

## Genetic Tests Announced for Coat Color and Pattern

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We all know that dogs have been selected and bred to have more variation in size and body type than most domestic animals – so, it's no surprise that there is so much distinction in coat type and color. Most coat types have very diverse rationales including protection and adaptability for work and beauty in various breeds. In many breeds, there is a range of colors that are permissible within the standard and, in some breeds, all of the dogs have the same color patterns. Because of this variety, the genetics of coat color in dogs and other species has been studied for many years.

Information based on pedigrees and breeding data has led to various hypotheses and postulating, however, scientists funded by the AKC Canine Health Foundation have now unlocked the mystery. In the latest issue of "Animal Genetics," Drs. Shelia Schmutz and T. G. Berryere explain their findings and announce the genetic tests that are now available which will identify if your dog is a heterozygous or homozygous carrier for certain colors.

These findings have many implications for breeders. For many, this data will explain why some of their litters did not fit their expectations in terms of color of the pups. There is also a great educational component to the findings because many people own and love dogs and, because coat color is so visible, this information can become a valuable teaching resource and tool in explaining genetics. There are also broad human implications because of the ways in which these genes are expressed in the autoimmune and neurological genetic code – since dogs and humans share much of the same genetic makeup, this information will become invaluable in the research of autoimmune diseases.

ACORN funding from the AKC Canine Health Foundation laid the groundwork for the identification of seven genes which cause specific coat colors, and – as a result – many genetic tests have been developed for Briards, English Setters, Miniature Schnauzers, and Pug Dogs. The identification of these alleles has provided information on interactions in this complex set of genes involved in both pigmentation and neurological development.

The test is offered by HealthGene in Toronto, along with several other DNA tests for coat color. Their tests are offered as packages that are breed specific, so here are examples that include the new K test: Briards, Japanese Chins, English Setters, Miniature Schnauzers, Pugs.

Schmutz notes, "More breeds will be added over the next several weeks, and we hope that this discovery brings some recognition to canine research because of the human implications, but for me, it's just thrilling since it's about dogs!"

*Reprinted from the AKC Canine Health Foundation Website.*

[http://www.akcchf.org/news/index.cfm?article\\_id=225](http://www.akcchf.org/news/index.cfm?article_id=225)

[http://healthgene.com/canine/belgian\\_shepherd.asp](http://healthgene.com/canine/belgian_shepherd.asp)