



BITS & BITES

GENETIC MUTATION IDENTIFIED: Scientists at the University of Saskatchewan and the University of Minnesota's College of Veterinary Medicine have identified a genetic mutation in Labrador retriever dogs that is highly associated with exercise-induced collapse (EIC) syndrome.

The findings published in the September 21, 2008, issue of *Nature Genetics* are expected to help dog breeders gradually reduce the number of Labradors with the trait in future generations.

After intense hunting or retrieving exercise, EIC-affected Labradors start to lose control of their hind limbs. In most cases, their legs get wobbly and their limbs give out. In rare cases, the dogs may die. Labradors are the most common dog breed in the world and an estimated three to five per cent of Labradors have this condition.

"After 13 years of working on this problem, we now have the definitive answer about the syndrome's true cause for Labrador breeders and owners. This discovery will have a huge impact on the Labrador breed worldwide," says **Dr. Susan Taylor**, a professor of small animal internal medicine at the WCVM.

"This is very exciting because it is the first naturally occurring mutation of this gene identified in any mammal," adds James Mickelson, professor of veterinary sciences and a genetic researcher at the University of Minnesota. "Its discovery could offer insight into normal as well as abnormal neurobiology in both animals and humans."

The research team identified a mutant form of the *dynammin 1* gene as highly associated with EIC. The dynammin 1 protein normally maintains proper chemical communication between adjacent nerves, also known as synaptic transmission.

The mutated form of the dynammin protein in dogs with EIC appears to have diminished function. As a result, synaptic transmission is interrupted during intense exercise and excitement, causing collapse.

The researchers have also developed a genetic test for the mutated gene and determined that up to 30 per cent of Labrador retrievers are carriers of the mutation. EIC is inherited as an autosomal recessive trait, with affected dogs inheriting one copy of the mutation from each parent. Owners can have their dogs tested through their veterinarian by submitting a blood sample to the University of Minnesota Veterinary Diagnostic Laboratory.

Taylor and her WCVM colleague, small animal surgeon **Dr. Cindy Shmon**, initiated a comprehensive clinical investigation of EIC in 1995 after examining an affected dog that was referred to the WCVM Veterinary Teaching Hospital. Suspecting that the syndrome had a novel genetic basis, Taylor contacted Mickelson and Edward Patterson at the University of Minnesota in 2001.

"The genetic research was based on more than 300 blood samples and pedigrees that we collected from affected and unaffected Labradors throughout North America," says Taylor, who breeds Labradors and competes with them in retriever field trials.

The Companion Animal Health Fund provided funding for the initial EIC investigations. The canine researchers also received financial support from the Morris Animal Foundation and the American Kennel Club Canine Health Foundation.

Visit www.cahf.usask.ca to read EIC-related articles previously published in *Vet Topics* (articles available in PDF format at end of news story about the EIC genetic mutation discovery).

Meet Boomer, your new messenger.

Cat got your tongue? Let Boomer, Peg-leg, Maggie and friends help you say it with words and great images instead. The Companion Animal Health Fund's new **pet photo notecards** will deliver your heartfelt messages with furry style — 365 days of the year.

CAHF notecard sets also make great gifts for your pet-loving family and friends. Each set of **16 high quality cards** brings you four different images for only **\$20!***

At the same time, you're supporting vital **companion animal health research and training programs** at the Western College of Veterinary Medicine.

Visit www.cahf.usask.ca to download a CAHF notecard order form. **Questions?** Call 306-966-7268 or email wcvm.support@usask.ca.

**Dog and cat notecard sets are sold separately. Each set includes 16 blank cards and envelopes (4.25" x 5.5") with four different images. Price includes GST, PST and shipping.*

ON OUR FRONT COVER: Bram, a 12-year-old golden retriever, receives chemotherapy from medical oncologist Dr. Valerie MacDonald (right) and technician Lesa Altrogge in the Veterinary Teaching Hospital's new medical oncology room. Visit www.cahf.usask.ca to read more about Bram.

Vet Topics is published by the Western College of Veterinary Medicine's Companion Animal Health Fund. Visit www.cahf.usask.ca for more information.

Editor: Dr. John Pharr
Managing editor: Myrna MacDonald
For article reprint information, contact sm.ridley@sasktel.net

Comments? Contact:
Dr. John Pharr, Editor, *Vet Topics*
Western College of Veterinary Medicine
University of Saskatchewan
52 Campus Drive, Saskatoon, SK S7N 5B4
T: 306-966-7060 • F: 306-966-7174
john.pharr@usask.ca

Check out *Vet Topics* online at www.cahf.usask.ca

PUBLICATIONS MAIL AGREEMENT NO. 40112792
RETURN UNDELIVERABLE CANADIAN ADDRESSES TO:
Research Office, WCVM
University of Saskatchewan
52 Campus Drive
Saskatoon SK S7N 5B4
E-mail: wcvm.research@usask.ca