2007 HEALTH COMMITTEE
GENERAL MEMBERSHIP REPORT

2007 CLINIC AND SEMINAR TOTAL NUMBERS:

The total number of attendees at each clinic is as follows:
Eye CERF – 31 dogs
Heart Auscultations – 37
Heart Echo – 10
Microchip – 5
CHIC DNA repository – 19

I hope that everyone that was able to attend the dinner seminar on pedigree analysis provided by Dr. Jerrold Bell, enjoyed it and will find the information provided useful in developing their future breeding plans. The DVD is available for purchase at $30 and the sales for the first 50 DVD will go directly to Borzoi Health through the generosity of our videoaugrapher.

If there is a special topic of interest any member would like to see presented at a future national event, I would be most receptive to your ideas and recommendations. When searching for seminar topics for each year's national event, we take into consideration world leading authorities in their field of expertise that are located geographically convenient to the area the specialty is to be held in that year. This not only reduces the travel expenses that we must reimburse our speakers for, but also increases the likelihood that they will be able to take the time away from their current employment and likelihood to provide us with a seminar.

THANK YOU ☺

It is solely through the generosity of our members that the health committee is able to return so much to our membership. This generosity includes the member's gift of expertise, time and effort as well as monetary contributions. It is through this generosity that we are able to provide the membership with low cost health clinics staffed by veterinary experts and specialists in their field. We are able to offer discounted registration fees through OFA, AKC and CERF. We are able to offer reward and recognition honors for those breeders dedicated to the health, conformation and function of our breed. We are able to provide leading experts in specialized fields of study to provide us with educational seminars that cover a variety of topics of interest to our membership. We are able to contribute substantially to critical disease research grants which will significantly benefit our breed now and in the near future. We are able to continue to build upon our funds established within our CHF Borzoi Donor Advise Fund for borzoi specific research in the future. And last, but certainly not least, through all of this, we are able to provide our beloved breed with a more promising future of health and longevity as each year goes by, all because of your generosity, love and dedication to the borzoi breed. From the bottom of my heart, I thank all of you and I'm incredibly proud and honored to be a small part of this incredible group of people.

PURINA PARENT CLUB PARTNERSHIP PROGRAM

In late 2004 calendar year, we signed the BCOA up with this very beneficial program that will provide matching funds on Purina Pro Club members' weight circle points. These

matching funds go to the parent club partner to be used for funding health research or rescue activities. They can also be directly deposited into the club's Donor Advised Fund or any other specified Fund established for the benefit of health or rescue. Matching funds are calculated at fiscal year end based on the total number of weight circles submitted by Pro Club members **WHEN THEY DESIGNATE "BCOA"** as their partnership breed club. You can contact Purina Pro Club directly by phone (**1-877-PRO-CLUB)** to designate the **BCOA** as your official breed club matching partner. Information about the program can be found at:
www.purinaproclub.com
This Parent Club program in no way affects any of your personal benefits of the Purina Pro Club membership or rewards. In 2005, BCOA received $758.06 in matching funding. In 2006 we received $710.68 in matching funding thanks to those of you who have joined the program and designated BCOA as your partnership breed club. If you're a feeder of Purina kibble products and you feed at least 5 dogs, you are eligible to join the Purina Pro Club. It's well worth investigating!

CHIC PROGRAM

The health committee established the CHIC program database with the OFA in the first quarter of 2003. To date there are a total of 143 borzoi included in the database. The current required health clearances are **Eye CERF, OFA Thyroid & OFA Heart**. Optional health clearances are for Hip and Elbow Dysplasia.
This year we begin our DNA repository program. The CHIC DNA Repository, co-sponsored by the OFA and the AKC/CHF, collects and stores canine DNA samples along with corresponding genealogic and phenotypic information to facilitate future research and testing aimed at reducing the incidence of inherited disease in dogs. The objective is:

- Facilitate more rapid research progress by expediting the sample collection process
- Provide researchers with optimized family groups needed for research
- Allow breeders to take advantage of future DNA based disease tests as they become available
- Foster a team environment between breeders/owners and the research community improving the likelihood of genetic discovery

The CHIC DNA Repository has partnered with the Veterinary Genetics Lab at the University of California–Davis and the Animal Molecular Genetics Lab at the University of Missouri. UC Davis will receive and store all swab samples, and Missouri will receive and store all blood samples.

RESEARCH PROJECTS

I thought it might be beneficial to provide the membership with a bit of background as to how our support in the grant research project process works. The Canine Health Foundation (CHF) asks that each parent club provide a health liaison that they can work through. In BCOA's case, that person is currently me as directed by the president of the club and confirmed by the board of directors. At the beginning of each year, the CHF

submits inquiries to the professional field for investigatory areas of specific research interest based on health issues submitted as feed back from each of the parent club liaisons. These research inquiries are typically constrained to two year projects with very specific sets of achievable goals. Near the end of the first quarter, CHF along with the assistance of other leading experts, evaluates the merits of the requests and then circulates these to the parent club liaisons for their review and hopefully their clubs financial support. Each year, I receive anywhere from 3 to 10 individual grant requests for support consideration. Each grant specifies who the researcher will be, where they are located or what university it is associated with, how much the total grant funding request is for, how much they are asking our club to contribute, a lay description of the project and what they hope to accomplish and a technical description of the project. I thoroughly review each of these proposed grant requests and become as educated as possible regarding the subjects in order to determine their value to our borzoi breed specifically. While I submit all of the grant proposals to the board for their information, I will recommend grant proposals to them for our financial support based on the benefit our breed might receive from the study as well as how much money the health committee has available to contribute. The board reviews the proposals, my recommendations, and the finances available and makes their decision to support or abstain. Some of the grant's funding requests ask for the entire portion of support funding at the initiation of the grant and some of them divide the total contribution over a two year period. So, each year there is a cycle of grants in different phases going on that we are contributing towards. Some of these are still in the "pending" status until they become fully funded. Some are just being kicked off. Some are half way through their grant research phase and some are just completing their grant research phase. For those that are underway, each club's health liaison will receive status reports throughout the research time period. Since many of these grants involve proprietary scientific discoveries, I am required to sign a confidentiality non disclosure agreement for each grant we support. The status reports that I receive typically break down the research proposal into steps and then describe to date if they have completed these steps, added new steps, deleted any steps, had any set backs for accomplishing any steps or any breakthroughs that exceeded their expectations on any steps and then reiterate their objective and their confidence level for meeting that objective based on that date in time on the project. Every two years, the CHF holds a Parent Club Conference in St. Louis for a two and a half day event which calls upon these research experts to present to the club liaisons and foundation representatives the results of the completed research grants as well as some other topics of interest for the parent clubs. This event completes the circle and information provided here at this conference can now be shared with the public at large unless otherwise stipulated in the seminar.

In addition to the CHF research program, from time to time, I receive requests for research grants that are coordinated through the Morris Animal Foundation. Their support request and follow up process is not as elaborate or detailed as the one described above, but no less worthy and are also included in the attached list. Frequently they work in conjunction with the CHF and also financially support many of the CHF research grants.

The following pages are research grants that BCOA has funded or is funding over the time I've been the club's health chairman and CHF liaison. All these were made possible

through your generosity as well as the combined contributions of the other clubs and private foundations listed under "sponsors". There's a lot of activity on the research front now that the canine genome project is complete and analysis methods become better and faster all the time. Enjoy the read!!

University of Georgia (University)

Active Grant No: 2434:

Recombinant Thyrotropin (TSH): Standard for the Next Generation of Canine TSH Immunoassays with Improved Sensitivity

Disease(s):

Endocrine Disorders

Researcher(s):

Duncan Ferguson, DVM, PhD

Sponsor(s):

Airedale Terrier Club of America, Akita Club of America, Inc., American Belgian Malinois Club, American Boxer Charitable Foundation, American German Shepherd Dog Charitable Foundation, Borzoi Club of America, Clumber Spaniel Club of America, Collie Health Foundation, Dalmatian Club of America Foundation, Inc., English Setter Association of America, Golden Retriever Foundation, Italian Greyhound Club of America, Keeshond Club of America, Komondor Club of America, Miniature Pinscher Club of America, Inc., Norwegian Elkhound Association of America, Inc., Petit Basset Griffon Vendeen Club of America, Portuguese Water Dog Foundation, Rhodesian Ridgeback Club of the United States, Scottish Terrier Club of America Health Trust Fund, Yorkshire Terrier Club of America Foundation, Inc.

Breed(s):

Airedale Terrier, Akita, All (non-specified), Belgian Malinois, Borzoi, Boxer, Clumber Spaniel, Collie, Dalmatian, English Setter, German Shepherd Dog, Golden Retriever, Italian Greyhound, Keeshond, Komondor, Miniature Pinscher, Norwegian Elkhound, Petit Basset Griffon Vendeen, Portuguese Water Dog, Rhodesian Ridgeback, Scottish Terrier, Yorkshire Terrier

Abstract:

Hypothyroidism, a failure of the thyroid gland, is the most common hormonal abnormality in dogs, causing a variety of medical problems in many breeds, including hair loss and skin infections. The measurement of serum levels of the pituitary hormone thyrotropin (TSH) has been used as a reliable and sensitive screening test for thyroid glandular insufficiency in human medicine for many years, but the ¿first generation¿ assays for canine TSH (cTSH) are missing as many as one out of four cases of hypothyroidism, resulting in no improvement in diagnostic sensitivity compared to total T4 measurement. Furthermore, the available assays have not been sensitive enough to distinguish low values of cTSH from those in the normal range. Towards the goal of improving current and future immunoassay sensitivity based upon a pure recombinant canine TSH (cTSH) hormone standard, our laboratory has succeeded in cloning and sequencing the two peptide subunits of canine TSH and have expressed them in small quantities. Using techniques recently developed in our parallel work on equine TSH, we plan to express and purify recombinant canine TSH in high quantities and validate its use as a pure immunoassay standard to facilitate its worldwide use.

Broad Institute (Non-profitOrganization)

Active Grant No: 373A:

Mapping Genes Associated with Osteosarcoma in Large Dog Breeds

Disease(s):

Cancer

Researcher(s):

Kerstin Lindblad-Toh, PhD

Sponsor(s):

Borzoi Club of America, Forsyth Kennel Club, Golden Retriever Foundation, Great Pyrenees Club of America, Great Pyrenees Club of Puget Sound, Greyhound Club of America, Irish Setter Club of America Foundation, Irish Wolfhound Club of America, Inc., Newfoundland Club of America Charitable Trust, Rhodesian Ridgeback Club of the United States, Rottweiler Health Foundation, St. Bernard Club of America, Starlight Fund

Breed(s):
Borzoi, Golden Retriever, Great Pyrenees, Greyhound, Irish Setter, Irish Wolfhound, Newfoundland, Rottweiler, Saint Bernard

Abstract:
Eight thousand to ten thousand cases of osteosarcoma, a malignant bone tumor, are reported in dogs in the United States annually, representing a significant health concern. In the majority of cases, spread of the tumor throughout the body and death follows within a few years. Osteosarcoma affects all dogs, but the disease frequency is considerably higher in large and giant breeds, including the long-limbed hounds (Irish Wolfhound, Great Dane, Greyhound, Scottish Deerhound, Rhodesian Ridgeback, Great Pyrenees and Borzoi) and Mastiff-type breeds (Rottweiler, Labrador Retriever, Flat-Coated Retriever, Golden Retriever, Mastiff, Bullmastiff, Saint Bernard, Irish Setter, and Newfoundland). It is clear the genetics play an important role. We propose to identify the genetic risk factors for osteosarcoma in two breeds: Greyhound and Rottweiler. While certain characteristics of these two breeds make them ideal to study, we expect that the genes identified in these breeds may also be associated with osteosarcoma in related breeds. This study should lead to the development of genetic tests for osteosarcoma that could be used to eliminate carriers from breeding populations, eventually reducing the frequency of this devastating cancer. Ultimately, it could also lead to improvements in treatment of osteosarcoma.

University of Utah (University)
Active Grant No: 305:
Histocompatibility Alleles Conferring Susceptibility to Canine Diabetes, Immune-Mediated Thyroiditis and Immune-Mediated Hemolytic Anemia

Disease(s):
Autoimmune Disease

Researcher(s):
Wayne Potts, PhD

Sponsor(s):
Alaskan Malamute Club of America, Inc., American Belgian Tervuren Club, Inc., American German Shepherd Dog Charitable Foundation, American Spaniel Club Foundation, Australian Terrier Club of America, Borzoi Club of America, French Bulldog Club of America Rescue League, Golden Retriever Foundation, Health & Rescue Foundation of the Petit Basset Griffon Vendeen Club of America, Irish Wolfhound Club of America, Inc., Keeshond Club of America, Kerry Blue Terrier Foundation, Pekingese Charitable Foundation, Plum Creek Kennel Club of Colorado, Rottweiler Health Foundation, Samoyed Club of America Education & Research Foundation, Westie Foundation of America, Inc.

Breed(s):
All (non-specified), Belgian Tervuren, French Bulldog, German Shepherd Dog, Golden Retriever

Abstract:
Autoimmune diseases cause significant amounts of mortality and debilitating disease in dogs. In humans many autoimmune diseases occur only in individuals expressing one of the few predisposing histocompatibility genes. For example, all cases of type I diabetes in humans are associated with only a few of the many alleleic forms of class II histocompatibility genes. Consequently, if the frequencies of these few alleles were reduced by half, the incidence of diabetes would be reduced by half. Here we propose to characterize histocompatibility susceptibility alleles for three major, heritable canine autoimmune diseases - diabetes, immune-mediated thyroiditis and immune-mediated hemolytic anemia. If any of these three debilitating (or lethal) autoimmune diseases have a restricted number of susceptibility alleles it will allow: (1) development of diagnostic tests for identifying individuals at risk for prophylactic therapy and research and (2) reduction of he incidence of the disease by selective breeding of individuals carrying the predisposing histocompatibility alleles. For each of the

three autoimmune diseases, we propose to collect DNA samples from approximately 100 purebred dogs diagnosed with the disease. Histocompatibility genes will be cloned and sequenced for each dog for a total of approximately 1100 sequences. Histocompatiility alleles will be tested for significant associations with each of the autoimmune diseases

University of Wisconsin - Madison (University)

Completed Grant No: 2629:

Clinical and Immunological Outcomes in Dogs with Osteosarcoma Treated with Intratumoral Interleukin-12 Microspheres

Disease(s):

Cancer

Researcher(s):

Stuart Helfand, DVM

Sponsor(s):

Akita Club of America, Inc., American Bloodhound Club, American Boxer Charitable Foundation, American Bullmastiff Association, American German Shepherd Dog Charitable Foundation, Borzoi Club of America, Flat-Coated Retriever Foundation, Golden Retriever Foundation, Great Pyrenees Club of Puget Sound, Irish Wolfhound Club of America, Inc., Irish Wolfhound Foundation, Jeffrey Pepper, Newfoundland Club of America Charitable Trust, Rottweiler Health Foundation, St. Bernard Club of America, Starlight Fund

Breed(s):

Akita, All (non-specified), Boxer, Bullmastiff, Flat-Coated Retriever, German Shepherd Dog, Golden Retriever

Abstract:

Appendicular osteosarcoma, or bone cancer of the limbs, is an important tumor in dogs representing nearly 10 percent of all canine cancers. Despite progress in treating canine osteosarcoma using a combination of limb amputation and chemotherapy, life expectancy is not usually extended by more than 6-10 months compared to amputation alone. Death is due to dissemination of cancer cells beyond the leg and it is estimated that the cancer has already spread in at least 95 percent of dogs when it is initially diagnosed. Novel treatment regimens are urgently needed to improve the lives of large breed dogs such as Golden, Labrador and other Retrievers, Rottweilers, Irish Wolfhounds, Great Danes, German Shepherds and others that are at greatest risk for developing this cancer. Stimulating the immune system of dogs with cancer has been a goal of veterinary cancer researchers for more than 20 years and osteosarcoma is a tumor that has shown positive responses to some of these interventions. This research proposes to add a potent new form of immunostimulation to the standard treatment for canine osteosarcoma. This strategy uses a powerful stimulant of the immune system called interleukin-12 (IL-12) that has been shown to induce strong antitumor responses in experimental animal models. Stimulated by IL-12, immune cells tolerant of cancer can be triggered to specifically kill cancer cells throughout the body. What¿s more, the cells have long-term memory for the specific cancer. Our laboratory has shown that IL-12 enhances killing of osteosarcoma cells by immune cells from dogs. We propose that injection of IL-12 directly into limb osteosarcoma using a novel (microsphere) formulation resulting in slow IL-12 release within the tumor environment will promote active antitumor immunity in dogs with osteosarcoma and lengthen their survival time. A number of pertinent immunological questions will also be addressed.

Ohio State University (University)

Active Grant No: 632:

MicroRNAs and Canine Lymphoma

Disease(s):

Cancer

Researcher(s):

William C Kisseberth, DVM, PhD

Sponsor(s):

Akita Club of America, Inc., American Belgian Malinois Club, American Boxer Charitable Foundation, American Bullmastiff Association, American German Shepherd Dog Charitable Foundation, Bernese Mountain Dog Club of America, Borzoi Club of America, Chinese Shar-Pei Charitable Trust, Collie Health Foundation, Doberman Pinscher Club of America, Flat-Coated Retriever Foundation, French Bulldog Club of America, Golden Retriever Foundation, Labrador Retriever Club, Orthopedic Foundation for Animals, Portuguese Water Dog Club of America, Inc., Portuguese Water Dog Foundation, Rhodesian Ridgeback Club of the United States, Rottweiler Health Foundation, San Joaquin Kennel Club, Scottish Terrier Club of America Health Trust Fund, St. Bernard Club of America, Starlight Fund

Breed(s):

All (non-specified), Boxer, Portuguese Water Dog

Abstract:

Lymphoma is one of the most common cancers in the dog. Current methods of classifying lymphoma neither explain nor predict its variable clinical behavior. Much of the progress in diagnosis, prognosis, and treatment of lymphoma and other cancers in people has been the result of advances in ¿genomics.¿ Recently the canine genome has been sequenced, providing the opportunity to apply new genomic approaches to better understand and treat cancer in the dog. MicroRNAs (miRNA) are small non-protein coding molecules that have been implicated in humans as having an important role in cancer and a variety of other diseases. In this study, we will identify miRNAs using bioinformatic methods. We will then use miRNA microarrays to analyze normal canine tissues and canine lymphoma biopsies. These results (miRNA expression profiles) will be correlated with histologic diagnosis and clinical parameters. The goals of this study are to identify canine miRNAs and their normal patterns of expression and to determine if specific histologic subtypes of lymphoma are characterized by unique miRNA expression profiles, if specific miRNAs have prognostic significance, and to identify potential targets for future investigation and therapies. This study will also generate new tools for future miRNA investigation in the dog

University of California, Davis (University)

Active Grant No: 634:

Genetic Determinants of Canine Malignant Melanoma

Disease(s):

Cancer

Researcher(s):

Michael S. Kent, DVM

Sponsor(s):

Akita Club of America, Inc., American Boxer Charitable Foundation, American German Shepherd Dog Charitable Foundation, American Miniature Schnauzer Club, Inc., Borzoi Club of America, Doberman Pinscher Club of America, Flat-Coated Retriever Foundation, Golden Retriever Foundation, Greyhound Club of America, Irish Water Spaniel Club of America, Labrador Retriever Club, Scottish Terrier Club of America Health Trust Fund, Soft Coated Wheaten Terrier Club of America, Inc., Standard Schnauzer Club of America

Breed(s):

All (non-specified), Boxer

Abstract:
Malignant melanoma in the dog is a highly aggressive cancer that affects many breeds of dog. Despite intensive therapy with radiation therapy, surgery and chemotherapy, it is often rapidly fatal. It is essential that new treatment protocols be developed for this devastating disease. With the information available from the canine genome project it will now be possible to identify the genes which make canine malignant melanoma such a challenge. Through the use of a canine specific array we plan to identify a genetic profile for malignant melanoma. This will allow the use of newly developed drugs aimed at these abnormally expressed genes to be tested. Not only do we plan to identify specific pathways involved in making this tumor so malignant, but we also plan to develop a profile of 5-20 genes that can act as a marker for disease presence. We will then test if this profile will be a useful diagnostic test to identify metastasis and predict prognosis by using the array to look for the presence of circulating tumor cells or RNA in the blood.

Oregon Health Science University (University)
Pending Grant No: 774:
Identifying a Gene for Atrial Fibrillation in Irish Wolfhounds
Disease(s):
Heart Disease
Researcher(s):
Petra Jakobs, PhD
Sponsor(s):
Borzoi Club of America, French Bulldog Club of America, Irish Wolfhound Club of America, Inc.
Breed(s):
Irish Wolfhound
Abstract:
The overall goal of our work is to identify the gene that causes canine genetic cardiomyopathy. Rapid progress in the canine genome project, i.e., obtaining the DNA sequence, has made gene mapping possible. We will study a large family of Irish Wolfhounds with heart disease, that usually involves both atrial fibrillation (AF) and dilated cardiomyopathy (DCM). We have identified a region on canine chromosome 23 that causes AF/DCM in the Irish Wolfhounds. We propose to screen candidate genes in the linked area for mutations to identify the gene causing this devastating heart disease in the Irish Wolfhounds. Once a mutation has been found a genetic test will be developed to aid carrier detection.

MORRIS ANIMAL FOUNDATION

D06CA-066 *Mapping Genes Associated with Canine Mast Cell Tumors*
Established Investigator Grant
Kerstin Linblad-Toh, Ph.D., The Broad Institute, Year 1 of 2: $95,563

Mast cell tumors (MCT) are the most common skin tumors in dogs. Survival rates are dependent upon the tumor grade. While dogs with grade 1 tumors often experience long-term survival, those with grade 3 tumors usual die within six months. This cancer has a particularly high occurrence in certain breeds, which suggests a significant genetic component. This study will use a new approach to identify genes that contribute to an increased risk of developing mast cell cancer in golden retrievers and related breeds. Identifying these genes will help scientists rapidly develop genetic tests that would indicate a predisposition to this cancer and would help develop therapeutic strategies based on tumor grade.

OFA BORZOI STATISTICS (Registered)

BORZOI

Registry	Rank	Evaluations	Percent Abnormal	Percent Normal
CARDIAC	16	596	0.8	96.1
ELBOW	N/A	59	1.7	98.3
HIPS	145	789	1.8	98.1
PATELLA	N/A	12	0.0	100.0
THYROID	19	424	8.0	78.3

The above graph rankings represent where Borzoi fit into the total OFA registered breeds with disease incidence in each of these categories based on the total number of evaluations submitted to OFA for each breed that submits results for these particular diseases. So, for example, in the first line "cardiac", there are a total of 63 breeds tracking heart disease. Of these 63 breeds there are only 15 breeds with a higher significance/incidence of heart disease registered with OFA than borzoi based on the percentages of abnormal result within the total number of submissions.

Respectfully submitted,
Ginger Jones
BCOA Health Chairman