a new therapeutic antibody that appears to effectively kill canine lymphoma cells but does not appear to result in serious side effects. Researchers will work to find the best dosage and evaluate the drug's safety and effectiveness in dogs with B-cell lymphoma.

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

Daisuke Ito, DVM, PhD

University of Minnesota

Project Abstract: One of the limitations in identifying therapeutic targets for canine lymphoma has been the lack of reliable systems to study lymphoma cells in the laboratory. This study uses a culture system, developed by the principal investigator, to maintain lymphoma cells in the laboratory and study a protein that helps lymphoma spread. The findings may highlight novel targets for developing therapies to treat B-cell lymphoma in dogs.

D13CA-033: Determining a More Effective Treatment for Canine Lymphoma

Jaime F. Modiano, VMD, PhD

University of Minnesota

Project Abstract: This study evaluates the efficacy of two antibodies that could treat canine B-cell lymphoma. The investigators theorize that either antibody alone will kill lymphoma cells and delay tumor progression but that the combined effect of the two antibodies will be more effective as a treatment for dogs with lymphoma.

D13CA-044: Developing Ways to Improve Cancer Treatment

Daniel L. Gustafson, PhD

Colorado State University

Project Abstract: Cancers are generally treated with the same chemotherapy drugs even though it is known that different cancers respond in different ways to different drugs. This study uses gene signature patterns to determine whether a cancer from an individual dog is more or less sensitive to a specific chemotherapy drug. If the researchers are successful, canine patients could be treated with the drug that would be most effective for their particular cancer.

D13CA-062: Assessing How a Protein Helps Hemangiosarcoma Cells Survive

Dr. Erin B. Dickerson, PhD

University of Minnesota

Project Abstract: Canine hemangiosarcoma is a common and highly fatal cancer in dogs. Recent evidence suggests that populations of cancer stem cells give rise to tumors, promote tumor growth and are the main culprits behind drug resistance and disease recurrence. This study examines how a protein expressed by stem cells contributes to the maintenance and survival of hemangiosarcoma stem cells.

D13CA-400: Controlling the Spread of Hemangiosarcoma Cells

Jong-Hyuk Kim, DVM, PhD

University of Minnesota

Project Abstract: Hemangiosarcoma is a common and fatal cancer that is particularly deadly to Golden Retrievers and Portuguese Water Dogs. This study examines how molecular signaling helps cancer stem cells undergo self-renewal. Investigators are evaluating the potential to control the activity of hemangiosarcoma stem cells by altering these molecular signals to slow tumor growth and to enhance sensitivity to conventional and targeted therapies.

MAF UPDATES

D08CA-050: Tyrosine Kinases in Canine Hemangiosarcoma

Stuart C. Helfand, DVM

Oregon State University

Results: Researchers Identify Potential New Therapy to Help Combat Hemangiosarcoma in Dogs - Hemangiosarcoma (HSA) remains one of the deadliest canine cancers, and dogs rarely live more than six months after diagnosis. New approaches are needed to improve the survival time of dogs that develop this devastating disease. Researchers from Oregon State University expanded on prior Morris Animal Foundation-funded research to further investigate a novel class of drugs called tyrosine kinase inhibitors, which have the potential to control the growth of HSA cells. Tyrosine kinases are enzymes that function as cell-signaling messengers, and their increased activity is associated with uncontrolled HSA cell growth.

Researchers found that inhibiting certain tyrosine kinases effectively suppressed the growth of cancer cells. Additionally, when tyrosine kinase inhibitors were combined with standard-of-care HSA chemotherapeutic agents, the resulting combination was significantly better at killing cancer cells. To this end, researchers have begun to apply their findings and are treating several dogs with HSA with dasatinib, a tyrosine kinase inhibitor identified as

(Continued on page 4)

MAF UPDATES

AKC CHF UPDATES

(Continued from page 3)

effective through this Morris Animal Foundation-funded study. Although it is too early to determine whether dasatinib is making a difference, the researchers hope to validate it as a therapy for dogs with HSA. HSA is a well-recognized problem in several dog breeds, including German Shepherds, Golden Retrievers, Great Danes, Boxers, English Setters, Pointers, **Portuguese Water Dogs**, Bernese Mountain Dogs, Flat-coated Retrievers and Skye Terriers.

D10CA-501: Discovery and Characterization of Heritable and Somatic Cancer Mutations in Golden Retrievers

Jaime F. Modiano, VMD, PhD, *University of Minnesota*
 Matthew Breen, PhD, CBiol, FSB, *North Carolina State University*
 Kerstin Lindblad-Toh, PhD, *Uppsala University*

Project Update Golden Retrievers have been one of the most popular breeds in America for decades, but unfortunately these dogs also have one of the highest incidences of hemangiosarcoma and lymphoma. In this three-year, multi-institutional study, researchers are examining genetic traits that contribute to risk and progression of these cancers in Golden Retrievers. Comparison of DNA samples from affected and unaffected Golden Retrievers has identified several candidate regions associated with development of hemangiosarcoma and lymphoma. DNA analysis in the corresponding tumor samples has revealed numerous genetic abnormalities and has shown that tumors can be separated into several molecular subtypes. Results identifying lymphoma subtypes based on molecular analysis have been accepted for publication. Once all data are collected and integrated, the research team will correlate how genetic mutations in Golden Retrievers influence risk factors for hemangiosarcoma and lymphoma and how these risk factors influence biological behaviors of tumors. The long-term goals are to understand what causes hemangiosarcoma and lymphoma and to develop strategies to prevent and treat these cancers in Golden Retrievers and other breeds.

D12CA-026: Development of a CD20-Specific Antibody Fragment for Targeted Therapy of Canine B-Cell Lymphoma

Nicola J Mason, BVetMed, PhD
University of Pennsylvania

Project Update: 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. Funded by Morris Animal Foundation, researchers at the University of Pennsylvania are developing a novel system to identify canine-derived antibody fragments similar to rituximab that will recognize canine cancer cells. So far, they have successfully generated cells that produce a specific canine molecule similar to the molecule that rituximab targets in humans. Researchers are now screening for canine antibody fragments that will bind tightly to these cells. Development of a canine-derived antibody fragment could produce 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.

(Continued from page 2)

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 have enrolled two dogs in the trial as of the date of this report (opened for enrollment at the end of November, 2012). 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.

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

Jaime F Modiano, VMD PhD
University of Minnesota

Report to Grant Sponsor from Investigator: 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

(Continued on page 6)

DONATION FORM



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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.

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- Jim Neal, Matthew Neal & David & Jessica
Pickett in memory of Beth L. Neal
- Alexandra Nichols in memory of CH Nautique Esperito de Luna "Esprit"
- J.D. Northway in memory of my wife Ann & our PWDs, Cassie & Splash
- Paulsen Family Foundation in memory of Rough Seas' Seawitch
CGC & CH Rough Seas' Estrela da Lua OA AXJ OF AWD SROM
- Amy H. Phelan
- Wendy Spradlin in memory of Surf-N-Turf's The
Skipper THD CGC TDI R.E.A.D. Service Dog
- Geri Zuckerman, Seadream Portuguese Water Dogs

AKC CHF UPDATES*(Continued from page 4)*

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: 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 and the **Portuguese Water Dog Foundation, Inc.**

Captain \$500-\$999

- Roberta Capuano & Tom Heffernan in memory of
Freestyle First & Foremost & Sea Sprite's Trick or Treat
- Shirley Coleman & Allan Barnes
- Steve & Chris Dostie in memory of Claire Dignard
- Sue Hopkins, Chulsa Kennels
- Roberta W. Knight in memory of Slippers & Lillian
- Susan Lefebvre in honor of the Paint Litter
- Barb & Don Niemann
- Marilyn Rimmer in memory of John Bersano, Buoy, Carlotta, Claree Doty,
Hogan, Marti McFly, Meme, Skipper, Viva & in honor of Lisa Wiley
- Nancy Schlemmer in memory of Zoë

First Mate \$250-\$499

- Annette Claire in honor of Gabrielle & Isabella
- Colorado Portuguese Water Dog Club in honor of the following
beloved companions who crossed the Rainbow Bridge in 2012:
Cleo - Ch Del Sur's Yin & Yang V Tsavo, loved by Kerry Button
Uma - Nobel's Uma Menina De Agua, loved by Corine Knudsen
Mojo - Driftwood N Windsongs Mojo Risin, loved by Joanne Cook
Tai Pan - Odysseas Conquistador, loved by Carol and Henry Goldstein
- John & Susan Cucura
- Nancy Gills in memory of Voyager's Marlin at Anchor
RE Service Dog Extraordinaire, loved by Trudi Gold
- Kim Hanson in honor of the PWD PSG
- Melinda Hatton in honor of Lilly
- Carolyn M. Knutson
- Mike & Linda McLean
- The Moran-Silva Family in memory of our beloved
Chloe, we miss you more than words can say
- Susan & Win Priem in memory of Pat Qvigstad
- Karen & Bruce Rand in memory of our beloved "Millie"
Scrimshaw's Choice Morsel RE CGC JWD ARCHEX CDX-H
- Lynne Schwartz in honor of Bilbo & Pippin
- The Georgia Group in memory of Augustine's O'Murchadha Leao - Murphy
- Robert Yellowlees

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- Ann & Jim Arens in loving memory of CH Anji's Pagosa
de Alcedo a.k.a. PAGOSA or Pogo 11/11/97 - 9/17/2012
- Karen, Jim & Melly Ash & the Saltydawg PWDs
with love & in memory of Passion, Sahbi, Fire & Jive
- Cammi Avery in memory of Boomer Avery & Joaquin Conger
- Karen & Stephen Begin in memory of BOSS
CH Questar's Once In A Blue Moon AOM JWD
- Leon Benson & Family in memory of UKC ACHX AKC CH
Marshviews My Girl Sloopy RN CD OA NAJ CGC TDIA
- Karen Berggren in honor of the PWD PSG
- Al, Elizabeth, Bingmay & Jeff, Gill & Frank...Belouro
PWDs as Thank You to Dr. Patty for her generosity
- Beverly Boccaccio in memory of my beloved dog, Zach
- Benita Bottm-Svitchen wishing a Happy Birthday to the
Tag Along puppies turning one - Galileo, Stella, Izzy,
Nittany, George, Spencer, Benny, Pele, Vasco & Bernardo
- Michael Brown & Jori Potiker-Brown Fund
of the Jewish Community Foundation
- Diane & John Burke in memory of Sparky
- Chulsa Kennels, Sue Hopkins in honor of the PWD PSG

Boatswain \$100-\$249 (cont'd)

- Bonnie Cooksey wishing a Merry Christmas to Dr. Virginia Brown & Margie Mann
- Herb & Jeri Foster in honor of Aviator Kennel
- Thank You to Bev Franklin (Jensen) for preserving the 'Heritage' from all her Water Work friends
- Jane & Stu Freeman in loving memory of Cloo, CH Freestyle's Ocean's Eleventh RA OA OAJ WWD SROM
- Friends of Sabrina & Sandy Overton in memory of A/C CH Stargazer's Bewitched OA NAJ WWD AOM GROM
- Vicki & Ken Goldberg as a Thank You to Ginnie Santoli for always being there for me!!
- Vicki & Ken Goldberg in memory of "Blue", "Pipe Her Aboard" & "Buoy"
- John Grasberger & Eva Goode
- Melanie Groth in memory of Msabu, CH Legado's Impavidez de Msabu AWD who enjoyed life to the fullest
- Kimberly Hanson in memory of Sloop
- Angela & Stan Harding, RainCity PWDs in memory of Int/Am/Can CH RainCity Stillwater Bring It On Am/Can CD RA Can RN CGC "Torie"
- Sandy Holden in memory of Ron Holden & Lloyd D'Augusta & all PWD's that have crossed the Rainbow Bridge in 2012
- Sue Hopkins, Chulsa Kennels in honor of the PWD PSG
- Scott & Liz Kantor
- Marie Kapetanakis in memory Marge Schreiber's Mom, Mary Gravina
- Mimi Karlsson in honor of the PWD PSG
- Kathleen Kechejian in memory of Zoey, September 1998 until March 2010
- Jayne L. Kenyon in memory of Faraway's Stella & Bruxa
- Arthur & Roberta Levin in memory of our beloved PWD Bissa Levin
- Louann & Robert Lindquist in memory of Maggie Mae & Bump
- Warren & Sandra Lloyd – Thanks to the PWD PSG
- Thomas & Linda Majcher in memory of Luke Kelley who passed in Oct. 2012 of hemangiosarcoma
- Pam Marshall
- Martha Martin & Gary Stern in memory of Dixie loved by Rae Lynn Ambach & Randy Rockmere
- Fred & Beth Mercier in honor of the PWD PSG
- Kit Murphy & Phil Arensburg in memory of Stella & Bruxa – gone too soon & too close together, we miss you
- Peter & Anne Paige in honor of the PWD PSG
- Susan Prosser in honor of Party Porties
- Helene & Allen Rothman in memory of CH Rough Seas' Estrela Da Lua OA AXJ OF AWD SROM "Stella" and Rough Seas' Sea Witch "Bruxa"
- Ellen Sard as a Thank You to Sabrina, Demi, Satchmo, Daphne & Wilson in gratitude for all the PWD love that I have received
- Southern California Portuguese Water Dog Club as a Thank You to Terry Cardillino for 13 outstanding years as Courier Editor
- Southern California Portuguese Water Dog Club in memory of: BOSS CH Questar's Once In a Blue Moon AOM JWD – Blue Questar's Pandora - Cali Surf-N-Turf's The Skipper THD - Skipper MACH Finisterra's Wild Irish Rose CDX RE CWDX – Viva
- Wendy Spradlin in memory of CH Cortereal Mad Love JWC CGC
- Wendy Spradlin in memory of CH Questar's Once In A Blue Moon
- Karin & Richard Stalnaker in honor of the PWD PSG
- Elaine Suter/Hunter PWDs
- United Sunshine State Portuguese Water Dog Club in memory of Mike McLelland's mother, Dorothy
- William F. Varr
- Tom & Peggy Weissenborn in memory of Int'l CH Tradewinds Baron Marin de Grande – "Baron"
- Anne Colston Wentz, M.D. & Dennis Wentz, M.D. in honor of 'Chessie' Legado Danarina De Dragoon
- Zohar PWDs - Donna & John Sack

Sailor \$50-\$99

- Leslie Arner - Finisterra PWDs in memory of "Viva" Finisterra's Wild Irish Rose
- Lisa Asbury in honor of the PWD PSG
- Nancy & Tom Baker
- Ray & Barbara Belicose in memory of Claire Dignard
- Joan Bendure in honor of the PWD PSG
- Ann Benninger in honor of the PWD PSG
- Durfee Betts
- Marcia & Tayler Bingham in memory of Port City's Brinkley Reads the News
- Janet Boyd in honor of the PWD PSG
- David Buchheit in honor of the PWD PSG
- Calypso PWDs, Roxy, Gusto, Karma, Bling & Paisley in honor of the PWD PSG
- Linda Campbell in honor of the PWD PSG
- Bud & April Carter in memory of Gabbie, the best friend ever!
- Annette & Scott Castiglione as a Happy Birthday wish to Bella
- Joanne Chilton in memory of Mary Gravina
- Meg Defore in honor of the PWD PSG
- Nick & Libby Devlin
- Diamante PWDs - Jim & Kimberly Beach in honor of the PWD PSG
- Amanda & John Ellery in honor of the PWD PSG
- Barbara Floch in honor of the PWD PSG
- Nelson & Celia Ford
- Jane Freeman in honor of the PWD PSG
- Terry Freeman in honor of Bombardier
- Barbara & Ed Geibert/Weisman
- John Haeger in memory of Crews 'N' Ports Rudolph's Glo, CD
- Sue Wilcox Hall in honor of the PWD PSG
- Angela Harding, RainCity PWDs in honor of the PWD PSG
- Laurie Hardman in honor of the PWD PSG
- Christine Harris in honor of the PWD PSG
- Ann Harrison & Jim Starkey in honor of the PWD PSG
- Petro Haring in honor of the PWD PSG
- Rita Hasel in honor of the PWD PSG
- Lee & Susan Haygood in memory of Driftwood's Una of Texas & Oak Creek's Canyon Gator
- Susan Heath in honor of the PWD PSG
- Fred & Ruth Henderson
- Sue Hensley in memory of Ann Northway
- Linda Hinkle Seadancer PWDs in honor of the PWD PSG
- Silke Hirtz-Schmidt in honor of the PWD PSG
- Pat Hogan in honor of the PWD PSG
- Linda K. & Krista K Hunt, Kalsita in honor of the PWD PSG
- Linda K. & Krista K Hunt, Kalsita in memory of BISS CH Watermark Toby's Black Jack , loved & missed by Norm & Jan Mosher
- Janice in memory of 'Reuben': CH Dacher's Winsome Reuben CDX RE CGC AX MXJ MJB OF WWD GROM
- Patty Johnson & Susan Becker in memory of Meme
- Angela Kalmanash in honor of the PWD PSG
- Karma PWDs in honor of the PWD PSG
- Tracy Kittrell & Paula Kerezsi congratulating Sydney PAX & Rogue CD MX MXJ on their new titles
- Ralph Klumpp & Family in memory of Abby
- Larry & Glenda Lane
- Andy & Carol Lanza in honor of Belle
- Karen & Randy Latham in memory of IVY
- Carol Mattingley & Charles Schreiber in memory of BISS CH Watermark Toby's Black Jack

Sailor \$50-\$99(cont'd)

- Carol Mattingley & Ann Bowley in memory of Mary Gravina
- Carole (Prangley) & John McIvor in memory of Watermark Toby's Black Jack
- Bev & Joe Migliore in memory of Sereia and Ferrari, beloved PWDs
- Mike Mobley in honor of the PWD PSG
- Stephen Monas
- Susan & Don Myrick, Pickwick in memory of Kymberlee Ghione
- Julie Parker/Valkyrie Farms in honor of the PWD PSG
- Kathie Peightal in memory of CH Sunnyhil On Blue Bayou
- Kathie Peightal in honor of the PWD PSG
- Kristi & Mike Portugue in memory of Kalista's Adventure to Neptune CWDX MX MXJ CDX RE SROM
- Cindy Probst in honor of the PWD PSG
- Vicky, Lee, Fred & Chuck Reed in memory of Kimlyn Incantaion CD CGC TDI
- Rio Salgado Portuguese Water Dog Club in memory of Deepark Rei Aquatico, NA WWD
- Marilyn Rimmer in honor of the PWD PSG
- Stan & Milarie Rude in memory of CH Sweetmeadows Forever In Blue Jeans, "Levi"
- Stan & Milarie Rude in memory of CH Watermark Toby's Black Jack
- Julie & Ty Rust in honor of the PWD PSG
- Donna & John Sack – Zohar PWDs in honor of the PWD PSG
- Ellen Sard to Janet Pincus in gratitude & memory of your love for Sascha
- Sandra Sauter in memory of BISS CH Praia Norte Breeze of Hope CDX WWD SROM
- Sandra Saybolt in honor of the PWD PSG
- Charles & Marge Schreiber in memory of Gina
- Mike Sherrill in honor of the PWD PSG
- Kathleen Souza in honor of the PWD PSG
- Stacy, John & Tony Stahl
- Barb Stanek in honor of the PWD PSG
- Elaine Suter/Hunter PWDs in honor of the PWD PSG
- Mona Svård & Pål Kyrk / APLICADO in honor of the PWD PSG
- Herb Szauerzopf in honor of the PWD PSG
- Lillemor Elfstrand Thorén in honor of the PWD PSG
- Bill & Elaine Trendler in memory of Tobie
- Troy & Betsy Turner in honor of the PWD PSG
- Deborah A Vaccaro in honor of the PWD PSG
- Larry & Shirley Walden
- Janis Watts in memory of "Msabu" CH Legado Impavidez de Msabu
- Anne Wentz & Dennis Wentz in honor of Chessie & Riffle
- Cathy Winkler in honor of the PWD PSG
- Jerry & Kim Wolcoveick in memory of Curly Catie & all the Norvic PWDs
- Bob & Charlene Wolfe in honor of "Rainy", Roughrider's Glacier Rainbow CD TD
- Theresa Zorad in honor of the PWD PSG

Deck Hand up to \$49

- Aspencove's Piece of My Heart in memory of Mary Jane Fitzgerald
- Beta Sigma Phi in honor of Nancy Schlemmer and Zoë
- Lori A. Cramp
- Cheryl & Tom D'Altrui in honor of Bella & Harley
- Niccole Dreiling in memory of Rough Seas' Estrella da Lua "Stella" & Rough Seas' Sea Witch "Bruxa"
- Miriam Goren in memory of the Roz & Alan Granitz's hero Speed-OH
- Linda K. & Krista K Hunt, Kalista in honor of HIT Kalista's Icebreaker CDX RE AX OAJ WWD GRO, Congratulations on your 2012 PWDCA Specialty High in Trial Obedience & Rally!
- Linda K. & Krista K Hunt, Kalista in honor of 'Ollie'

Deck Hand up to \$49

- Linda K. & Krista K Hunt, Kalista in honor of 'Queixo' MACH Kalista's Just What The Dr Ordered UD RAE MXF CWDX SROM & Tiffani Flaws on earning their MACH
- Linda K. & Krista K Hunt, Kalista in honor of Kalista's Ready For Adventure JWD for his JWD
- Linda K. & Krista K Hunt, Kalista in memory of Jim Jackson
- Linda K. & Krista K Hunt, Kalista in memory of 'Breezy' BISS CH Praia Norte Breeze of Hope CDX RN WWD
- Linda K. & Krista K Hunt, Kalista in memory of 'Cosmo' Kalista's Admiral Kramer, loved & missed by the Mesna Family
- Linda K & Krista K. Hunt , Kalista in memory of 'Gilligan' loved & missed by Caren & Ken Stanley
- Linda K. & Krista K Hunt, Kalista in memory of 'Gina' CH Friendships Marrina Angelina RN AX AXJ OAP OJP
- Linda K. & Krista K Hunt, Kalista in memory of 'Gracie' loved & missed by Jim & Joy Hayenga
- Linda K. & Krista K Hunt, Kalista in memory of 'Meme' CH MACH Mariner Just Show me Water UD RE MXB MSA MJS NF CWDX GROM loved & missed by Cindy McCullough & Cindy Hyde
- Linda K & Krista K. Hunt , Kalista in memory of 'Samson' CH NightSkye Luz Da Lua Bars RA TD THD CGC NWI loved & missed by Jane McEwen
- Linda K. & Krista K Hunt, Kalista in memory of 'Sloopy' UKC ACHX CH Marshview's My Girl Sloopy RN CD OA NAJ CGC loved by Nigel Clark
- Linda K & Krista K. Hunt , Kalista in memory of CH Driftwood's Beach Bum loved & missed by the Sedlacek family
- Randy & Karen Latham in memory of Immy
- Tom & Tina March in memory of Maggie
- Martha Martin & Gary Stern in memory of Murphy
- Paul & Marie Mezydlo
- Judith Miller & Richard Corman in memory of Stella & Bruxa
- Carol Mattingley & Ann Bowley in memory of Gina
- Carol Mattingley & Ann Bowley in memory of Piper
- Carol Mattingley & Ann Bowley in memory of Surf-N-Turf's The Skipper THD - Skipper
- Susan Myrick as a Thank You to Maryanne Murray for dinner at the Specialty!
- Don & Susan Myrick, Pickwick in memory of CH MACH2 Vindouro's Built To Withstand VCD2 RAE MXS MJC MXF
- Don & Susan Myrick, Pickwick in memory of Acadia's Cover de mer "Fozzie" owned and loved by The Greene family
- John & Diane Parks in memory of CH Dacher's Winsome Reuben CDX RE AX MXJ OF WWD GROM CGC "Reuben"
- Patricia Nesler
- Peggy Ann Perkins in memory of CH Dacher's Winsome Reuben CDX RE CGC AX MXJ MXB OF WWD GROM
- Jayne Phillips in memory of Amanda & John's beloved Murphy
- Pickwick PWDs as Congratulations on their new Grand Champion AKC GCH Int & UKC BIS CH Pickwick's Jail House Rock "Bugsy Rockstar"!
- Merle H. Piro in honor of Darby & Libby, I love you! Mom
- Stan & Milarie Rude in memory of CH Freestyle's Ocean's Eleventh RA OA OAJ WWD SROM "Clooney"
- Sherry & Steve Saccoliti
- Charles Schreiber as a Thank You to Lisa Wiley/Turnabout for the beautiful picture of Sharky that was taken at the 2012 PWDCA Specialty!
- Marge & Charles Schreiber in memory of Meme
- Marge & Charles Schreiber in memory of "Sampson" CH NightSkye Luz Da Lua Bars RA TD THD CGC NW I
- Kathleen Skeels as a Thank You to Linda Hunt for Miss Kiwi
- Eileen Stukel
- Matt & Kendra Yociss as a Thank You to Tabby Thompson for our Taylor Belle
- Geri Zuckerman in memory of "Viva" MACH Finisterra's Wild Irish Rose CDX RE XF CWDX SROM "never to be forgotten"