AKC CHF CO-SPONSORED RESEARCH PROGRESS REPORT

#1131 - Genetic Background and the Angiogenic Phenotype in Cancer

Jaime Modiano, VMD, PhD
Leslie Sharkey, DVM, PhD, DACVP

University of Minnesota

Abstract (Researcher): 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 is the first to clearly 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. In addition, one-size-fits-all therapies may be inadequate to effectively treat this disease. This project will extend our observations on gene expression profiles in hemangiosarcoma from Golden Retrievers to German Shepherd Dogs and Portuguese Water Dogs, and it also will define how new targeted therapies may effectively control the disease in these and other dog breeds.

Early UPDATE: Hemangiosarcoma is a devastating cancer that can affect any dog. For reasons we do not fully understand, Portuguese Water Dogs develop this disease more frequently than most other breeds. The Portuguese Water Dog Foundation has had a long and productive relationship with Dr. Jaime Modiano, supporting work that is helping to paint a clearer picture of hemangiosarcoma and other cancers. At present, there are no clearly defined subtypes of hemangiosarcoma, and no test can predict how fast the tumor will spread or if the disease will respond to treatment. Even though some 15% of dogs with hemangiosarcoma can respond favorably to treatment, no treatment is consistently effective, and recent clinical trials have failed to show improved outcomes. This highlights how little we know about why this disease happens and how it behaves. A recently completed study from Dr. Modiano’s lab showed that, while none are detectable under the microscope, there are molecular differences between hemangiosarcomas of Golden Retrievers and hemangiosarcomas of other dogs. Some of these differences might explain the frequency with which the disease is observed in Golden Retrievers and even why the disease fails to respond to conventional cancer treatments. But much work remains to be done before these suppositions are confirmed. In addition, nothing is known about possible features that might distinguish hemangiosarcoma of Portuguese Water Dogs. This is the focus of the current project that is being done jointly by Dr. Modiano and Dr. Sharkey at the University of Minnesota, with support from the Portuguese Water Dog Foundation. Specifically, Dr. Modiano and Dr. Sharkey will determine if hemangiosarcoma of Portuguese Water Dogs has unique molecular features, or whether these tumors are indistinguishable from those that occur in other high-risk breeds. They will determine how hemangiosarcoma interacts with other cells as it grows and spreads to different tissues, and they will use sophisticated technology to test a large number of highly specific drugs for their ability to kill hemangiosarcoma cells. These complementary objectives will probe tumors for keys to hemangiosarcoma behavior on the path to identify new, more effective strategies for prevention and treatment.
AKC CHF CO-SPONSORED RESEARCH PROGRESS REPORT

#1139 - Immune Targeting of Canine Hemangiosarcoma Using a Canine Derived Single Chain Antibody Approach

Nicola Mason, BVetMed, DACVIM, PhD, University of Pennsylvania

Research Summary (PWDF): Hemangiosarcoma is a devastating cancer affecting Portuguese Water Dogs. Despite aggressive surgery and treatment, survival times are very poor. Targeting cancer cells with the use of antibodies in an effort to activate the immune system, resulting in the immune system's attack of these cancer cells, has shown promise in human and animal research. The goal of this study is to use an antibody that targets hemangiosarcoma cells and helps to deliver a potent local treatment. Using this method to target tumors allows for more effective treatment with the potential for less systemic side effects. The goal of this study is to develop the first canine derived, tumor specific targeting approach for the treatment of hemangiosarcoma.

Abstract (Researcher): Canine hemangiosarcoma is a common and highly aggressive tumor of blood vessels that is oftentimes fatal. At diagnosis most dogs have evidence of metastatic diseases and despite chemotherapy, survival times rarely exceed 6 months. Novel approaches to the treatment of this disease are needed. The use of monoclonal antibodies and antibody fragments to directly target different tumors has shown promise in clinical trials in man. It is the aim of this proposal is to use a novel canine synthetic antibody system to specifically target the tumor and deliver cytotoxic agents directly to both primary and metastatic lesions. Using advanced molecular techniques, we intend to recapitulate antibody responses that dogs with hemangiosarcoma may make against their own tumors and use these as a template to generate canine antibody fragments that specifically recognize tumor particles. Tumor-specific antibody fragments will be linked to an exotoxin and evaluated for their ability to kill canine hemangiosarcoma cells in vitro. Immuno-mediated targeting of tumors allows for the direct delivery of cytotoxic agents to the tumor, thus decreasing side effects and increasing therapeutic efficacy. This work aims to develop the first canine-derived, tumor-specific targeting approach for the treatment of HSA and to provide proof-of-principal for this approach that can then be used to therapeutically target many other tumor types in this species in vivo.

Original Grant Objectives:
Objective 1: To generate phage display combinatorial antibody libraries from dogs with HSA.
Objective 2: To identify tumor-specific scFv of canine origin that bind specifically to canine HSA cell lines.
Objective 3: To generate a canine scFv based immunotoxin and evaluate its specificity and cytotoxicity against canine HSA in vitro.

Report to Grant Sponsor from Investigator (update): Canine hemangiosarcoma is a common and highly aggressive tumor of blood vessels that is oftentimes fatal. At diagnosis most dogs have evidence of metastatic disease and despite chemotherapy, survival times rarely exceed 6 months. Novel approaches to the treatment of this disease are needed. Our work supported by the Canine Health Foundation and its associated breed clubs aims to generate a platform technology for generating canine derived antibody fragments that can specifically target tumor cells. Such antibody fragments can be linked to toxic agents and used to deliver these drugs directly to a cancer cell allowing for increased drug delivery and reduced toxic side effects. No such targeting system is currently available for use in the dog although similar targeting approaches are used commonly and effectively in the human cancer clinic. The work performed during the first year of this two-year proposal has led to our ability to generate libraries of synthetic, canine antibody fragments. Each fragment is specific for a particular molecule. Such molecules may be those expressed on the surface of cancer cells, molecules associated with tumor growth factors or molecules expressed on the surface of infectious agents. Indeed, in theory, any molecule may be recognized by one or more antibody fragments contained within our canine antibody fragment libraries. Having generated these libraries we are now able to use simple panning techniques to isolate fragments that specifically bind to molecules of interest. In order to provide proof-of-principle that antibody fragments that target specific molecules exist within the libraries that we have generated, we have utilized canine parvovirus (CPV) molecules to select CPV specific antibody fragments from antibody libraries. This approach was successful and we have now isolated an antibody fragment of canine origin that specifically targets and binds to canine CPV parvovirus. This finding provides proof-of-principle that these libraries contain a diverse array of antibody fragments that can be selected based on their ability to bind to certain target molecules. We are now performing further screening studies to determine whether the selected CPV-specific antibody fragment is capable of targeting and neutralizing CPV, a finding that would possibly provide us with a much needed therapeutic agent to treat dogs with clinical parvoviral disease. While this work was intended to provide proof that generated antibody libraries contain antibody fragments that target specific molecules, it also clearly provides an insight into the potential of this technology to impact the treatment of multiple disease processes including infectious disease.

We have now generated several different canine antibody fragment libraries from dogs with hemangiosarcoma and are now starting to screen these libraries to identify and isolate antibody fragments that specifically target hemangiosarcoma cells. In addition, we are Screening our antibody fragment libraries for fragments that can bind to and neutralize Vascular Endothelial Growth Factor (VEGF). This growth factor plays an important role in ensuring that new blood vessels are generated in response to the presence of the tumor. New blood vessels support tumor growth and agents that inhibit growth factors like VEGF are important in the treatment of many different malignancies. A human antibody known as Avastin that targets VEGF is currently used to treat patients with advanced colonic adenocarcinoma. It is important to note that since the antibody fragments we have generated are replicas of canine antibody fragments, they should elicit minimal immune responses when used in vivo. As such, these antibody fragments should be able to be administered multiple times if necessary, without losing their potency. The results of our work to date have been compiled in a manuscript that is nearly complete and will be submitted shortly to the Journal of Immunological Methods. In the second and final year of this grant support, we aim to vigorously screen antibody fragment libraries generated from 10 dogs with hemangiosarcoma for fragments that can specifically bind to hemangiosarcoma cells. Once we have identified such fragments we will link them to a cytotoxic agent and determine their ability to specifically kill malignant cells in vitro, prior to testing these agents in canine patients with hemangiosarcoma. In summary, our work has led to the development of the first canine-derived, antigen-specific targeting approach that may be used for the treatment of many different cancer types including HSA. Furthermore, we have identified potential agents that might be used to neutralize canine parvovirus in pups and adults with clinical disease.

We are exceptionally enthusiastic about this novel technology and wish to thank the CHF and its supporting breed clubs that have made and continue to make this work possible.

The Sprin and Fall Updates are a publication 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.
MAF CO-SPONSORED RESEARCH PROGRESS REPORTS

D07CA-085 Pooled Association Mapping for Canine Hereditary Disorders

Gregory M. Acland, BVSc
Cornell University

We should have the final report very soon.

This research is to develop a system that will map genetic traits causing health problems. More than 450 canine genetic traits are listed on the Online Mendelian Inheritance in Animals list. These traits affect all body systems in dogs and can cause health problems ranging from mild disease susceptibility to severe illness and death. Researchers will use a genetic tool called the Affymetrix Canine SNP Chip to develop a mapping strategy using pooled DNA samples that will map genes for hereditary canine disorders. This method promises to be 10 times more efficient and cost effective than current methods for analyzing canine inherited traits.

Progress Update: More than 450 diseases in dogs have a genetic cause. Collectively, these diseases affect all body systems in dogs and can cause health problems ranging from mild disease susceptibility to severe illness and death. The task of researching and identifying genetic reasons for disease traits is daunting. Researchers from Cornell University are exploring a more efficient way to use the relatively new genetic tool called the Affymetrix Canine SNP Chip. They hope to develop a “pooled sample” strategy that will more rapidly identify genes for hereditary canine retinal disorders – diseases that cause blindness. This method promises to be 10 times more effective and cost-effective than current methods. Currently, the blood from each dog is analyzed for DNA — one sample from one dog at a time. With pooled sample strategies, scientists combine the DNA from several affected dogs into one sample and run them together. This allows more samples to be tested at a reduced cost — sort of like a screening test to first determine if the “bad” gene might be present prior to developing the test that would test for the gene in individual dogs. However, this research strategy also creates complexities of data analysis. So far, the researchers have validated the process of using pooled DNA samples and have worked through the complexities using an improved genotyping method developed at Cornell University. In addition, they have successfully mapped the chromosomal location of genes for cone rod dystrophy (a cause of blindness) in American Pitbull Terriers and Irish Glen of Imaal Terriers. The specific gene mutation for one of these forms of cone rod dystrophy has been identified, and a diagnostic test will be announced shortly.

D08CA-402 Genetic Analysis of Hypoandrogenocorticism in Nova Scotia Duck Tolling Retrievers,

Angela M. Hughes, DVM
Anita M. Oberbauer, PhD
University of California-Davis

This project has been completed

Results: Research Takes First Step in Eliminating Addison’s Disease in Nova Scotia Duck Tolling Retrievers -- Addison’s disease, also known as hypoandrogenocorticism, is a deficiency of hormones that are produced by the adrenal glands and help regulate a dog’s metabolism, blood pressure, electrolyte balance and stress response. Though the disease is relatively uncommon in dogs, certain breeds—including Nova Scotia Duck Tolling Retrievers, Bearded Collies, Great Danes, Leonbergers, Portuguese Water Dogs, Standard Poodles and West Highland White Terriers—have a much higher risk than the general dog population. Researchers identified a region of the genome that is associated with the development of Addison’s disease in Nova Scotia duck tolling retrievers. Additionally, it appears that dogs that are homozygous (both chromosomes carrying the same genes) with respect to this region are at greater risk of developing Addison’s disease, even at a young age (under 2 years). Although additional genes are likely involved, this information is the first step toward understanding the genetics of this disease and developing a genetic test that will help eliminate Addison’s disease through informed breeding practices.

D07CA-034, MicroRNA Expression Profiling of Canine Osteosarcoma

W.C. Kisseberth, DVM, PhD, DipACVIM (Oncology)
Ohio State University

By studying miRNA expression in osteosarcoma, the investigators hope to identify new molecular targets for therapy that will lead to better treatment of this disease. Osteosarcoma, commonly known as bone cancer, is a significant cause of death in large and giant dog breeds. Because cancer is believed to be fundamentally a genetic disease, genomic approaches are needed to study canine bone cancer. Recently, scientists have determined that microRNAs (miRNAs), small non-protein-coding molecules, play an important role in a variety of human cancers. Using a custom microarray technology, which the investigators have developed in their laboratories, this study will identify miRNAs that are expressed in canine osteosarcoma. Researchers will then identify which miRNAs are expressed in osteosarcoma and which are associated with certain breeds and prognoses. By studying miRNA expression in osteosarcoma, the investigators hope to identify new molecular targets for therapy that will lead to better treatment of this disease.

Progress Update Osteosarcoma, commonly known as bone cancer, is a significant cause of death in large and giant dog breeds. Because bone cancer is believed to have an underlying genetic component in these breeds, genomic approaches are needed to identify causes of canine bone cancer. Researchers at the Ohio State University have developed a customized genetic tool to study osteosarcoma. This tool, called a canine microRNA microarray, is being used to characterize microRNA expression in osteosarcoma and to determine whether there are differences in microRNA expression between tumors and healthy tissues. Preliminary data are encouraging. MicroRNA expressions in tumor samples are different from those of normal bone cultures. Osteosarcoma tumor samples and osteosarcoma cell lines also have similar expression of microRNAs, suggesting that cell lines can be used to investigate microRNA-based treatments for this disease.

NUTMEG PWDC CALENDAR PROFITS TO BENEFIT PWDF CANCER RESEARCH

The Nutmeg Portuguese Water Dog Club has graciously offered to donate all their profits from the 2011 calendar to the PWDF for the sole purpose of Cancer research. This is a well known calendar that usually sells out every year. Each month pictures a PWD(s) that was selected by a committee from submissions from any PWD owner who would like to send one in. Please support their efforts as well as ours by submitting a photo and then by buying the 2011 calendars which make great gifts. For more information please go to: http://www.nutmegpwd.org/html/calendar_photos.html OR just Google NUTMEG PWDC and click on Calendar Photos.
Duration of Immunity to Canine Vaccines: What We Know and Don't Know
Ronald D. Schultz, Professor and Chair
Department of Patho-biological Sciences
School of Veterinary Medicine, University of Wisconsin-Madison

It has been common practice since the development of canine vaccines in the late 1950's to administer them annually. The recommendation to vaccinate annually was based on the assumption that immunity would wane in some dogs, thus to ensure immunity in the population, all dogs required revaccination since it was not practical to test each animal for antibody. Little or no research has been done to demonstrate that the practice of annual revaccination has any scientific value in providing greater immunity than would be present if an animal was never revaccinated or was revaccinated at intervals longer than one year.

In 1978 we recommended an ideal vaccination program would be one in which dogs and cats would be revaccinated at one year of age and then every third year thereafter (1). That recommendation was based on a general knowledge of vaccinal immunity, especially the importance of immunologic memory and on duration of protection after natural sub clinical or clinical infections as well as on limited studies we had performed with certain canine and feline vaccines. Since the mid 1970's we have done a variety of studies with various canine vaccines to demonstrate their duration of immunity. From our studies it is apparent, at least to me, that the duration of immunity for the four most important canine vaccines (core vaccines) that the duration of immunity is considerably longer than one year. Furthermore, we have found that annual revaccination, with the vaccines that provide long term immunity, provides no demonstrable benefit and may increase the risk for adverse reactions. We have assessed duration of protective immunity primarily by two procedures; the first is held to be the “gold standard and that is to challenge the vaccinated animal with the virulent organism, the second method is to measure antibody and compare the antibody titer to that which is known to prevent infection (e.g. provide sterile immunity). The studies we report here include challenge studies as well as studies that determine antibody titers. A summary of our results show the following (Table 1).

The minimum duration of immunity data does not imply that all vaccinated dogs will be immune for the period of time listed, nor does it suggest that immunity may not last longer (e.g. the life of the dog). The percentage of vaccinated animals protected from clinical disease after challenge with canine distemper virus, canine parvovirus and canine adenovirus in the present study was greater than 95%. Although there is much more that we need to know about duration of immunity to canine vaccines the information we have at present provides adequate justification for the vaccination recommendations that I and others have made and continue to make regarding frequency of vaccination (2).


Reprinted with permission from Dr. Ronald D. Schultz (2/24/2010)

Table 1: Minimum Duration of Immunity for Canine Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Duration of Immunity</th>
<th>Methods Used to Determine Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE VACCINES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canine Distemper Virus (CDV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rockbom Strain</td>
<td>7 yrs / 15 yrs</td>
<td>challenge / serology</td>
</tr>
<tr>
<td>Ondersteapoort Strain</td>
<td>5 yrs / 9 yrs</td>
<td>challenge / serology</td>
</tr>
<tr>
<td>Canine Adenovirus-2 (CAV-2)</td>
<td>7 yrs / 9 yrs</td>
<td>challenge / serology</td>
</tr>
<tr>
<td>Canine Parvovirus-2 (CAV-2)</td>
<td>7 yrs</td>
<td>challenge / serology</td>
</tr>
<tr>
<td>Canine Rabies</td>
<td>3 yrs / 7yrs</td>
<td>challenge / serology</td>
</tr>
<tr>
<td>NON-CORE VACCINES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canine parainfluenza</td>
<td>3 yrs.</td>
<td>serology</td>
</tr>
<tr>
<td>Bordetella bronchiseptica</td>
<td>9 months</td>
<td>challenge</td>
</tr>
<tr>
<td>Leptospira interrogans ser. canicola</td>
<td>?</td>
<td>challenge</td>
</tr>
<tr>
<td>Leptospira icterohaemorrhagiac</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Borrelia burgdorfen</td>
<td>1 yr.</td>
<td>challenge</td>
</tr>
<tr>
<td>Giardia</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Canine Coronavirus</td>
<td>Lifetime (whether vaccinated or not vaccinated)</td>
<td>Challenge / serology</td>
</tr>
</tbody>
</table>

Please Note: The PWDF neither endorses nor recommends the following vaccination schedule. We are reprinting this article because we thought it would be of interest to our readers since it was written by a leading authority of vaccinations and because Dr. Schultz is the chief researcher of the Rabies Challenge Fund.
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** ($1000 or more)

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

Enclosed is my donation, in the amount of $ _______________, payable to PWDF, Inc.

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

OR FAX (24/7) CREDIT CARDS TO: 610 495-9773 (a secure number)

OR PAY ONLINE at www.pwdfoundation.org

**PLEASE PRINT OR TYPE CLEARLY**

Donor may be listed as____________________________________________________________

Donation is □ in memory of □ in honor of □ Happy Birthday □ Congratulations on your win □ Thank You

Name _________________________________________________________________

Please send acknowledgement/receipt for donation to: *(email needed for tax receipt)*

Name _________________________________________________________________

Mailing Address _________________________________________________________

Email __________________________________________ Phone __________________

**Credit card forms can be faxed(24/7) to 610 495-9773 (a secure number)

OR you can submit them online at www.pwdfoundation.org**

**VISA** **MASTERCARD** **DISCOVER** **AMERICAN EXPRESS**

Credit Card #______________________________ Exp Date ____________________

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

Authorized Signature ______________________*(email needed for tax receipt)*

Name __________________________________________ Email __________________

Address: _______________________________________________________________

City __________________________ State _______ Zip __________ Phone ___________

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**

The official registration and financial information of The Portuguese Water Dog Foundation, Inc. may be obtained from the Pennsylvania Department of State by calling toll free, within Pennsylvania 1-800-732-0999 or out of state 1-717-783-1720. Registration does not imply endorsement.
Looking for reasons (or excuses) to support the PWD Foundation and health research throughout the year? You can show your support and at the same time acknowledge a human or PWD friend or family member. Send a donation to honor that friend or a memorial donation in the memory of a departed friend. The PWD Foundation will send a card embossed with our logo acknowledging your generosity to the person or family you designate.
Boatswain $100-$249
Vicki & Ken Goldberg in honor of Blue & Maggie
Donna Gottdenker in honor of the PWD PSG
Roger & Diane Greenberg in memory of Maggie
Angela & Stan Harding in honor of The California Beaches Litter
Mr. & Mrs. James Harrington in memory of "Griﬃn" Pennkrest Havana Daydreamin'
Lance & Heidi Harris
Melinda Hatton in honor of Lilly our PWD
Highwood PWD in honor of the PWD PSG
Carol & Howard Hillman in memory of Riva
Ron & Sandra Holden in memory of Ch Alto Mare Oceana
Brisa & Ch Alto Mare Le Vado Nick of Time, CD, RN, CGC
Linda & Krista Hunts/Kalista as a Thank You to Marco's Kalista Let's Play Two for the OFA Pledge
Jayne L. Kenyon as a Thank You to Bev Jorgensen for Moby
Oto A. Kuehne & Cynthia A. Kuehne in honor of Joan Bendure for cancer research
Mary B. Lansing, M.D.
Carol Rae and Mario Lanza in honor of “Belle” Afortunado A Bellinger
Stephen Lawroski & Monika Hadrian in memory of Mambo
Arthur & Roberta Levin in memory of our beloved PWD Bissa Levin
Warren Lloyd in honor of the PWD PSG
Lou Ann & Bob Lindquist in memory of Maggie Mae & Bump
Thomas & Linda Majcher
Tom & Tina March
Pam Marshall
Pam & David Miller in memory of Lazer
Susan Myrick in honor of: Pickwick’s Blue Suede Shoes, Pickwick’s Shake Rattle N’ Roll, Pickwick’s Jailhouse Rock, Pickwick’s Don’t Be Cruel, Pickwick’s Let Me Be Your Teddy Bear, Pickwick’s Routeabout Domino, Pickwick’s Viva Las Vegas, Pickwick’s Little Sister, Pickwick’s A Little Less Conversation & Pickwick’s Ku’uipo
Linda Nielsen in memory of Grizzly, lost to soon to cancer
Kim Nye in honor of Gallitzen a Rose is a Rose – Gallitzen Puppy Pledge
Planalto/Highbid PWDs in honor of the PWD PSG
Sherry Rady in honor of the PWD PSG
Shirley Rimmer in memory of Elenore Doris Gorrell & Am/Int BOSS Ch Questar’s Athena Nick “Lily Bean” & Ch Questar’s Shooting Star, NF, NA “Missy”
Ellen E. Rivers in memory of Martha Stern
Donna & John Sack in honor of all our Zohar Portuguese Water Dog puppies
Robert & Virginia Santoli in honor of the PWD PSG
Sonja & James Santos in memory of the Do Mar Dogs
Ellen Sard - Imagine PWD in memory of Jack & Montana
Betsy Schimpff
Susan Scheﬀ Wells & Don Wells in memory of Robert W. (Bob) White
Charles & Marge Schreiber in memory of “Zara” loved by Marie & Charlie Kapetanakis
Lynne Schwartz & Rivendell Kennel in memory of Susan McMahon
Cheryl R. Sears
Donna Shalala in memory of Cheka
Linda Shultz in honor of Charlie & all the Neapside pups
Southern California Portuguese Water Dog Club 2009 Donation in Memory of:
Leslie Arner’s CH Lisbon Marchena WWVD CD
MX MXJ AOM & Agility HIT 1996 Specialty “Alex”
Judy Berger & George Ziemba’s “Dylan”
Christa and Larry Diamant’s Roseknoll All that Jazz “Jazzy”
Bobbe Kurtz’s “Tipper” and “Frankie”
Denise Latty’s Roseknoll Lolita Lourdes Latty “Lola”
Marilyn Rimmer’s BOSS, Ch Questar’s Athena Nike
“Lily Bean” & Ch Questar’s Shooting Star NA, NJ “Missy”
Bee Sousa’s Ch. DeLoesMusicals Celebration “Cela”
Kathy Sousa’s - Seta Mares Cruiser “Cruiser”
Chuck & Susan Teasley’s Roseknoll Connie of Sunrider “Connie”
Geni Zuckerman’s Int/US/Mex CH Roughrider Saltwater Serenade CDX CWD U-AI GROM 1995-2009 “Salty”

Boatswain $100-$249
Stacy, John & Tony Stahl in memory of Zsa Zsa
Ken & Caren Stanley in honor of Gilligan & Gulliver
Jim, Phyllis & Gusse Stanton in memory of Amadeus
Bobby & Mimi Stein thanking Jodi Whetzel
Gloria, Mike & Bailey Sullivan
Elaine Suter
Donna & Jim Tieman in honor of Gallitzen
Sophie-Simone & Charlie – Gallitzen Puppy Pledge
Andrew Wagner & Lynne Brady Wagner in honor of Gallitzen The Raven – Gallitzen Puppy Pledge
Cristi Fokus Wetherholt, Bruce Wetherholt & Allyon PWDs in honor of Calmel Carres
Penny & Frank Yamamoto in memory of Ch Timberman Trey Margarita – Maggie – you were our hearts for 14 years.

Sailor $50-$99
T. & K. Adams in memory of Chuck and his girls; Olive, Abigail and Coco
Mary Barbara & Michael Alexander in honor of HiSeas Vineyard Perwinckle & HiSeas Rosa do Mar
Charles & Dale Anderson in memory of ‘Hershey’
Ann & Jim Arens in memory of “Huxley” Anji’s Formal Bow Tie de Galvez 8/22/95 – 9/2/09, 13 years
Ann & Jim Arens in memory of “Robin” Ch Anji’s Robin Deriva Galvez AWDDCG 4/14/96-8/5/09, 13 years
Charley & Frank Arruda & Leals in memory of Brinkley
Karen Kirby Ash in honor of the PWD PSG
Ann Benninger & Willie in memory of CH Mariner Flagship Jettty VCD2 UD RE MX MXJ CWDX
June & Jorge Berdichewsky wishing a Happy Birthday to Vasco da Gama Merry Christmas Luke
Hannah & Maxine Brainer in memory of our boy Harley
Dyane Brewster in honor of the PWD PSG
Art & Gwen Brock in honor of Brinkley
In memory of Pennkrest’s Bela Francesca – Frannie you will be missed by your extended family the Browns!
Kenneth Buckwalter
Mary Jo Burgess
Sandra L. & Robert J. Caruso
Nigel J. Clark in honor of the PWD PSG
Julie Conger
Meg DeFore in honor of the PWD PSG
Meg DeFore in honor of Torrid Zone’s Intrepid Skipper NJA & Paul Bryum III as well as congratulating them on earning a new title
Brian & Melissa Deutsch
Libby & Nick Devlin in honor of Ragnart Diamante Portuguese Water Dogs/Jim & Kim Beach in honor of the PWD PSG
Roslyn Eskind & John H. Brown, Seabury (reg’d) in honor of the PWD PSG
Roslyn Eskind & John H. Brown, Seabury (reg’d) in memory of Ch Makitso’s Almirante Da Armada
Susan Ferla & Kala in memory of our friend Moleiro
June & Jorge Berdichewsky wishing a Happy Birthday to Vasco da Gama Merry Christmas Luke
Ann & John Arens in memory of “Robin” Ch Anji’s Robin Deriva Galvez AWDDCG 4/14/96-8/5/09, 13 years
Charley & Frank Arruda & Leals in memory of Brinkley
In memory of Pennkrest’s Bela Francesca – Frannie you will be missed by your extended family the Browns!
Kenneth Buckwalter
Mary Jo Burgess
Sandra L. & Robert J. Caruso
Nigel J. Clark in honor of the PWD PSG
Julie Conger
Meg DeFore in honor of the PWD PSG
Meg DeFore in honor of Torrid Zone’s Intrepid Skipper NJA & Paul Bryum III as well as congratulating them on earning a new title
Brian & Melissa Deutsch
Libby & Nick Devlin in honor of Ragnart Diamante Portuguese Water Dogs/Jim & Kim Beach in honor of the PWD PSG
Roslyn Eskind & John H. Brown, Seabury (reg’d) in honor of the PWD PSG
Roslyn Eskind & John H. Brown, Seabury (reg’d) in memory of Ch Makitso’s Almirante Da Armada
Susan Ferla & Kala in memory of our friend Moleiro
Abby Gale of Sun Joy owned by Barbara Stratton
Scott S & Dolores F in memory of Helen Berg
Carol & Beck giving a gift of PWD Research and wishing all the
Seaworthy PWD Dogs and owners a healthy, happy Christmas Season
Richard A. Frankel
Nancy Gillis in memory of “Allie” Ch Stargazer’s Hanalei Voyager RN NA NAJ NF NAP
Nancy & Paul Gwyn
Angela Harding in honor of the PWD PSG
Laurie Hardman in honor of the PWD PSG
Meg Harper in honor of Annie & Bentley
Chris Harris in honor of the PWD PSG
Michelle Hemenway in memory of Zaphod
Silke Hirtz-Schmidt in honor of the PWD PSG
Pat Hogan in honor of the PWD PSG

2010 Spring Update

HONOR ROLL OF DONORS 9/1/09 - 2/28/10

Page 7
Sailor $50-$99 (cont’d)
Linda Horton in memory of Alestka Sambuca CD AWD TD
& Ch Scriumaw Brandywine CD WWTD TD
Linda & Krista Hunt, Kalista in honor of HIT Kalista’s
Icebreaker CDX RA WW ‘Breaker’ on his HIT and his CDX!!
Katrina Jackson in honor of Jewel De Agua Sophia
Peter & Gerd Jordan in honor of Chelsi & Mia (our PWD’s)
Katie Katinas
Linda E. Keel in honor of Queen Anne’s Revenge
Diane Keppen in honor of the PWD PSG
Barb & Kirk Kerensky in memory of Marco Polo
Ralph & Karla Klump in honor of Abby
In honor of “Winston the Water Dog”, from the book
sale proceeds held at a Mayflower PWD club event
Dorothy F. Kowey
Bobbe Kurtz in memory of Starview’s Tipper
The Labovitz Family
Amy C. Lane in honor of the PWD PSG
Janet Lankester in honor of the PWD PSG
Tom, Judy Max-A-Million & Miss Margaret Leather in memory of our friend,
Bob White, loving husband of Margaret White and lover of all PWDs
Kathy Mahger in honor of the PWD PSG
Cynthia Maritato
Jane McEwen in honor of the PWD PSG
Stella & Charlotte in memory of Gus
Susan Myrick, Pickwick in memory of Pickwick’s
Molly owned by the Bobovsky Family
Leslie Osterhout in honor of the PWD PSG
John & Diane Parks in honor of Dacher’s Lullaby Lyrics ‘Bella’
Mark & Deb Phelps in honor of the PWD PSG
Joyce Polak & Barbara Williams in honor of the PWD PSG
Carole Prangley-McIvor in memory of
Susan & Jeff’s very special “Cocoa” Weiss
Carole Prangley-McIvor as a Thank You to Dr. John
Pisciotta & Mr. Tom Allen for their care of “Cocoa”
Janine Richter & Tony Paton in honor of Puddles
Mary Salvery in honor of the PWD PSG
Lynn & Dave Saturno as a Thank You to Janis Watts
& Mart Miller for Legado Guardacostas Schooner
Lynn & Dave Saturno as a Thank You to Linda Kelly
& Janis Watts for Ashego Legado Steamboat A-Comin’
The Saunders Family – Deb, Rhom, Anna Mae & Lilah in memory of Boo!
Sandra Saybolt in honor of the PWD PSG
Randy & Joan Severance in memory of Tobie Marie
Victoria Shulman
Cindy Simon
Kathleen Skeels as a Thank You to the PWFD
Joan L. Snyder in memory of Nemo
Kathleen Souza in memory of Sete Marcs Cruiser
Kathleen Thornton wishing Mary Korr Happy
Holidays and in memory of Winston
Dr. Elizabeth Trainor in honor of the PWD PSG
Kristina Winkler in honor of Max Winkler
The Wolcoveck Family in memory of Curly, Faro, Frannie & Cassie
Denise & Ken Woodring in honor of the PWD PSG

Deck Hand up to $49 (cont’d)
Gail Browne-McDonald in memory of Alto Mare Sebastian
The Burke Family wishing Arlo a Merry Christmas
Camill Seadancer PWDs in honor of the PWD PSG
Ann Camp in honor of the PWD PSG
Barbara Crowther in honor of Aiden, Bandit & Mister
Cheryl & Tom D’Altrui in honor of Bella D’Altrui
Pat & Bill Daubert wishing Deb & Dean Mease a Merry Christmas
In honor of Rio
Amanda Ford in honor of the PWD PSG
Giving Tree, LLC
John Haeger in memory of Piedelai Allegretto Con Brio
Jane Harding in honor of the PWD PSG
Petra Haring in honor of the PWD PSG
Petro Haring in honor of Ch Sandstone’s
Material Girl - thanks for Bangle and Ziggy
Rita Hasel in honor of the PWD PSG
Tom & Hersh in memory of Jazz
Lee & Susan Haygood in honor of Gator, Jazz & Sage
Hallie Howe in honor of the PWD PSG
Linda K. Hunt in honor of the PWD PSG
Linda & Krista Hunt in memory of ‘Capti’,
loved and dearly missed by the Rudin Family
Linda & Krista Hunt in memory of Encanto
Red Sky at Night CDX RN WW ‘Ruby’
Rebecca & Jonathan Hynek in honor of Sox
Carolyn Kalett in memory of Homer, Chester & Jim Kalett
Angela Kalmanesh in honor of the PWD PSG
Kerk Family in memory of Black Hills Olive
Evelyn & Robert Kern in memory of Willy
Barbara Lachney in honor of the PWD PSG
Tom, Judy Max-A-Million & Miss Margaret Leather in
Memory of Ed Trahan, loving husband of Linda Trahan
Margaret Lester in honor of the PWD PSG
Sarah Maas in honor of the PWD PSG
Pam Marshall in memory of Martha Stern
Jack & Yvonne McCreedie in memory of “Comet”
Paul & Cheri Mezydlo
Susan Myrick, Pickwick in memory of Ch Abadessan’s Tantrums and Tiara
Karen & Water Paulick in honor of Misty Rose
Shannon Pryor in honor of the PWD PSG
Donna Reif Sack in honor of the PWD PSG
John & Lynne Renaud in memory of
Bayswaters Happy Hooligan CWD (Kramer)
Marilyn Rimmer in honor of the PWD PSG
Angela Robinson in honor of the PWD PSG
Martha Ruskai in honor of the PWD PSG
Julie Rust in honor of the PWD PSG
Linda Schoor in honor of Leo, CGC, TDI
Heather Shilo in honor of the PWD PSG
Patricia Snyder in honor of the PWD PSG
Kathleen Souza in honor of the PWD PSG
Barb Stanek in honor of the PWD PSG
Suzanne Steele in memory of Jesse and
as a Thank You to Michele Montgomery
Elaine Suter in honor of the PWD PSG
Tanaki in honor of the PWD PSG
Mary Beth & Troy Turner in honor of the PWD PSG
Harriet Underwood in memory of Sweetie Ophelia, Chloe and Frannie
Deborah Vacciario in honor of the PWD PSG
C.P. von Meyensbus as a Thank You
Janis Watts, Legado Portuguese Water Dogs in
Memory of ‘Romeo’ Legado Galante Romeo
Janis Watts in memory of Stephanie Yee
Lisa Wilkinson in memory of MACH Ch
Downeast Song of the Sirens “Gema”
Sue Wilcox-Hall in honor of the PWD PSG
Matt & Kendra Yociss in honor of Ferncliff Thunder by the Sea, “Thunder”