



AMERICAN KENNEL CLUB
**CANINE HEALTH
FOUNDATION**
PREVENT TREAT & CURE®

Discoveries

Issue 37 • Summer 2011



MISSION

The Foundation is dedicated to advancing the health of all dogs and their owners by funding sound scientific research and supporting the dissemination of health information to prevent, treat, and cure canine disease.

THIS ISSUE AT A GLANCE

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Update From the AKC Canine Health Foundation CEO, Terry T. Warren, PhD, JD

UPDATE FROM THE CEO

Meet me in St. Louis this August! The summer event not to be missed is happening in St. Louis, Missouri from August 12-14. This is the 2011 National Parent Club Canine Health Conference hosted by the AKC Canine Health Foundation and generously sponsored by the Nestlé Purina PetCare Company.

Word has spread that this year's scientific program features the "rock stars" of canine health research. This normally invitation only event is being opened up because of the demand from our supporters to hear Jaime Modiano of the University of Minnesota, Matthew Breen of North Carolina State, Mark Neff of the Van Andel Research



Institute and others present their research advancements. Saturday night of the conference will feature a superb cocktail party and dinner at the new Purina Event Center. Join us for this

renowned scientific program honoring the 150 years of Veterinary Medicine. There is still time to register—learn more at www.akcchf.org/npcchc.
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Canine Allergies: Atopic Dermatitis

In its most simple terms atopic dermatitis (or atopy) is seasonal allergies in dogs. Humans usually experience nasal symptoms in response to inhaled allergens such as pollen. Dogs on the other hand, are most likely to experience itchy skin. A dog experiencing atopic dermatitis might also lick at a runny nose, rub their itchy face on the carpet, have watery eyes, and lick at or bite their paws. Licking of the paws can result in brown stains on the fur of light colored dogs. The dog's skin may be red and scratched, feel warmer than normal and be missing fur. Secondary bacterial or yeast infections are also a concern for the atopic dog.

These allergic reactions are caused by an overreaction of the immune system to common substances, like pollen or dust. The immune system of mammals makes receptor proteins (antibodies) to foreign substances. For each foreign substance the body makes a specific antibody. Atopic dermatitis involves IgE antibodies that coat mast cells in the skin. When the allergic dog comes in contact with an allergen the mast cells release mediators that cause the redness and itchy skin.

Atopic dermatitis can be confused with allergies to flea bites or with contact dermatitis. Contact dermatitis is an allergic reaction caused by physical contact with a chemical such as a flea collar or even a dog's food bowl.

If you are able to indentify the allergen that bothers your dog, keep your dog away from the substance. However in the case of pollen it may be impossible to completely eliminate exposure. The atopic dog is also usually allergic to many different things.

Much like the allergy shots available to humans, dogs can receive a series of injections in an attempt to desensitize them to allergens. Desensitization frequently fails, however. Cortisone (an anti-inflammatory drug) and/or antihistamine therapies are also options for treatment. Cortisone treatment can have bad side effects and all the treatment options should be used under the supervision of a veterinarian.

Canine allergies continue to cause difficulty for many dogs. According to the Merck Veterinary Manual as many as one in ten dogs suffer from atopy alone. In fact, the dog clubs polled by the AKC Canine Health Foundation in 2010 identified canine allergies as their number seven health concern.



The AKC Canine Health Foundation is currently funding research to develop novel canine allergy treatments.

1663-A: Placebo-controlled trial of T-cell receptor (TCR) peptide treatment in dogs with non-responsive atopic dermatitis; Dr. Daniel A. Gingerich, D.V.M.; Imulan Bio Therapeutics, LLC

The underlying cause of atopic dermatitis in dogs is impaired immune responsiveness, specifically T-cell imbalance. In laboratory mice, TCR peptide treatment consistently rebalances T-cells and restores normal immunity. CHF is funding an on-going clinical trial on the efficacy and safety of T-Cell receptor (TCR) peptide treatment of dogs with atopic dermatitis. Early results are promising: the enrolled dogs are experiencing long lasting improvement in itchiness and other signs of the disease, consistent with restoration of normal immune responsiveness.

1415: Development of Anti-IgE Peptide for Treatment of Canine Allergy; Dr. Bruce Hammerberg, DVM PhD; North Carolina State University

Treatment of chronic allergic diseases in dogs, often seen as recurring dermatitis, frequently results in less than optimal outcomes. The prolonged use of anti-inflammatory drugs, such as corticosteroids, to treat the condition can result in severe side effects. Human allergy sufferers have benefited from a new treatment called Xolair®. Dr. Hammerburg's lab has developed a compound for canines that works the same way Xolair® does in humans. They are now working to develop cost effective production of this modified antibody. The expected outcome will be to provide a new, safe and highly effective treatment option for canine allergic diseases that is affordable to use for maintenance therapy.

A Dog Like Darcy Kim Campbell Thornton



Mitral Valve Disease Research

Through research funded by the AKC Canine Health Foundation, Dr. Mark Oyama has already made a connection between mitral valve disease and elevated levels of serotonin in the mitral valve cells of affected dogs. Now Oyama is evaluating a pharmaceutical that appears to successfully block activation of serotonin receptors in dogs as a potential therapy for the heart condition.

Visit www.akcchf.org/research for more information on these open research grants awarded to Dr. Oyama and make a donation today.

Grant 908: Serotonin Type 2A Receptor Antagonist Therapy for Preventing the Progression of Myxomatous Mitral Valve Disease

1529-A: Platelet, Myocardial, and Valvular Serotonin Concentrations in Healthy Dogs and Dogs with Mitral Valve Disease

Our tricolor Cavalier King Charles Spaniel Darcy was an ambassador not just for her breed but for dogs in general. She considered it her bounden duty to meet—and greet with a hearty kiss—everyone she saw.

Like every Cavalier owner, I worried that she would develop mitral valve disease, also known as chronic valvular disease. When she was 3, at a Cavalier health fair, the cardiologist turned to me with a concerned look. “She’s not a breeding dog, is she?” She said Darcy had a grade 3 murmur.

That was okay. I was sure she would follow the example of our older Cavalier, Bella, and remain asymptomatic. But instead, Darcy became a classic example of how this disease can hit Cavaliers: hard and fast.

Every year, I took her in to our veterinarian for x-rays, an echocardiogram that was interpreted by a visiting internal medicine specialist, and an EKG. For three years she held steady. But on her 6th birthday, the exam showed that the disease was beginning to progress, and we started her on medication. It was a trial getting it adjusted. She lost her appetite, which scared me because Darcy loved to eat. It was during the holidays, and the cardiologist and I were playing appointment tag. I couldn’t get her in until after the New Year, but for the most part she seemed to be doing all right. Her vet and I didn’t think the delay would be a problem.

We were wrong. She went into heart failure just a few days before the cardiologist appointment. I spent the night at the emergency clinic, wondering if she would live until morning. The next

day, she was transported by ambulance (she needed oxygen) to the nearest high-tech veterinary facility. They pulled her through, adjusted her medications, and sent her home.

Finally, Darcy was back to her happy, energetic, eager-to-eat self, and it was all we could do to restrict her activity without making life unutterably boring for her.

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We taught her some new tricks: NOT jumping on the furniture and NOT going up and down the stairs on her own and NOT chasing her toys down the hall. We got a set of steps for the furniture and taught all the dogs to use them. We put a gate at the top of the stairs and bought a child’s wagon so Darcy wouldn’t miss out on walks. She would ride in it standing up, surveying her domain. I’d take a toy and toss it a couple of inches, laughing when she gleefully pounced on it.

Routine ruled. Meals and medications were on a strict schedule. Because of the diuretics, which cause increased thirst and urination, we took Darcy out to potty every two to four hours and refilled her water dishes frequently throughout the day. Luckily, both of us were working at home. And carrying 16-pound Darcy up and down the stairs numerous times a day meant I didn’t need to waste time at the gym.
(continued on page 7)

Genetic Testing: Beyond the Basics

The mode of inheritance of a particular disease is important to understand in order to interpret test results. The majority of DNA-based tests are for autosomal (not sex-linked) recessive disorders. If a disease is inherited as autosomal recessive, then the animal must have two copies of the mutant allele (version of the gene) to have the disease (genotype: d/d). If the animal only has one copy of the disease allele and the other copy is normal the animal will appear normal (genotype: d/N). Animals that have one normal allele and one mutant allele are called carriers. Identification of these animals is important to a breeding program since they appear completely normal but can produce affected offspring. If two carriers are bred to each other 25% of the offspring will be affected with the disease (d/N X d/N results in 25% d/d, 50% d/N, and 25% N/N—see Table 1).

Table 1 Simple recessive disease

	d	N
d	d/d	d/N
N	d/N	N/N

d = disease allele

N = the normal allele

Table 2 Genotype—disease correlation simple recessive

Genotype	Disease state
d/d	100% Diseased
d/N and N/N	Normal

Breeders can utilize the DNA tests to identify carriers and avoid breeding them to each other. The simple recessive mode of inheritance underlies the majority of DNA based tests available to date; however, there are

notable exceptions and, in the near future, more exceptions are likely to be made available to breeders. This article will focus on understanding these exceptions.

The simple recessive mode of inheritance underlies the majority of DNA based tests available to date; however, there are notable exceptions and, in the near future, more exceptions are likely to be made available to breeders.

Some diseases are not inherited in a simple manner. Some are caused by mutations in multiple genes or a combination of gene and environment interaction while other disease may have unidentified complexity. This does not imply that there is not an underlying genetic component that can be tested and used for breeding but the relationship of genotype to disease is not as straightforward as in the example above. To understand these more complicated aspects, let's first consider some variations on our original simple autosomal recessive mode of inheritance. There are still two copies of every gene in every dog so, from the testing standpoint, the results reported will be the same. The difference lies in the fact that not all d/d animals will get the disease. This can occur for many different reasons and those reasons may be labeled differently by geneticists.

The first reason that there might not be a one to one relationship between the genotype and the disease state is reduced penetrance. The term reduced penetrance just means that rather than 100% of the d/d animals getting the disease less than 100% will develop it. If a disease is reported to have reduced

(continued on page 5)



Participating in Clinical Trials

Clinical trials help veterinarians investigate methods to improve detection and treatment of disease, as well as improve the quality of care each patient receives. It can be devastating when your pet receives a diagnosis of cancer or some other canine disease. However, participation in a clinical trial may help your dog's prognosis and will advance veterinary science, helping future generations of dogs to have better outcomes.

The requirements to participate in clinical trials vary greatly. Some offer financial compensation and others will require the dog owner to pay for the medical treatment. You and your dog will likely have to travel to the trial site multiple times, so look for trials in your geographic region.

The newest resource on our website is information on finding a clinical trial for your dog.

www.akcchf.org/clinicaltrials

On our clinical trial page you will find links to most of the largest clinical trial sites in the United States.

You will also find a video and additional information about clinical trials from Dr. David Vail, Director of the Center for Clinical Trials and Research at the University of Wisconsin–Madison School of Veterinary Medicine.

GENETIC TESTING: BEYOND THE BASICS *continued from page 4*

penetrance, then the amount should be reported—even if it is just an estimate. For example, a reduced penetrance of 85% means that 85% of the d/d animals will get the disease. A penetrance of 5% means that only 5% of the d/d animals will get the disease. One key point about a disease with reduced penetrance is that an animal that has the d/d genotype may be clinically normal and therefore might have been used for breeding with the assumption that the animal was either a carrier or even clear. Therefore in cases where a genetic disease has reduced penetrance, a DNA test is useful to identify carriers (d/N), normal animals (N/N) and normal animals with the disease genotype (d/d) prior to breeding.

Table 3 Genotype—disease correlation for a disease with 20% penetrance

Genotype	Disease state
d/d	20% Diseased, 80% Normal
d/N and N/N	Normal

The second reason that not all d/d animals will get the disease is if the gene is a susceptibility gene. In this case, it could be dominant or recessive but it confers susceptibility to disease. The DNA test interpretation requires knowing what percentage of animals with the susceptibility allele will get the disease. This is called the relative risk. Animals with two copies of the risk allele may be more likely to get the disease than animals with one copy of the risk allele. The inheritance and ratios will be the same as in table 1 but the genotype- disease correlation will be different. An example of a susceptibility gene with moderate risk is shown in Table 4.

Table 4 Genotype—disease correlation for a disease with a moderate relative risk

Genotype	Disease state
r/r	5 times more likely to get the disease than N/N
r/N	2.5 times more likely to get the disease than N/N
N/N	No increased risk

Both of the previous examples can be confounded by phenocopies or molecular heterogeneity. A phenocopy is a disease state caused by an environmental factor and molecular heterogeneity means that there is more than one genetic cause of the same disease. The DNA based tests are ONLY testing for the specific gene and allele that they have been designed for—not every possible cause of the same disease.

There are some general principals of DNA based genetic tests that researchers can use to evaluate their potential disease causing mutations. Within the breed where the test was developed, are all affected animals explained by mutation (heterogeneity)? This percentage should be as close to 100% as possible. What percentage of unaffected animals have the mutation (penetrance or risk)? This percentage should be as close to 0% as possible. As these two percentages fall away from the ideal the test becomes more and more suspect and less useful as a tool to decrease the incidence of diseased puppies.

One last confounding factor is the use of linked marker tests where the disease

mutation is unknown but a marker nearby is used to reflect the state of the actual mutation. There are error rates associated with these types of tests because sometimes the marker does not reflect the actual disease allele. Linked marker tests can be used within families to determine disease states but there can be problems using them in unrelated individuals. The reason that linked marker tests or haplotype tests would be used is the long period of time it can take researchers to find a causative mutation. In the meantime, in order to assist breeders, a test will sometimes be offered that may be imperfect.

The DNA test interpretation requires knowing what percentage of animals with the susceptibility allele will get the disease. This is called the relative risk. Animals with two copies of the risk allele may be more likely to get the disease than animals with one copy of the risk allele.

While this may all seem very complicated, the good news is that tests are available that can help breeders decrease the risk of producing affected dogs. However, caution should be used in aggressively selecting against mutant alleles which have low penetrance or low risk for the disease state when the mutant alleles are common throughout the breed. This could result in a reduced gene pool and reduced genetic heterozygosity leading to other potential health risks.

This article was contributed by Danika Bannasch, DVM, PhD. Dr. Bannasch is Associate Professor in Genetics at the University of California Davis, School of Veterinary Medicine.

Focus on Research

Below is a list of new ACORN research grants that have been funded since the last Discoveries Newsletter. For detailed information about any of these studies, visit our website at www.akcchf.org to see all of the CHF funded research projects. We encourage you to make a secure online donation in support of any of these new studies.

1536-A: Identification of the Gene Associated with Hypomyelination and Tremors in the Weimaraner; Dr. Patel; University of Southern California
– \$11,944.00

1547-A: Genetic Analysis of Alopecia X in Pomeranians; Dr. Tosso Leeb, PhD, University of Bern – \$12,960.00

1663-A: Placebo-Controlled Trial of T-Cell Receptor (TCR) Peptide Treatment in Dogs with Non-Responsive Atopic Dermatitis; Dr. Daniel A. Gingerich, DVM., Imulan Bio Therapeutics, LLC – \$12,960.00

1669-A: Incidence of Bacterial Infections in Febrile and Afebrile Neutropenic Patients Undergoing Chemotherapy; Dr. Jonathan

F Bach, DVM, University of Wisconsin, Madison – \$6,115.39

1672-A: Isolation and Characterization of Tumor Initiating Cells in Canine Osteosarcoma Cell Lines; Dr. Wilson; Texas A&M University – \$12,960.00

1675-A: A Validation Study of Whole Genome Association Analyses for Canine Cryptorchidism in Siberian Huskies; Dr. Rothschild; Iowa State University
– \$12,960.00

1678-A: Apoptosis—not just for Nucleated Cells: the Contribution of Programmed Cell Death to Red Cell Destruction in Immune-Mediated Hemolytic Anemia; Dr. Young; University of Wisconsin, Madison
– \$5,400.00

RECENT DISCOVERIES:

Neurological Condition in Tibetan Terriers Linked to Parkinson's Disease

Researchers at the University of Missouri recently published a discovery that was ten years in the making. The AKC Canine Health Foundation was a source of support for the work every step of the way—making six separate grants to Dr. Gary Johnson and Dr. Martin Katz.

Dr. Johnson and Dr. Katz discovered the gene responsible for adult-onset neuronal ceroid-lipofuscinosis in Tibetan Terriers and that the same gene can also be found in a fatal human disorder related to Parkinson's disease.

NCSU Researchers Gain Better Understanding of Lymphoma by Turning Dogs into Humans

Dr. Matthew Breen's team, funded by the AKC Canine Health Foundation, "recoded" the genetic information from dogs with non-Hodgkin lymphoma to make them human, genetically speaking. The data revealed that there are only a few genes involved with lymphoma that are shared by dogs and humans. Breen described the work as stripping away the genetic noise from the human data. The dog data points to a smaller number of regions that are likely responsible for lymphoma.

Visit the Success Stories Section of our website (www.akcchf.org/research/success-stories/) to learn more about these recent discoveries.

OUR 2011 GOAL!

\$2,300,000

2,000,000

1,750,000

1,500,000

1,250,000

1,000,000

750,000

500,000

250,000

\$0

YOUR DONATIONS
START HERE

WE ARE
HERE!

THANKS TO EVERYONE
WHO HELPED US
REACH OUR GOAL
IN 2010!

*Together, we're
helping dogs
live longer,
healthier lives!*

A DOG LIKE DARCY *continued from page 3*

I was the night shift; Jerry was the morning shift. Darcy was usually able to make it through the night without a potty break, but if I heard her up drinking I would go ahead and take her out. We tried putting down puppy pee pads for her to use at night if needed, but being a fastidious girl she carefully avoided Mom and Dad's nice blue "rugs" and would squat on the wood floor next to them if she really had to go.

She also became an internet personality. My husband started a blog about Darcy's progress, called Darcy's Daily. Written in her voice, it detailed typical days, the ups and downs of her medications, visits to her cardiologist, fun times with the neighbors, our obsessive worrying over her and her own blithe acceptance of the way things were.

Her blog drew a small but devoted following, and her appearance in my MSNBC pet health column elicited more than a thousand clicks on the page.

Chronic valvular disease is the most common form of heart disease in dogs. Small and medium-size dogs that are

middle-aged or older are most commonly affected, with Cavaliers and Dachshunds having the greatest incidence. Cavaliers are often affected by CVD earlier than other breeds, so Kirstie A. Barrett, DVM, the board-certified cardiologist at California Animal Hospital in Los Angeles, who was treating Darcy, prefers to check them more frequently—every six months—than she might another breed in which the disease is less aggressive.

Darcy did well for a time, but in late May it became clear that she was starting to wind down. There were no more attempts to trot or run to the grass. She moved sedately, speeding up only if she saw one of her favorite neighbors.

Her appetite continued to be excellent. That was good, because she was getting seven medications two and three times a day, all mixed into her meals or given with treats. We had other medications compounded into chicken- and fruit-flavored liquids, which we squirted on her food. She always licked her bowl clean.

We don't know what finally tipped her over the edge. It could have been

June's heat wave or the increased dose of lasix she needed to clear the fluid from her lungs or that her heart simply got too big and too tired to go on. Dr. Barrett hospitalized her and put her on oxygen, but it didn't seem to help. We took her home and switched from lasix pills to injections. She began having more frequent episodes of breathing difficulty. Her electrolyte levels fell life-threateningly low. The vets could fix one or the other, but not both.

We said goodbye to Darcy on June 27, 2006. She was only 6.5 years old. But she lives on in the Darcy Fund, which we started in conjunction with the ACKCSC Charitable Trust to fund research into causes and cures for CVD. We hope that the Darcy Fund will help other Cavaliers live a longer, healthier life. She had a larger-than-life personality that we believe was meant to be shared, and she would like knowing that she could be helpful to someone else with a dog facing this disease. So do we.

"After all," Jerry says, "it's not often you get a dog like Darcy."

UPDATE FROM THE AKC CANINE HEALTH FOUNDATION CEO, TERRY T. WARREN, PHD, JD *continued from page 1*

It's not too early to think about 2012. The Foundation's popular fundraising calendar that is beautifully photographed by Miguel Betancourt and distributed by Tom Grabe at *The Canine Chronicle* has several months sold. Over the past four years, this outstanding fund raising project has raised \$250,000 for canine health. Your participation is important to furthering our mission of funding scientific research to prevent, treat and cure

canine disease. For more information visit www.akcchf.org/calendar or call our office.

Also start planning for your 2012 minimum distribution requirement from your IRA. If you have an IRA and you are 70 1/2 or older, you ordinarily must take a minimum distribution. Did you know that if you make a direct contribution from your IRA to the AKC Canine Health Foundation, your

charitable donation can be counted toward your minimum distribution? The contribution is not deductible, but the money will not be included in your adjusted gross income. Please call me directly (919-334-4016), if you want help making such a donation.

Have a wonderful summer...
Thank you for helping all dogs and their owners live longer healthier lives.

Spotlight on Genetic Tests: Pyruvate Dehydrogenase Phosphate 1 (PDP1) Deficiency

Pyruvate Dehydrogenase Phosphate 1 (PDP1) is a genetic deficiency identified in Clumber and Sussex spaniels. The lack of the enzyme leads to a failure of the complex that is responsible for helping expel waste products from metabolism. When this complex does not function properly, the affected dog suffers from extreme exhaustion after very limited exercise.

The researchers who discovered the mutation reported that as many as 20% of all Clumber and Sussex Spaniels are carriers of the disease. A test is available for the disease so that breeders can make informed decisions to reduce the incidence of the disease.

The mode of inheritance for PDP1 is autosomal recessive. Therefore a dog must have two copies of the PDP1 deficiency form of the gene, one from each parent, to show symptoms. Dogs with one copy of the PDP1 deficiency form of the gene and one copy of the normal form do not show symptoms but they are carriers and can pass the PDP1 deficiency form of the gene onto their puppies.

The Animal Health Trust in the United Kingdom does not recommend avoiding the use of carriers in breeding programs entirely. Doing so will restrict the size of the breeding population risking a detrimental effect on overall genetic variation within the breed. Rather, they suggest that once carriers have been identified they should be bred only to clear dogs, maintaining the good characteristics of those lines but avoiding the breeding of affected dogs. On average, half the puppies

from carrier-clear matings will be clear and half carriers. No affected dogs will be produced from these matings. As testing proceeds an increasing number of dogs will be clear by heredity, that is they will come from stock known to be free of the PDP1 form of the gene.

When breeders submit a sample for testing, they will receive results identifying their dog in one of these three categories:

CLEAR: *the dog has 2 copies of the normal gene and will neither develop PDP1 deficiency, nor pass a copy of the PDP1 deficiency gene to any of its offspring.*

CARRIER: *the dog has one copy of the normal gene and one copy of the mutant gene that causes PDP1 deficiency. It will not develop PDP1 deficiency but will pass on the PDP1 deficiency gene to 50% (on average) of its offspring.*

AFFECTED: *the dog has two copies of the PDP1 deficiency mutation and is affected with PDP1 deficiency. It will develop PDP1 deficiency at some stage during its lifetime, assuming it lives to an appropriate age.*

The research for this work was carried out at the University of Toronto (Cameron, J.M., et al 2007) where the mutation causing the disorder was identified in the gene pyruvate dehydrogenase phosphatase 1.

The test for PDP1 is available from the Animal Health Trust in the United

Kingdom, the University of Missouri - Animal Molecular Genetics Laboratory, and VetGen, LLC.

For more information on the test visit the laboratory website:

Animal Heath Trust:

http://www.aht.org.uk/genetics_pdp1.html

University of Missouri:

<http://www.caninegeneticdiseases.net>

VetGen, LLC: <http://www.vetgen.com/canine-pdp1.html>



Kudos

- Plum Creek Kennel Club celebrated their 25th anniversary by donating \$2,525.00 for Grant 1426 (c-Kit Mutation and Localization Status as Response Predictors in Canine Mast Cell Tumors Treated with Toleranib or Vinblastine).
- Bravo to Contra Costa County Kennel Club for becoming a Club Member of CHF and making an additional unrestricted donation of \$2,000!
- Our sincere thanks to The Max and Victoria Dreyfus Foundation, Inc. for their unrestricted donation.
- Hats off to the Bernese Mountain Dog Club of America and all the individual club members for hosting their annual Health Fund Auction and raising close to \$30,000 for CHF!

Foundation to Take Part in TruckVault Cares Initiative



In the last issue of Discoveries we told you all about “mean seeds” and the roll they play in grass awn migration disease. If you missed that article, it is available on our website at www.akcchf.org/meanseeds.

As a result of the “mean seeds” project and other Foundation efforts to prevent, treat and cure diseases and conditions that affect sporting dogs, the AKC Canine Health Foundation was selected to benefit from the TruckVault Cares initiative.

“The good show that does good,” Scott Linden’s Wingshooting USA, will expand its reach in that arena this fall with its largest-ever public service initiative: ‘TruckVault Cares... about conservation, canines & kids.’ The multimedia effort is led by presenting sponsor TruckVault and made possible thanks to support from program sponsors National Shooting Sports Foundation, Happy Jack and Filson. It is designed to help meet the two biggest challenges members cited in a recent survey of non-profit groups: member recruitment and funding.

Beneficiary groups for the year-long initiative are the International Hunter Education Association, AKC Canine Health Foundation, Scholastic Clay Target Program, Ruffed Grouse Society, North American Grouse Partnership and a nationwide coalition of hunting dog rescue clubs. Together, the groups claim over a million member-supporters.

Through television commercials, online marketing and other media, Wingshooting USA viewers will be

urged to vote online for their favorite group, and motivate their friends to vote. Votes count toward cash for that organization, proportional to the overall number of votes cast throughout the year. Promotion in the groups’ magazines and online publications, on co-sponsors’ websites, and via viral elements will generate additional awareness—and votes—for the organizations. Voters become eligible for gear prizes including a TruckVault secure vehicle storage system, Fausti shotgun, Tri-Tronics electronic dog training collars and Filson apparel.

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Linden will also highlight each group in a series of educational features within the program. Wingshooting USA is the official TV series of the National Shooting Sports Foundation. Created and hosted by Scott Linden, the program airs on the VERSUS network (NBC Sports Group), and three other networks year round. New episodes launch in late September.

More information will be available soon on how you can help the AKC Canine Health Foundation by participating in TruckVault Cares.

Calendar of Events

JUNE 4

Breeders’ Symposium
University of Texas, Arlington

JULY 20

CHF Presentation
Havanese National Specialty

AUGUST 12 – 14

National Parent Club Canine Health
Conference, St. Louis, MO

NOVEMBER 5

Breeders’ Symposium
University of Minnesota, St. Paul, MN

The K9 College Cruise Raises \$6,000 for the AKC Canine Health Foundation

Adapted from an article by Cathy Cooper, Breeder and AKC Judge

The K9 College Cruise returned from its 7th annual sailing earlier this year with another donation for the AKC Canine Health Foundation. This year, the K9 College raised \$6,000 for CHF. Over the past two years, the K9 College has raised \$14,000 for the Foundation, and the 2012 cruise will once again feature an event benefiting CHF.

The K9 College Cruise is a premier educational experience for serious dog fanciers. Each year, the K9 College sails to different tropical ports of call with a faculty of world-class speakers on-board.

The K9 College Cruise is a premier educational experience for serious dog fanciers. Each year, the K9 College sails to different tropical ports of call with a faculty of world-class speakers on-board. K9 cruisers from all parts of the world come to soak up the latest in canine knowledge, along with some tropical sun. Additionally, K9 cruisers have the opportunity to discuss their individual concerns with faculty members throughout the week and enjoy meeting and mingling with fellow dog fanciers.

The K9 College Cruise is sponsored by the Lancaster Kennel Club of Lancaster, Pennsylvania, Nestlé Purina, and Dog Show Judges, a global directory of dog show judges.

This year's seminars offered something for everyone from serious breeders to fly ball enthusiasts. The faculty consisted of Dr. Carmen Battaglia presenting "Breeding Better Dogs";

Dr. Jill Cline on nutrition and immunology; Lisa Curry on law for dogs; Pat Hastings' presenting "K-9 Structure in Action" and "Tricks of the Trade"; Dr. Robert Van Hutchinson on reproduction and pediatrics; Dr. Anita Oberbauer on genetics; Mary Ray on obedience, agility and fly ball; and Turid Rugaas on the emotional lives of dogs.

The grand finale to the week of activities is the Dog Show at Sea, an event the K9 College uses as a fundraiser to benefit the AKC Canine Health Foundation. Cruisers submit photos of their dogs that are displayed on the ship throughout the week. Everyone votes (with money) for their favorite dog for the coveted title of BIS (Best In Ship). The BIS winner has the honor of choosing the CHF research project to receive the proceeds from the event. This year, the proceeds were directed to research for canine allergies.

Next year, the K9 College Cruise will sail from Ft. Lauderdale, March 11-18, aboard Holland America, with ports of call at Half Moon Cay, San Juan, St. Maarten, and Grand Turk.

Reservations for the 2012 cruise are currently being accepted. Another world-class faculty of speakers will be on-board again to present canine seminars including Dr. Deborah Greco (Endocrinology), Pat Hastings (Structure), Dr. Robert Van Hutchison (Reproduction and Pediatrics), Dr. Ron Schultz (Immunology), and more.

For more information visit www.k9collegecruise.com or email ktmarkley@comcast.net.

9th annual AKC Responsible Dog Ownership Days

This September, the American Kennel Club will host its 9th annual AKC Responsible Dog Ownership Days. Nearly 600 dog-related organizations from across the country will hold a free community event publicly promoting responsible dog ownership during the month of September, and we encourage you to join in!

Holding an AKC RDO Day event is easier than you think. All efforts are appreciated and welcomed, from hosting AKC Canine Good Citizen® testing or setting up public education table at a local dog run to creating a day-long festival with demonstrations. The AKC RDO Days web page includes many suggestions for events.

The first 500 organizations that confirm event details with us by August 1, 2011 will receive a website listing and a resource-filled packet—including pencils, stickers, brochures, a RDOD Media Idea Kit, and other giveaways that will assist you in putting together a top-notch event. To sign up to hold an event, and to ensure you receive your resource packet and web listing, visit: www.akc.org/rdod and either "Create an Account" or "login" if you've hosted a previous event.

New Club Members

New Club Members as of 5/9/11
(new since 3/9/11):

American Shetland Sheepdog Association
Australian Terrier Club of America, Inc.
Orlando Dog Training Club
Contra Costa County Kennel Club, Inc.
American Eskimo Dog Club of America, Inc.
Chattanooga Kennel Club
Mount Rainier Working Dog Club

Champions of Canine Health: CA Sharp

Years ago, C.A. Sharp fell in love with a college friend's Australian Shepherd. This same friend dragooned her into providing dog show transport. It wasn't long before C.A. wanted to do more than play chauffeur and acquired her first Aussie.

From the mid-1970s through the early 1990s C.A. and her Aussies competed in conformation and obedience. She also started reading whatever she could find on canine genetics; the science had been an interest since she learned about Gregor Mendel and his pea plants in high school. Applying it to dog breeding made perfect sense.

As a member of the Australian Shepherd Club of America's Genetics Committee, C.A. wrote a regular column for the club's magazine. Soon

people started asking questions, often about Collie Eye Anomaly. She and Betty Nelson, the committee chair, began gathering data on affected and carrier dogs, presenting it to Lionel Rubin of the University of Pennsylvania. His involvement led to a 1991 journal article describing CEA in Aussies. Years later, C.A. lent her assistance to Greg Acland (Cornell) who identified the CEA gene.

Also in 1991, C.A.'s declining eyesight required she give up driving, her country home and, consequently, Aussie breeding and competition. However, she continued her involvement in canine genetics. In 1993 she launched her award-winning newsletter, Double Helix Network News.

C.A. has written extensively on genetics and hereditary disease, initially for breeders of Australian Shepherds but now for a wider audience. Her articles are frequently reprinted and translated. She is an internationally-recognized writer and lay expert on canine genetics and hereditary disease with co-author credit on two peer-reviewed journal articles on CEA and, with Sheila Schmutz and colleagues at the University of Saskatchewan, coat color. CHF recognized C.A.'s work in 2002 with its Golden Paw Award. Recently, she has been writing a breed magazine Q&A column, short pieces for CHF, and hopes one day to write a genetics book for breeders.

For almost three decades C.A. has collected data on hereditary diseases in Australian Shepherds, providing informal genetic counseling to

breeders and owners. C.A. continues her support of canine health research, facilitating data collection as well as promoting study participation and sample submission. She remains a resource for breeders and clubs, both within and beyond her breed, not only as a writer and advisor, but as a speaker. She has appeared all over the US, in Canada, and Europe, offering day-long seminars and shorter presentations.

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C.A. is President and a founder of the Australian Shepherd Health & Genetics Institute, Inc. The organization has partnered with CHF on several grants, giving over \$50,000 to-date. ASHGI serves the Australian Shepherd community through education, a pedigree analysis service, and research fundraising and sample collection facilitation. They are currently developing an on-line open health database.

In 2007, ASCA recognized C.A.'s efforts, awarding her a life membership. She is also a member in good standing of the United States Australian Shepherd Association, the AKC parent club. C.A. lives in Fresno, California with her husband and Australian Shepherd, Kira.



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Issue 37 • Summer 2011

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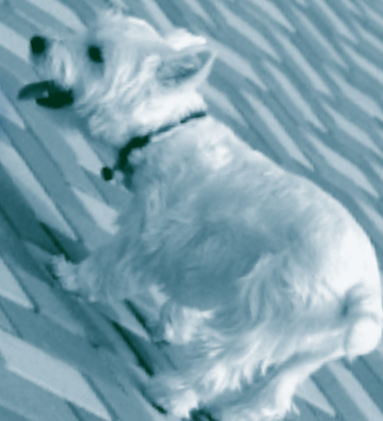
Genetic Testing: Beyond the Basics

PDP1 Deficiency

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