Exciting news! DOG FANCY RELAUNCHES NEXT ISSUE AS dogster MAGAZINE

DOG FANCY
Final Issue

THE AUTHORITY ON ALL THINGS DOG

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LEARN MORE ABOUT THE Beagle p. 57

DogChannel.com
WSU ESTABLISHES FIRST PERSONALIZED MEDICINE PROGRAM FOR ANIMALS

What if you knew before giving your dog a drug how she would respond to it? Such information could help prevent unanticipated adverse reactions and increase the drug’s effectiveness, according to Katrina Mealey, D.V.M., Ph.D., a pharmacologist and internal medicine specialist at Washington State University’s College of Veterinary Medicine in Pullman, Wash. Mealey, head of WSU’s Veterinary Clinical Pharmacology Laboratory, has established the first personalized medicine research program for animals. “Personalized medicine, also called individualized medicine, customizes drug therapies based on the individual’s unique genetic makeup,” Mealey says. “Personalized medicine has exploded in human healthcare based on the growing understanding of the role genes play in health and disease, and our goal is to advance this field of veterinary medicine.” Her research focuses on pharmacogenomics, which identifies genetic and other molecular variants that determine how an individual animal will react to a given drug.

Certain genes encode for proteins that control how the body transports, distributes, and eliminates specific drugs, according to Mealey. “Animals with a genetic defect are unable to limit absorption and distribution of drugs controlled by that gene, leaving them susceptible to toxicities,” she says.

Mealey’s first discovery, published in 2001, identified a genetic sensitivity among herding breeds to more than a dozen different drugs, resulting from a mutation in the multidrug resistance gene, known as the MDR1 gene. The most serious toxic reactions involve anti-parasitic agents, such as ivermectin and milbemycin, the anti-diarrheal agent loperamide (brand name Imodium), and several anti-cancer drugs. “Testing for mutation of the MDR1 gene is now standard of care prior to prescribing these drugs to susceptible breeds, such as Collies and Australian Shepherds,” Mealey says.

Mealey and her colleagues are currently studying additional gene mutations that can help predict adverse reactions to other drugs. “Our goal is to help design safer and more effective drug therapies based on the individual animal’s genetic profile,” she says.

For more information, visit www.vetmed.wsu.edu/vcpl
— Diana R. Laverdure

Cornell launches website to improve health of dogs’ hips and elbows

Selectively breeding dogs for specific physical and behavioral attributes has produced roughly 400 breeds, but the practice has also left many purebred and designer mixed-breed dogs at risk for a variety of genetic diseases. To help combat the problem, Rory Todhunter, BVSc, Ph.D., a diplomate of the American College of Veterinary Surgeons and professor of surgery at Cornell University’s College of Veterinary Medicine in Ithaca, N.Y., and his colleagues have launched the Cornell Estimated Breeding Value website. The public can use this free database to locate the genetic potential for hip and elbow dysplasia in more than a million registered purebred dogs. “For the first time in our country, breeding value information is available to anyone interested in improving the health of pure-breed dogs for important factors such as orthopedic disease,” Todhunter says.

The data combines the dogs’ pedigree information with hip and elbow scores derived from the Orthopedic Foundation for Animals. In addition to finding data on individual dogs, users can select two dogs, and the software calculates the estimated genetic quality of the offspring. “By understanding the potential health of offspring prior to breeding, we can dramatically decrease the incidence and severity of diseases such as orthopedic malformations and improve the health of future generations,” Todhunter says.

Selective breeding based on genetic quality is not a new concept, according to Todhunter. “People have been breeding livestock and plants this way for decades,” he says. “The practice is also common among organizations that breed service and therapy dogs.”

Todhunter plans to update the site to add information on new generations as it becomes available. “I treat dogs in clinical practice at Cornell with inherited hip and elbow dysplasia all the time, so I’m committed to promoting breeding practices that first and foremost respect the health of the dog,” he says.

For more information on the EBV site, visit www.vet.cornell.edu/research/bvhip
— D.R.L.