



AMERICAN KENNEL CLUB

IN SESSION

AKC'S CONGRESSIONAL NEWSLETTER

The American Kennel Club's Newsletter for Members of Congress and their Staff

PERSPECTIVES

*We're more than champion dogs...
We're the dog's champion.*

For more than 135 years, the American Kennel Club (AKC) has been committed to the health and wellbeing of all dogs. Nobody has greater expertise, commitment or does more for dogs than the AKC.

No species of mammal is more diverse than the canine. Each breed has a unique history – and often, a tradition that also reflects the history and bond with the diverse peoples and lifestyles that impacted its development.

AKC's mission includes protecting and advancing the wellbeing of some two hundred distinct breeds of dogs. Every one of these historic breeds is worth preserving and celebrating. Some breeds are very popular pets today (see newly released breed popularity rankings p 5), while others are extremely rare and even face extinction. Protecting and educating about dogs and the breeds is a big job: No two breeds have exactly the same ideal standards and requirements. Similarly, when it comes to canine policy, arbitrary one-size-fits-all requirements can undermine

Continued on next page

INSIDE

Perspectives.....	1
Congressional Spotlight.....	1
Policy.....	3
AKC News.....	5
Health.....	10

CONGRESSIONAL CANINE SPOTLIGHT

Representative

Angie Craig



Photos courtesy Representative Angie Craig

Throughout the COVID pandemic, Summitt, Congresswoman Angie Craig's (MN-2) twelve-and-a-half-year-old AKC registered Golden Retriever has kept herself busy. Between her walks to the bridge behind the Congresswoman's house and making sure that she is a part of every single campaign photo, Summitt is dog tired.

This is one of the reasons the Golden Retriever stays home in the Land of 10,000 Lakes. Plus, says the Congresswoman, Summitt needs to make sure the family's cat doesn't get too comfortable and think she's the one who runs the house!

But the Craig family wouldn't have it any other way. Summitt's goofy sense of humor and antics keep them constantly entertained. For example, when they have guests over, Summitt thinks she can suction their patio door open from the inside with her tongue. The Congresswoman notes, "she has us in stitches every time we have guests over as she tries to let herself out!"

According to Rep. Craig, her staff believes that Summitt is named after her favorite Minnesota beer, however, she is actually named after legendary

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the wellbeing of some animals and do not make good laws. This is one of the reasons that experts at AKC oppose aspects of the so-called “Puppy Protection Act, S. 1385/H.R. 2840. The AKC Government Relations team is always available to advise and assist policymakers in understanding animal husbandry best practices, science and nuance necessary for crafting reasonable and non-discriminatory laws that protect dogs, responsible dog owners and the public. To learn more, visit p. 3.

AKC events (22,000 in an average year) celebrate breed diversity and standards in conformation dog shows and showcase athleticism and agility and the bond we develop in training with events like agility, field trials and coursing. But our commitment goes far deeper. For example, did you know?

AKC Canine Health Foundation is the world’s largest funder of research that focuses on all aspects of the physical, mental and social wellbeing of all dogs -- with grants of nearly \$60 million to leading universities and research institutes date?

AKC has a dedicated team of field agents who visit and inspect kennels to educate breeders and ensure proper care and conditions of AKC registered dogs? Since 2000, AKC has conducted more than 70,000 inspections nationwide.

AKC’s Detection Dog Task Force works to help address the shortage of high-quality U.S. bred and trained explosive detection dogs to protect public safety and national security.

We invite you to learn more about us (see p. 4) and to take advantage of the expertise we have to offer.

All the best,



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women’s head basketball coach Pat Summitt, who coached at the University of Tennessee.

On a serious note, Rep. Craig says, “Our dogs are members of our families, but they are also a significant responsibility.” She continues, “from keeping them healthy and happy to ensuring they have proper training and socialization, we all have to make sure we’re up to the challenge – not only for our pets, but for our communities.”

And Summitt is definitely a member of the Craig family. The Congresswoman notes she has four sons but named her charitable giving foundation and congressional leadership Political Action Committee after Summitt. “That might give you some indication about who the favorite really is,” says Craig. And even though Summitt stays home in Minnesota, the Congresswoman gets plenty of canine love while she is in the nation’s capital: Her staff bring their dogs to the office, so there is always a dog around for company on stressful days.

Growing up, Congresswoman Craig’s family always had dogs. Her mother raised AKC-registered poodles, and that began her love for dogs of all kinds. The Congresswoman was amazed how gentle and loving her family’s Poodles, Popcorn and Penny were with their puppies.

This bond kindled her love for dogs and her desire to protect them. In fact, one of the most important issues to the Congresswoman is ensuring animals have access to affordable and necessary care. The Congresswoman believes, “Our nation’s families need access to good, affordable veterinary care to help us take care of our pets.” She has cosponsored legislation to help veterinarians receive the training and financial aid they need to be successful. She also notes, “Our nation is facing a critical shortage of veterinarians in rural communities and we need to invest in veterinary access.” ■



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Did You Know?

- The Golden Retriever was recognized by the AKC in 1925 and was the AKC’s 78th breed.
- Goldens are among the most popular breeds in America and are familiar faces from numerous media spots, including the movie “Air Bud” and the TV show “Full House.”
- The Golden Retriever was admired from the beginning of its history in America, but the breed’s popularity really took off in the 1970s, the era of President Gerald Ford and his beautiful Golden named Liberty.
- Golden Retrievers are serious workers at hunting and field work, as guides for the blind, and in search-and-rescue. Most enjoy obedience and other competitive events, and they have an endearing love of life when not at work.

Breeder Expertise, Thoughtful Analysis Demonstrate Dangerous Flaws in Broad ‘Feel Good’ Dog Law

Recently Senator Richard Durbin and Congressman Brian Fitzpatrick introduced companion measures S. 1385 and HR 2840 to establish new federal mandates for pet breeders subject to USDA licensing and inspections under the federal Animal Welfare Act (AWA). These bills are re-introductions of the “Puppy Protection Act” from the 116th Congress that AKC has expressed concerns about.

In the language of the AWA, USDA licensed breeders are referred to as “pet dealers”. While the language implies that these are large “commercial breeders” – and it can include them – many people don’t realize it also impacts small specialty and hobby breeders who raise an occasional litter of puppies in their homes and do not operate large commercial facilities.

To understand why parts of this measure are problematic, it’s crucial to consider *who* it impacts: Not just commercial facilities, but any person who keeps more than four intact female small pet mammals: Any combination of dogs, cats, gerbils, rabbits, hamsters, etc. —and transfers even one pet sight unseen (including for rescue) is subject to USDA licensing. Laws that may make sense for a kennel of 50 dogs may not make sense for an owner of four.

AKC cares deeply about the wellbeing of all dogs. The vast majority of breeders AKC works with are small hobby breeders who raise puppies as a labor of love in their homes or small hobby kennels. *Many of HR 2840/S 1385’s specific requirements can be categorized as good practices for general pet care, so why is AKC concerned about this?*

When good general practices are turned into arbitrary one-size fits all federal mandates, they require everyone to abide by a specific requirement, even if it’s not in the best interest of their dogs. Arbitrary requirements fail to consider the broad range of breeds and types of dogs, best health and breeding practices, or allow for creative approaches and flexibility that allow expert breeders, veterinarians and owners to provide optimal care for individual dogs and advance the art and science of responsible dog breeding.

Guidelines like those in HR 2840/S 1385 can make good general practices, but bad federal mandates. Here are some examples:

Unfettered access to an outdoor exercise area. This sounds good, but allowing all dogs unfettered access to a play yard large enough for running strides may be unsafe and a logistical nightmare. Will each dog go back to its own kennel by itself when finished playing? What if some don’t get along? What if there are females in heat? What if there is insufficient space for private yards of this size for each dog?

Frequency of meals. Few people would disagree that two meals a day are standard practice for canine care (although young puppies are typically better off with four, and older dogs may only need one, or wish to “graze” throughout the day). Does a federal law mandating two meals a day, in lieu of existing Animal Welfare Act requirements for sufficient and appropriate food, really advance the wellbeing of dogs? While we’re at it, should the federal government also put similar laws in place for humans?

Flooring. In most cases, solid flooring in a kennel is preferred. How-

ever, research by Purdue University^[i] and others find that dogs actually benefit from multiple types of flooring and recognizes the health and sanitation benefits of high quality engineered slatted/perforated flooring. Why then, should a federal law mandate solid flooring only?

Temperatures. There is no species more diverse than canines. A general prohibition of temperatures below 45 degrees or above 85 degrees makes sense for most, but not all. Northern breeds (such as Alaskan Malamutes or Siberian Huskies) prefer and can easily handle temperatures well below freezing. Other dogs, especially newly-born puppies (who require temps significantly higher than 85 degrees) can thrive in higher temperatures. Dogs that hunt, sled, detect explosives, or do other work must be acclimated to cooler or warmer temperatures for their safety.^[ii]

HSUS Weighs In, Claiming that Breeders Kill Retired “Breeding Dogs”

In a blog supporting the measure, the Humane Society of the United States (HSUS) stated the act would require “additional critical changes to the regulation of (licensed) breeders ... (including) requiring that breeders attempt to re-home retired breeding dogs instead of killing them.”^[iii]

Breeders are dog owners. In most cases, the dog that is bred is also a personal pet. HSUS’s outrageous accusation that breeders kill their pets is an insult to all responsible dog owners and should be retracted. As with any other owner, if a person needs to find a new home for a pet, the choice belongs to the owner and the owner should have the option of selecting the best home or rehoming process for that pet. The U.S. has such a large demand for pet dogs that Americans import one million pet dogs a year^[iv], and many still have trouble finding the right pet. HSUS’s accusation simply doesn’t pass the sniff test.

The outrageous implication about breeders killing dogs is yet another example of false narratives and policy proposals intended to mislead the public about dog breeders. Given their anti-breeder agenda, it’s no surprise they have little or no breeding expertise or experience.

The truth is, the vast majority of breeders being slandered are dedicated individuals who lovingly persevere in preserving their bloodlines and providing quality pets to families lucky enough to get one – even as their integrity and expertise comes under constant attack from groups who oppose owning or breeding purpose-bred pets.

Expert dog breeders must have the flexibility to care for their pets in the best and most appropriate manner to ensure each animal receives the care it needs and deserves. They – and the facts – should be consulted when proposing legislation that impacts them. ■

[i] USDA, Purdue University et al., <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5946143/>

[ii] [Dogs and Temperatures, One Size Does Not Fit All](#), 11/19/2019

[iii] HSUS Blog, 9/30/2020, https://hsif.org/blog/2020/09/Congress-takes-steps-curb-pandemics-puppy-mills-during-busy-day-on-Capitol-Hill-yesterday?utm_source=feedblitz&utm_medium=FeedBlitzRss&utm_campaign=hsif_4/27/21_Puppy_Protection_Act_would_end_some_of_the_worst_puppy_mill_cruelties_I_Animals_&Politics

As reported by the US Centers for Disease Control, Federal Register 01/31/19, pp. 724-30.

AKC is More than Champion Dogs, We're the Dog's Champion



The American Kennel Club is a non-profit organization dedicated to promoting responsible dog ownership, preserving purebred dogs, the health and well-being of all dogs, and advocating for science-based canine policy that is reasonable, enforceable and non-discriminatory.

Did you know?

- AKC is the world's largest all-breed dog registry.
- AKC has more than 5,000 local and breed-based dog clubs throughout the U.S.
- AKC hosts over 22,000 dog events per year with more than 3.3 million entries (2019 data) including breed conformation, agility, obedience, field trials, and more.
- AKC events can inject more than \$1.7 million into the community during each event.
- Nationwide, AKC dog events can generate more than \$1.5 billion a year in local spending.
- AKC Canine Health Foundation funds research projects that focus on all aspects of the physical, mental, and social well-being of dogs. AKC CHF's \$59.5 million investment has resulted in over 1,040 research grants, countless canine health projects, and 828 peer-reviewed publications.
- AKC's Detection Dog Task Force works to help address the shortage of high-quality U.S. -bred and -trained explosive detection dogs to protect public safety and national security.
- For more than a decade, AKC Humane Fund has provided grants to shelters that house victims of domestic abuse with their pets.
- AKC Pet Disaster Relief program helps local Emergency Management provide animal care services immediately following a disaster, including a donation of a trailer stocked with essential supplies to house over 65 pets the critical first few days following a disaster. To date, more than 90 emergency relief trailers have been donated to communities around the nation.
- AKC co-founded American Service Dog Access Coalition (ASDAC), a charitable organization of industry leaders working together to establish Service Dog Pass™ an authoritative, verifiable service dog credential to establish and incentivize compliance with behavioral and health standards for service dogs and to address fraudulent misrepresentation of pets as service dogs.
- AKC Reunite has reunited more than 500,000 lost pets with their owners, donates microchip scanners to shelters, and helps reunite pets displaced by storms and other disasters. The Adopt A K9 Cop Program has donated funding for police K-9s to more than 25 police departments.
- AKC's Rescue Network provides financial assistance to non-profit rescue groups. More than 450 AKC Rescue Network groups are located across the U.S.
- AKC has a dedicated team of field agents who visit & inspect kennels to educate breeders and ensure proper care and conditions of AKC-registered dogs and accurate record keeping. Since 2000, AKC field agents have conducted over 70,000 inspections nationwide.
- AKC created the Canine Good Citizen® program - A 10-step test that encourages and certifies dogs who have good manners. Over 1 million dogs have earned CGC certification.
- AKC provides teachers nationwide with academically rigorous lesson plans and activities that incorporate core subject areas for grades K-12 and teach about responsible dog ownership.
- And much more!



Labrador Retriever Celebrates 30 Years in the Top Spot as French Bulldog Overtakes German Shepherd Dog for Number 2 Spot



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Lab lovers continue to make their voices heard! The American Kennel Club announced once again that the ever-popular Labrador Retriever is the nation's favorite dog for the 30th consecutive year.

While the loveable Lab holds firmly to the top spot, the French Bulldog is continuing to skyrocket in popularity. The Frenchie landed at number two in 2020, knocking the German Shepherd Dog down to third. The German Shepherd Dog had been the second most popular dog breed since 2009.

“America’s love for Labs is undeniable,” said AKC Executive Secretary Gina DiNardo. “They’re such versatile, family-friendly dogs that it’s no wonder they’ve been so popular for 30 years. The French Bulldog, however, seems poised to end the Lab’s reign. The playful, adaptable Frenchie has become increasingly popular over the past decade and shows no signs of slowing down. As always, we encourage people to do their research to make sure they are not just getting a purebred dog, but most importantly a well-bred dog from a responsible breeder.”

In Washington DC, the Labrador Retriever continues to lead the pack, followed by the beloved Golden Retriever. A list of the District’s top 10 dog breeds is listed below:

1. [Retrievers \(Labrador\)](#)
2. [Retrievers \(Golden\)](#)
3. [French Bulldogs](#)
4. [Poodles](#)
5. [German Shepherd Dogs](#)
6. [Cavalier King Charles Spaniels](#)
7. [Bulldogs](#)
8. [Bernese Mountain Dogs](#)
9. [Pembroke Welsh Corgis](#)
10. [Havanese](#)

See below for AKC’s overall most popular breeds in 2020, along with the 2019 comparison:

2020 Most Popular Dogs in the U.S.

1. [Retrievers \(Labrador\)](#)
2. [French Bulldogs](#)
3. [German Shepherd Dogs](#)
4. [Retrievers \(Golden\)](#)

2019 Most Popular Dogs in the U.S.

1. [Retrievers \(Labrador\)](#)
2. [German Shepherd Dogs](#)
3. [Retrievers \(Golden\)](#)
4. [French Bulldogs](#)

American Kennel Club Welcomes Biewer Terrier to its Pack



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The American Kennel Club announced earlier this year, that the Biewer Terrier has received full recognition, and is eligible to compete in the Toy Group. This addition brings the number of AKC-recognized breeds to 197.

“We’re thrilled to have the Biewer Terrier join the registry,” said Gina DiNardo, AKC Executive Secretary. “This wonderful little dog makes a great companion for a variety of people, and we’re excited to introduce dog lovers to another fantastic breed that may be a perfect match for their family. As always, we en-

courage people to do their research to find the right breed for their lifestyle.”

Joining the Toy Group, the Biewer Terrier is a happy-go-lucky dog with a childlike, whimsical attitude. Their purpose is to love and be loved, making them excellent companions. These dogs are loyal and a friend to all they meet. Their long coat requires daily brushing to keep it free of mats. Biewer Terriers are easy going and don’t need a great deal of exercise. Daily walks and playtime will give them the activity they need. ■



About AKC Recognition

AKC Recognition offers the breed the opportunity to compete at all levels of AKC-sanctioned events. Recognition does not necessarily mean that the breed is a newly created breed. Many of the breeds that gain full AKC-recognition have existed for many years, and some are ancient. To become an AKC-recognized breed there must be an active following and interest in the breed by owners in the U.S. as well as an established breed club of responsible owners and breeders. There also must be a sufficient population of dogs in the United States geographically distributed throughout the county. Breeds working towards full recognition are recorded in AKC’s Foundation Stock Service® (FSS®). Additional information on the process can be found at akc.org.

15 Popular Presidents and Their Pups



From Washington's Foxhounds to Obama's famous Portuguese Water Dogs, presidential pups are as traditional as baseball and apple pie. Almost all of our presidents have shared the White House with a dog. These presidential pooches became as much a staple of the capitol as the rest of the First Family and "spoke" more than words ever could about the nature of our leaders.

In January 2021, Joe Biden's two German Shepherd Dogs Champ and Major restored the tradition of presidential pups to the White House. To celebrate the return of First Pets, we take a look back at some of the most famous four-legged friends in American history.

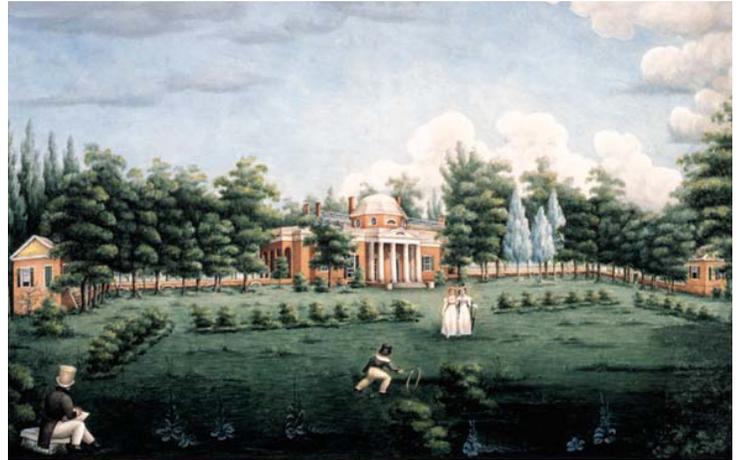
George Washington

George Washington, the father of our nation, is also the father of [American Foxhounds](#). In 1770, Washington imported a number of hounds from England, and in 1785, the Marquis de Lafayette gave him some French hounds. Washington maintained and carefully bred these hounds, and they became the ancestors of today's American Foxhound. More than 30 hounds were listed in Washington's journals, including Sweet Lips, Drunkard, Tipler, and Topsy. Washington didn't invent American Foxhounds single-handedly, but he was a key player in the breed's development.



Thomas Jefferson

Thomas Jefferson became interested in [Briards](#) while serving as minister to France. He purchased a pregnant female, named Buzzy, and started his breeding program. Lafayette also sent Jefferson two more Briards to help protect the sheep at Monticello. There is no record of them living at the White House.



@first_dogs_usa

Theodore Roosevelt

Theodore Roosevelt owned a [Saint Bernard](#) named Rollo, a Pekingese named Manchu (belonging to the president's daughter Alice), a [Chesapeake Bay Retriever](#) named Sailor Boy, his son [Kermit's Manchester Terrier](#) called Blackjack, and a [Bull Terrier](#) named Pete, who ripped the pants of a French ambassador.



Continued on next page

Herbert Hoover

Herbert Hoover owned a Wire Fox Terrier named [Big Boy](#), a [Norwegian Elkhound](#) called Weeje, an [Irish Wolfhound](#) named Patrick, and a [Belgian Malinois](#) named [King Tut](#).



Franklin D. Roosevelt

Franklin D. Roosevelt's [Scottish Terrier](#) "Fala" reportedly received more fan mail than many presidents did. FDR also had a [Bullmastiff](#) named "Blaze," two [Irish Setters](#) named "Jack" and "Jill," a [Bulldog](#) named "Pal," an [English Setter](#) named "Winks," another Scottish Terrier named "Meggie," a German Shepherd Dog named "Major," and a [Great Dane](#) named "President," which made things confusing in the White House.



Dwight D. Eisenhower

Dwight D. Eisenhower owned two Scottish Terriers named Caacie and Telek, and a [Weimaraner](#) named Heidi.



John F. Kennedy

John F. Kennedy owned a [Welsh Terrier](#) named Charlie, an [Irish Wolfhound](#) aptly named Wolf, a German Shepherd Dog named Clipper, and an [English Cocker Spaniel](#) named Shannon. Jackie had a [Standard Poodle](#) named Gaullie. The family also owned [Pushinka](#), a mixed-breed dog which was a gift from Soviet Premier Nikita Khrushchev.



Richard Nixon

Richard Nixon owned a [Cocker Spaniel](#) named Checkers, a [Yorkshire Terrier](#) named Pasha, a Poodle named Vicky, and an Irish Setter named King Timahoe.



Gerald Ford

Gerald Ford owned a [Golden Retriever](#) named Liberty and her puppy, Misty.



Ronald Reagan

Ronald Reagan owned a [Bouvier des Flandres](#) called Lucky, and a Cavalier King Charles Spaniel named Rex. He also had four other dogs that lived on his ranch. — a Golden Retriever, Irish Setter, Belgian Sheepdog, and Siberian Husky.



George Bush

George Bush owned an [English Springer Spaniel](#) named Millie, who is the author of a dogobiography called “Millie’s Book,” and Ranger, one of Millie’s pups.



Bill Clinton

Bill Clinton owned a chocolate [Labrador Retriever](#) named Buddy.



George W. Bush

George W. Bush owned an English Springer Spaniel named Spot (daughter to Millie), and two Scottish Terriers named Miss Beazley and Barney.



Barack Obama

Barack Obama welcomed two [Portuguese Water Dogs](#) into his family after his inauguration. They are named Bo and Sunny.



Joe Biden

Joe Biden and his wife, Jill Biden, restored the tradition of presidential pets to the White House on Jan. 20, 2021 with their two German Shepherd Dogs: Champ, 12, and Major, 2. Joe Biden promised Jill he would get a dog after the 2008 election if Barack Obama won. Jill Biden then attached pictures of different dogs to the seats of Biden’s campaign plane for him to see. He bought the puppy from a breeder in Pennsylvania, and it was named Champ (born October 2008) by his granddaughters. Major (born January 2018) was adopted by the Bidens from a local Delaware rescue.



A big thanks to the [Library of Congress](#) and [White House](#) websites for many of these wonderful photographs. ■



The AKC Canine Health Foundation Celebrates its 26th Anniversary with Over \$535,000 in New Canine Health Grants Awarded



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

The AKC Canine Health Foundation (CHF), a non-profit organization dedicated to advancing the health of all dogs and their owners, celebrates its 26th anniversary with more than \$535,000 in new canine health research grants awarded this year.

CHF was founded by the American Kennel Club as an independent, 501c3 non-profit organization in February 1995 to focus on health research benefitting dogs. Since then, the Foundation has awarded over \$59 million in more than 1,040 research and educational grants and canine health projects to prevent, treat and cure canine disease. CHF also uses a One Health approach in its funding, supporting research that improves the health of dogs while simultaneously advancing research for human medicine.

Four newly awarded oncology grants support exploration of how canine cancers such as lymphosarcoma, hemangiosarcoma, melanoma, and mammary gland tumors evade the immune system and chemotherapy drugs. One grant ([02879](#)) represents CHF's first time funding a study using the powerful gene editing tool CRISPR. A fifth oncology grant provides funding for a clinical trial of combination chemotherapy for mast cell tumors, a common malignant skin tumor in dogs. Canine oncology research normally occupies about one-quarter of CHF's research portfolio at any given time and remains a top priority for researchers, dog owners, and veterinary professionals. Learn more at [akcchf.org/caninecancer](#).

Additional grants awarded in early 2021 are 'Acorn grants' for gastrointestinal, musculoskeletal, and hormonal disease. Acorn grants provide funding for smaller projects and pilot studies which are important to demonstrate feasibility and produce preliminary data that guides additional study and future investments.

"The AKC Canine Health Foundation maintains a rigorous scientific review process before, during, and after grants are awarded," states CHF Executive Director, Calvin Carpenter, DVM, MBA, DACLAM. "This ensures that we invest in quality research with the most potential to advance the health of dogs. The grants already awarded in 2021 continue that excellence, providing knowledge that can help all dogs live longer, healthier lives."

In 2021, CHF has once again achieved Charity Navigator's highest four-star rating and maintained a GuideStar Platinum Seal of Transparency. These ratings and the newly awarded grants demonstrate CHF's commitment to quality research and improving canine health. Learn more about CHF's research portfolio at [akcchf.org/research](#).

A One Health Approach to Beating Cancer

One Health is a collaborative approach to understanding health and disease in humans, animals, and the environment. When physicians, osteopathic physicians, veterinarians, nurses, and other scientific-health and environmentally related disciplines work together, gains in scientific knowledge occur more rapidly and more efficiently. One Health is a guiding principle in the AKC Canine Health Foundation's mission to advance the health of all dogs and their owners. Recent discoveries by AKC Canine Health Foundation (CHF) funded researchers demonstrate the power of this approach in fighting cancer, a devastating disease found in humans and dogs.

With rapid advancements in the technology used to study DNA, scientists are investigating the genomics of cancer - describing the structure, function, and editing of genetic material in tumors and normal tissue. Understanding the number, location, and variety of genetic mutations found in various cancers provides insight on how the cancer develops and progresses. Knowledge of how and where these mutations affect cell to cell communications that facilitate cancer indicates potential treatment targets. If we block the effects of a mutation, we may be able to block cancer progression. Some promising examples from CHF-funded research include the following:

- Bladder cancer – Invasive urothelial carcinoma represents approximately 25% of human bladder cancers and is the most common bladder cancer in dogs. The clinical presentation, age of onset, and response to treatment are similar in both species. Investigators identified two clusters of dysregulated genes in

canine bladder tumors that correspond with similar mutations in human bladder tumors.

[Grant 00754A: Mapping of the Gene for Transitional Cell Carcinoma in the Scottish Terrier & West Highland White Terrier](#)

[Grant 01336A: Finding the Mutations that Increase Susceptibility to Transitional Cell Carcinoma in the Scottish Terrier, West Highland Terrier, and Shetland Sheepdog](#)

[Grant 01577: Identifying the Genes Conferring Risk for Transitional Cell Carcinoma](#)

- **Histiocytic Sarcoma** – Histiocytic sarcoma is a rare, aggressive, and varied cancer in humans – all properties that make it difficult to study. Its prevalence in several dog breeds such as Bernese Mountain Dogs and Flat-Coated Retrievers provides a better opportunity to understand the molecular mechanisms of this disease. Investigators found mutations that affect one specific cell signaling pathway in the majority of visceral disseminated canine histiocytic sarcoma cases, the most aggressive form of this cancer in dogs. That same mutation was found in several human patients.

[Grant 02446: Development of Genetic Biomarkers to Improve Diagnosis and Treatment of Canine Histiocytic Sarcoma](#)

- **Osteosarcoma** – Osteosarcoma is the most common bone cancer in dogs and is similar to pediatric bone cancer in humans. A cell to cell communication pathway known as the Hedgehog cell signaling pathway normally regulates cell growth and differentiation in human bones. When that regulation is disrupted, a cascade of events occurs resulting in the activation of genes that cause cancer growth. Investigation of the Hedgehog

cell signaling pathway in canine osteosarcoma showed variable similarities, indicating that this pathway plays a role in canine bone cancer, but not exactly the same role as in human bone cancer.

[2016 Clinician-Scientist Fellowship, Cornell University](#)

- **Hemangiosarcoma** – Human angiosarcoma is another rare, aggressive, and varied human cancer that affects blood vessel cells. The canine equivalent is hemangiosarcoma, a devastating cancer that affects the spleen, heart, and skin of dogs. Investigators identified mutations in one tumor suppressor gene and two tumor promoting genes in canine hemangiosarcoma tissues that resemble mutations seen in human angiosarcoma tumors of the breast and viscera (internal organs).

[Grant 01131: Genetic Background and the Angiogenic Phenotype in Cancer](#)

Understanding the similarities and differences in tumor biology between humans and dogs is an important step in helping both species fight cancer. Naturally occurring cancer in dogs is often a good model for human cancer because disease development and response to treatment can be similar in both species. Exploring the genetic characteristics of various cancers is critical to refine our knowledge of the disease and focus our treatment efforts. The AKC Canine Health Foundation and its donors are committed to this One Health approach to beating cancer, so that both dogs and humans can live longer, healthier lives.

Explore our Research Grants Portfolio at akcchf.org/portfolio for studies in oncology and other health concerns that have One Health implications. ■

1. Parker, H. G., Dhawan, D., Harris, A. C., Ramos-Vara, J. A., Davis, B. W., Knapp, D. W., & Ostrander, E. A. (2020). RNAseq expression patterns of canine invasive urothelial carcinoma reveal two distinct tumor clusters and shared regions of dysregulation with human bladder tumors. *BMC Cancer*, 20(251). doi.org/10.1186/s12885-020-06737-0

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