



**The Poodle
Club of America
Foundation, Inc.**

DNA Test for Neonatal Encephalopathy (NEwS) in Standard Poodles NE Carriers Found in All Colors, Various Pedigrees

In March, 2006, the AKC Canine Health Foundation reported that researchers at the University of Missouri College Of Veterinary Medicine had identified the gene mutation causing Neonatal Encephalopathy with Seizures (NEwS) in Standard Poodles and developed a DNA test to detect the defective gene. Subsequent testing by the Missouri researchers has shown that various pedigrees and all colors are represented among NEwS carriers, says Liz Hansen, a member of the research team. “We have no evidence that there is any link to one color or another for this disease,” she emphasizes. “Our initial study happened to be primarily with dogs that were white, but that was a by-product of the families that were brought to us by concerned breeders.”

Neonatal Encephalopathy is a fatal disease of the brain in newborns. Affected pups are weak, uncoordinated, and mentally dull from birth. If they survive the first few days, they nurse well enough, but their growth may be stunted. Some cannot stand at all. Others manage to struggle to their feet and walk with jerky movements, falling frequently. Seizures develop in most at 4-5 weeks of age, and the puppies die or are euthanized before they reach weaning age.

Hansen and her colleagues Dennis O’Brien, DVM, PhD, and Gary Johnson, DVM, began investigating this previously undescribed disease in 1997, when they examined two five-week-old Standard Poodle puppies suffering from difficulty walking and seizures. Five littermates were developing normally. Subsequently, veterinary neurologists in various areas of the country identified more than a dozen other litters with pups showing identical signs. The researchers soon suspected an inherited disease, as they found no other explanation for the problem, and the 25 percent pattern of disease strongly suggested an autosomal recessive inherited trait, in which a puppy must receive two defective copies of a gene—one from each parent—to develop the disorder.

With support from the Poodle Club of America Foundation, the team studied DNA samples from affected puppies, their parents and other relatives, as well as from dogs of other breeds for comparison. Using gene-mapping technology, they gradually narrowed the field from 30,000 genes on the 39 pairs of canine chromosomes. Once they identified the abnormal gene, they were able to devise a DNA test and offer it to breeders within only a few weeks.

“I would emphasize that people can and SHOULD use the otherwise excellent dogs that happen to test as carriers to keep their good traits for the next (and succeeding) generations,” Hansen says. “Bred to a mate tested normal, the NEwS carrier has no risk of producing affected puppies, and we would expect to see about half the litter test as normal, and about half test as carrier. If your best puppies test normal, you've eliminated the risk of this disease while keeping all the other wonderful traits of the parents. If the best puppies test carrier, the good traits are there, and the choice of mates can again be made so as to avoid problems. It's important to remember that you are breeding a whole dog every time, not just this one trait that we have a test for. The test is a tool, but it should not be the sole basis for making breeding decisions.”

The DNA test for NEwS is now available through the Orthopedic Foundation for Animals for \$65. For more information on NEwS and other diseases being studied by University of Missouri researchers, see www.CanineGeneticDiseases.net .

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