



The Rottweiler Health Foundation is a registered non-profit (1997; tax ID 62-1699829) devoted to the financial support of research for the health and longevity of our dogs. **All donations, including membership dues, are tax deductible.**

To read RHF's goals and objectives, visit us on the web: <http://www.rotweilerhealth.org>

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Inside this issue:

President's Message	3
Circle 2000 News	4
DNA Collection/ RHF Auction	5
CHF Letter/SAS	6
Welcome/Thank You!	7-10
Grant Abstracts 2017 CHF Conf.	10-12
ACL Grant: Final Report	13

RHF HealthNotes

Fall 2018

From the Editor

Oh my, how time flies!!! I had hoped to get a Summer issue out, but life got in the way...hate when that happens!

In this issue we are saluting all the annual members and donors who have assisted us in our continued support of critical health research grants in calendar year 2018. Our membership year is July 1 - June 30; thank you to those of you who renewed your RHF membership or joined us this year.

The donor list (Pages 7-10) was compiled representing donations received from **January through end of September 2018**. I would like to thank our Membership Chair, Ellen Calnan, and Treasurer, Lin Beenan, for working together to create a comprehensive list of donors. Please let me know if you made a donation to RHF in calendar year 2018 prior to September 30, but don't find your name on the roster. I will be sure to highlight you in the next issue!

We do have a **new nominee and some nominees who still need your support for induction into the Circle 2000** so please check out Page 4 and consider donating in the name of a current Nominee.

In this issue I have included Grant Abstracts from the 2017 CHF National Parent Club Canine Health Conference that address Epilepsy in Rottweilers. New studies indicate that nutrition and supplementation can have a beneficial effect on the efficacy of antiepileptic drug treatment of Epilepsy.

HealthNotes Editor,
Pam Grant

SAS Study Rottweilers Needed

Subvalvular Aortic Stenosis in Rottweilers Research

Breeders and owners of normal and affected Rottweilers may take part in the subvalvular aortic stenosis research underway at University of California – Davis. Led by Dr. Joshua Stern, the goal of the study is to identify the mutation that causes the cardiac disease SAS in the breed.

To participate in the research, please contact Dr. Stern at jstern@ucdavis.edu. He will provide enrollment forms and details about submitting: a 3-generation pedigree; blood sample in EDTA; echocardiography report with aortic flow velocity information.



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Find us on 



The Rottweiler Health Foundation counts on the support of its members to help improve the quality of life for Rottweilers and their human companions.

Gifts of at least \$50 are credited as annual membership dues.

All gifts and dues are tax deductible.

The member year is July 1 to June 30.

Join now or renew:

Pay online:

www.rotweilerhealthfoundation.wildapricot.org/donate

Or Mail donations to:

Ellen Calnan, 3752 Rodeo Rd, Missoula, MT 59803.



Did you know you can donate to RHF when you shop on Amazon?

Make your purchases at www.smile.amazon.com and choose Rottweiler Health Foundation as your charity. RHF will receive 10% of your purchase total.

CIRCLE 2000 NEWS

New Nominee

Francie Delony



Outstanding Nominations

**Marie Zeak
Becky Muche**



Monica Silvers

**Online Donations: www.rottweilerhealthfoundation.wildapricot.org/donate
Or Mail to: Ellen Calnan, 3752 Rodeo Rd., Missoula, MT 59803**

Greetings!

This edition of our newsletter will have a report about our extremely successful DNA Collection which we held this year at the ARC 2018 National. I'd like to take this opportunity to express the RHF's appreciation to all who participated and especially to those that volunteered to help. A big THANK YOU to Michelle Amtower for heading up this complimentary DNA blood draw to aid the AKC Canine Health Foundation's efforts in collecting samples for future use.

This year seems to be quickly disappearing. Before we know it, the holidays will be here. To that I say . . . BRING IT! With the holidays my mind turns to cooler weather (yay!) and shopping. The RHF has some exciting possibilities to look forward to:

- ◆ We will be having a Fall Facebook online auction. (Have you "Liked" us on Facebook?) Make sure you don't lose out on some incredible collectables that will be offered.
- ◆ We're looking into offering clothing items, silkscreened and/or embroidered, with the RHF logo. Would you be interested? If so, let us know what you'd like to see offered.
- ◆ We'll also have a very special surprise item that will be available at the live auction during the ARC 2019 National in Aurora, Colorado. This will be a one-of-a-kind work of art. Stay tuned for the unveiling.

On behalf of the Rottweiler Health Foundation I'd like to ask you if you've considered a bequest to the RHF? We just received notification of Francie Deloney's kindness in remembering the RHF in her will. Francie had made plans and entries to attend the ARC 2018 National. Unfortunately, she passed just prior to the show. She will be missed so very much for several reasons - friendship being foremost. But, her love and commitment to the Rottweiler is true to who she was. Thank you, Francie, for your friendship and this last act of love for the Rottweiler. Bless her.

As always, the RHF is striving to help eradicate hereditary defects, diseases, injuries and other ailments that afflict dogs in general and the Rottweiler in particular. We support and promote the study of and research on the history, character, varieties, breeding, and genetics by helping to establish a national database of resource materials about Rottweilers. In this endeavor we can only do as much as your assistance allows us to. Please consider joining us in our fight for the Rottweiler.

Roberta
President, Rottweiler Health Foundation



Our Mission

To raise money to fund critical research into the genetic, communicable and acquired diseases that plague our beloved breed; the Rottweiler

2018 National DNA Collection - Michelle Amtower

The CHIC DNA Repository 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.

Objectives

- 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.

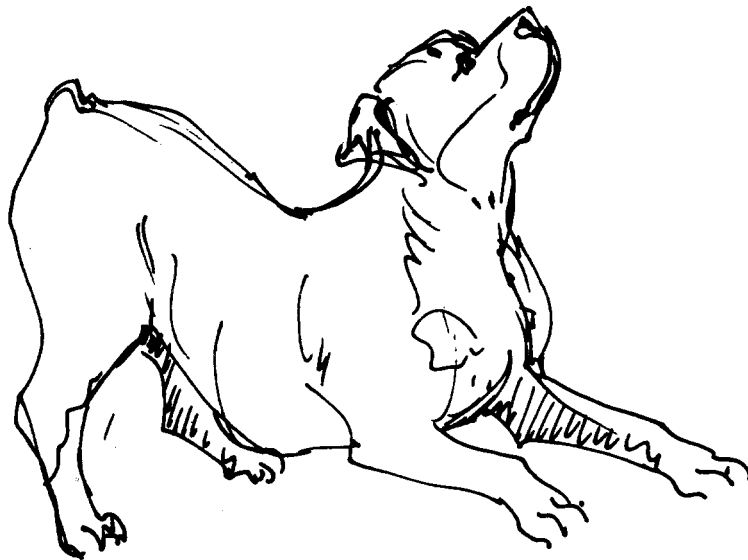
We had a quite successful DNA collection at the 2018 ARC National Specialty; 78 samples were banked with the OFA / CHIC database!

A big thanks to Jeff Shaver, Amy Jenkins, and Mark Elvington for lending a hand. Jeff made a fabulous peanut butter dispenser and Amy kept the paperwork straight for all three days.

I would also like to extend a big thank you to Pat Carkoski for the tags (zipper pulls, key tabs, etc) they were a HUGE hit with the owners whose dogs gave samples. Thank you, also to Jon Serabia for driving the samples to the lab in Columbia, saving us a large amount of money for shipping.

The Board of the Rottweiler Health Foundation would like to thank everyone who donated items for the RHF auction at the ARC National Specialty. The club baskets and individual items brought in a total of \$3,798.35 that will be used to fund future health research grants to benefit the well-being of our beloved Rottweilers.

Thank You!





Dear Roberta,

Thank you for supporting this research program. Please click on the link below for a progress update on Dr. Stern's AKC CHF grant #02520-MOU.

Kind regards,

Andrea Fiumefreddo 

Andrea Fiumefreddo, MS

Director of Programs

919-334-4022

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AKC Canine Health Foundation

RESEARCH PROGRESS REPORT SUMMARY Grant 02520-MOU: Identification of Genetic Markers for Familial Subvalvular Aortic Stenosis in Rottweilers Principal Investigator: Joshua Stern, DVM, PhD Research Institution: University of California, Davis

Grant Amount: \$44,320.00 Start Date: 2/1/2018 End Date: 1/31/2020 Progress Report: Mid-Year 1 Report Due: 7/31/2018 Report Received: 8/24/2018 (The content of this report is not confidential and may be used in communications with your organization.) Original Project Description: Subvalvular Aortic Stenosis (SAS) is a heart defect characterized by a fibrous ridge located below the aortic valve. Affected dogs are at risk of developing heart valve infections, congestive heart failure or sudden death. Severely affected dogs have an average lifespan of 19 months. SAS is an inherited heart problem reported in Rottweilers. The goal of this research is to identify causative genetic mutations and develop a reliable genetic test for this condition in Rottweilers, to aid breeders in making informed decisions to reduce the prevalence of this condition. Once a chromosomal region of interest is identified via a genome wide association study (GWAS), whole genome sequencing (WGS) will be employed to identify variants associated with SAS. The top variants identified via WGS will be submitted for Sequenom analysis to prioritize variant pursuit. Funding for the research is provided through the collaborative efforts and generosity of the Rottweiler Health Foundation. The AKC Canine Health Foundation supports the funding of this effort and will oversee grant administration and scientific progress reports. Publications: None at this time. Presentations: Poster: Identification of genetic markers for familial subvalvular aortic stenosis in Rottweilers. Conference: The 2018 National Veterinary Scholars Symposium

Report to Grant Sponsor from Investigator: Subvalvular aortic stenosis (SAS) is one of the most common inherited heart problems reported in Rottweilers. For this study we aim to report the top variant(s) associated with SAS in this breed. The first phase of this study was to collect 48 affected and 48 controls Rottweiler samples. We plan on attending Rottweiler National and Regional shows to collect affected samples for this study in the fall. We also began to analyze pedigree's and cardiac health records submitted for affected and equivocal. We generated a preliminary pedigree for a family of 48 Rottweilers to elucidate possible modes of inheritance. Additionally, we submitted affected and control samples for genotyping on the Illumina Canine HD 230k SNP BeadChip. This allowed us to complete a preliminary genome-wide association study (GWAS) analysis using binary additive model of association for moderate and severely affected Rottweilers. We have also selected and submitted six affected and six control Rottweiler samples for whole---genome sequencing. Once sequencing results are received, we will proceed with Bioinformatics analysis.

Welcome and Thank You!!!

The Rottweiler Health Foundation would not exist without the donations of members and supporters. Without you we would not be able to continue to fund the research grants that work to develop cures for the diseases that adversely impact the quality of life and longevity of our breed. We would like to take this opportunity to welcome our newest annual members and thank each and every one of you who has chosen to be an RHF member, donor and supporter in 2018.

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Tina Scott	Michelle Tribble	Karol M Yamamoto

Susan Yanoff	Estate of Francie Delony	Rottweilers In ALASKA
Margaret Yanta	Iron Warriors Motorcycle	Facebook Group
Perri & Andrew Yinger	Club, East Bay Chapter	SeaStar Strategies LLC
Tricia Yonker	Medallion Rottweiler Club	Sierra Rottweiler Owners
Pamela Zavidny	Network for Good	Southwestern Rottweiler
Carolyn Zembrodt	Rottweiler Club of Canada	Club of San Diego
CancerQ	Rottweilers and Friends	Weismann Technologies,
Colonial Rottweiler Club	Facebook Group	Inc



Epilepsy & Nutrition - Rowena Packer, PhD

Dr. Rowena Packer is a BBSRC Future Leader Research Fellow at the Royal Veterinary College (RVC), University of London. Her main research interest is canine inherited disease. Her research explores the impact of epilepsy on dog behavior and cognition, improving the treatment of epilepsy including nutritional management, the relationship between stress and epilepsy, and the impact of epilepsy on carriers. Dr Packer is a co-Investigator with Dr. Holger Volk on CHF Grant 2252: Investigating a Ketogenic Medium Chain Triglyceride (MCT) Supplement for the Treatment of Drug Resistant Canine Idiopathic Epilepsy and Its Behavioral Comorbidities

PRESENTATION ABSTRACT

Every practitioner and breeder has had the experience dealing with a dog with epilepsy. Most veterinary practitioners also have had the experience that despite an ever increasing number of available Antiepileptic drugs, the majority of dogs will continue to seizure and suffer from quality of life limiting side effects. Epilepsy is not caused by one single disease, it can be caused by a plethora of disease processes. Recurrent seizures are the basis for the definition of epilepsy and seizures can be seen as the cardinal clinical signs. As epilepsy is a complex, multifactorial brain disease, new management strategies should reflect this and new more multimodal (holistic) approaches to epilepsy management are needed. The 'right mix' in epilepsy management usually needs to include antiepileptic drug(s) medication tailored to the individual case, a balanced and potentially specialized nutrition plan, a reduction of potential seizure triggers and stress factors, and a treatment plan for comorbidities. The role of nutrition in epilepsy management is currently heavily debated. Until recently there has been only anecdotal evidence that nutrition can influence seizure control. It has been known that salt content in a diet can influence pharmacokinetics of the antiepileptic drug potassium bromide. However, that nutrition could have a direct impact on epilepsy management has just recently been shown. A ketogenic diet based on medium chain triglycerides (MCT) has recently been shown to improve seizure control and reduce behavioral comorbidities in some dogs with idiopathic epilepsy when fed as an adjunct to antiepileptic drug treatment. Fourteen percent of dogs became seizure free when fed the MCT diet and 48% of dogs showed a 50% or greater reduction in seizure frequency. New management options are needed for epilepsy and nutrition might play one factor in its successful management.

Exploring the Role of the Gut Microbiome in Epilepsy

Karen Munana, DVM, PhD, DACVIM-Neurology

Dr. Karen Munana joined the faculty of North Carolina State University College of Veterinary Medicine in 1994, where she currently holds the rank of Professor of Neurology. She is a diplomate of the American College of Veterinary Internal Medicine, subspecialty of Neurology. Dr. Munana's research interest is canine epilepsy, with a focus on evaluating the effectiveness of novel anti-seizure therapies and understanding why some dogs respond poorly to treatment. Her research frequently involves clinical trials, in which a new treatment or diagnostic tool is evaluated on epileptic dogs from the community.

Current CHF Grant — 2249-A: Studying the Role of the Gastrointestinal Tract in Canine Epilepsy

PRESENTATION ABSTRACT

Epilepsy is the most common nervous system disorder of dogs, affecting up to 0.75% of the canine population. Approximately one-third of dogs with epilepsy fail to achieve adequate seizure control with anti-seizure medication, and are considered to have drug resistant epilepsy. These dogs are known to have increased disease complications and a shorter lifespan associated with poor seizure control, and account for much of the financial burden of epilepsy management.

Drug resistance in epilepsy is thought to involve both genetic and environmental factors, but the mechanisms that lead to drug resistance are poorly understood.

Within the past several years, there has been extensive research on the relationship between the gastrointestinal tract and nervous system. The term "microbiota-gut-brain axis" is used to describe the complex bi-directional signaling that occurs between the gastrointestinal tract and the nervous system, and emphasizes the newly recognized role of intestinal microbes in these interactions. This system is considered vital for maintaining health, and can influence an individual's susceptibility to disease. For example, alterations in the population of intestinal bacteria of the *Lactobacillus* group are thought to play a role in the development and progression of several neurological disorders, including anxiety/ depression, autism, multiple sclerosis and Alzheimer's disease. *Lactobacillus* bacteria are capable of producing gamma-aminobutyric acid (GABA), one of the main chemicals used to transmit signals in the brain, and an increase in GABA levels in the gastrointestinal tract is associated with increased levels in the brain. Oral administration of *Lactobacillus* microbes has been demonstrated to have a beneficial therapeutic effect in experimental models of neurological disease, as well as in recent clinical trials on depression and anxiety disorders in humans.

An unexplained link between disorders of the gastrointestinal tract and epilepsy has been recognized for some time. Humans with gluten sensitivity can have numerous neurological symptoms, including seizures, and children with celiac disease are at increased risk for developing epilepsy. Furthermore, a recent large scale study demonstrated that adults with newly diagnosed inflammatory bowel disease have a greater risk of developing epilepsy compared to a similar group of people without gastrointestinal disease. This recognized association between disease of the gastrointestinal tract and epilepsy led us to hypothesize that alterations in intestinal microbes might influence the development and progression of epilepsy similar to what has been described for other neurological disorders. We are currently undertaking a study that aims to explore differences in intestinal bacterial populations among epileptic dogs and healthy housemates, and evaluate how antiepileptic drugs affect the growth rates of intestinal bacteria. The study will provide preliminary information on the relationship between gastrointestinal microbes and epilepsy. Research in this area has the potential to further our understanding of epilepsy and drug resistance in dogs, and ultimately lead to more successful management of the disorder.

Searching for Genetic Risk Factors for Canine Epilepsy in Whole Genome Sequences

Gary Johnson, DVM, PhD

Gary S. Johnson joined the faculty in the University College of Veterinary Medicine at the University of Missouri in 1980. For the first 10 years at the University of Missouri, Dr. Johnson's research focus was on the biochemistry of von Willebrand's disease and other bleeding disorders of dogs. Since then, his research goals have been to identify the molecular genetic causes for a variety of heritable canine diseases including epilepsy.

Current CHF Grant — 2257: Identification of Genetic Risk Factors for Canine Epilepsy

PRESENTATION ABSTRACT

Epilepsy is a neurological disorder characterized by recurrent seizures. I will present background information about epilepsy in the dog, describe various subtypes of canine epilepsy and how they relate to other episodic canine diseases, and summarize our current understanding of the disease mechanisms that underlie seizures. Also, I will provide conclusions about the effect of gender and age on the risk of developing epilepsy, based on information about the >2000 epileptic dogs that provided samples for our DNA repository. In addition, I will summarize past efforts by us and others to identify mutations responsible for canine epilepsy.

Next I will provide background information about the canine genome. I will go on to describe recent advances in genome sequencing and analysis as well as the limitations that currently prevent the routine clinical use of this technology. I will also point out some examples where we and others have used whole genome sequencing to identify the mutations responsible for a variety of heritable canine diseases.

Finally, I will give an updated progress report of our ongoing efforts to use whole genome sequencing to identify genetic risk factors for canine epilepsy. The initial funds for this investigation were provided by the AKC Canine Health Foundation. The two Specific Aims for this grant were (1) to identify genetic risk factors that are contributing to the development of epilepsy within individual breeds and (2) to identify genetic risk factors that are contributing to the development of epilepsy across breeds. Specific breeds were not specified in the initial grant application. Individual breeds have been chosen for study based on the availability of DNA from same-breed epileptic dogs that can serve to validate risk factor candidates. Recently, additional funds have been provided through a breed-specific "add-on" to the grant from the AKC Canine Health Foundation and directly from a Breed Club-associated Foundation. Thus, the investigation has been expanded to include an emphasis on finding epilepsy risk factors in Standard Schnauzers and Poodles.

[The Abstracts provided in these pages are from the AKC Canine Health Foundation 2017 Parent Club Canine Health Conference. Donna Rice, RHF/CHF Liaison, attended. The lecture content slides were not provide to attendees in 2017 as had been done previously, so we are unable to provide more in-depth information. If you wish to read more on one of these Grants you can go to the AKC/CHF website and search by Grant # or name of researcher.]



Our Mission
To raise money to fund critical research into the genetic, communicable and acquired diseases that plague our beloved breed: the Rottweiler

Closed Grant:
CHF-p1533-A

Development of a Canine Stifle Computer Model for Evaluation of Cranial Cruciate Ligament Deficiency

1

Grant Duration:

Disease(s): Cruciate Ligament Rupture

Sponsor(s): Newfoundland Club of America Charitable Trust, **Rottweiler Health Foundation**

Researcher(s): Dr. Gina Pertocci, PhD, University of Louisville

Final Report:

Cranial cruciate ligament (CrCL) deficiency is one of the most common orthopedic problems in dogs, having an economic impact of more than \$1 billion in the United States in 2003. CrCL rupture is common in some breeds while unlikely in others; Newfoundlands (8.9%), Rottweilers (8.3%), and Labrador Retrievers (5.8%) have the greatest prevalence of CrCL rupture. Despite such high prevalence, CrCL deficiency is still poorly understood and is thought to be due to a degradation process and not the sole result of trauma. The specific aims of our study were 1) to develop a canine pelvic limb 3D computer simulation model of the stance phase of canine walking for the CrCL-intact and CrCL-deficient stifle and 2) to investigate the influence of anatomical and biomechanical characteristics on stifle biomechanics and the likelihood of CrCL deficiency.

A 3D pelvic limb computer model, focusing primarily on the stifle, was developed and verified in our study. Our model was developed using CT imaging to depict the pelvic limb anatomy and gait analysis to characterize the kinematics and kinetics of a single canine subject during walking. We used our model to evaluate stifle ligament loads and tibial translation and rotation in the intact and CrCL-deficient stifle during simulated walking. The CrCL was found to be the primary intact stifle load-bearing ligament (peak load of 41% body weight occurring at 10% stance), and the caudal cruciate ligament was the primary CrCL-deficient stifle load-bearing ligament (peak load of 183% body weight occurring at 50% stance). In the CrCL-deficient stifle, peak tibial translation was 20.1 mm and peak tibial internal rotation was 8.8°, both occurring at 50% stance. Our model predicted tibial cranial translation and tibial internal rotation in reasonable agreement with previous in vitro and in vivo canine studies. This model provides a noninvasive visualization and quantitative analysis of stifle biomechanics and was used to investigate anatomical characteristics and biomechanical parameters such as body mass, ligament stiffness, etc. to gain an understanding of their role in producing conditions that predispose dogs to CrCL deficiency. Factors identified as having an influence on ligament loading and stifle stability are key to an improved understanding of the etiology of CrCL deficiency. Although beyond the scope of this study, our long-term research goal is to utilize our model towards an evidence-based assessment of surgical procedures used to stabilize the stifle following CrCL rupture.