

Book review

The Genetics of the Dog

Edited by Anatoly Ruvinsky and Jeff Sampson
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This book would be well worth the purchase price if for no other reason than to obtain the treasure-trove of references included at the end of each of its 19 well-written chapters. Written in the style of four previously published books by the same editors covering the genetics of sheep, pigs, cattle, and horses, a total of 34 contributing authors, including the two editors, wrote the book. A single author wrote six of the 19 chapters. For the remaining 13, it was interesting to note that 12 of them were written by co-authors who were from different institutions from seven different countries. The book is an amazing international collaboration among canine geneticists. Fortunately, there are numerous reasons, in addition to the long list of cited references, to purchase this book.

It seems unlikely that *The Genetics of the Dog* would be used as a course textbook on canine genetics unless the objective of the course is to simply be an overview of the field. Although there are many details in the book, most chapters present an overview of the subject matter, leaving it to the reader to find explanations of methodological details from the references. For example, if one wanted to learn how to do a linkage analysis, details would not be found in this book.

Organizationally, the book begins by looking at the origin of the dog's domestication. From there, it moves into a nicely presented summary of the experimental studies done by DK Belyaev at the Institute of Cytology and Genetics, Novosibirsk, Russia on domesticating the silver fox (*Vulpes vulpes*). Readers unfamiliar with this study may be interested to know that for 40 generations, the silver fox was selected only for tameness. Foundation animals were chosen from farm-bred populations of foxes. Changes observed in foxes as they became more and more tame are discussed.

There is a chapter on coat color and hair texture that

summarizes the current state of knowledge for 21 loci. Several examples are illustrated with black and white photographs, but this one chapter would have been well served by color photographs.

The book next moves into a series of chapters dealing with the genetics of disease. A chapter by Dr Frank Nicholas includes a table created from entries in his *Online Mendelian Inheritance in Animals* that also include cross-references to the human database *Online Mendelian Inheritance in Man* by McKusick. Researchers looking for homology between animal and human diseases could find this table worth study. In succession, chapters discuss the genetics of blood groups, molecular genetics, immunogenetics, and genetic aspects of disease. A full chapter is devoted to the genetics of orthopedic traits, including hip dysplasia.

Topics on the canine genetic map and linkage and radiation hybrid mapping are covered in two extensive chapters. One interesting feature of this section is a nine-page table listing genes that have been positioned on the radiation hybrid map.

From the microscopic level of canine genome maps, the remaining chapters cover much broader topics. An excellent chapter on the genetics of canine behavior summarizes work published in over 100 papers. Chapters on canine reproduction, developmental genetics, and pedigree analysis bring the reader up-to-date on the current state of knowledge in each area. An excellent chapter on the genetics of quantitative traits should be required reading for all members of kennel club Boards of Trustees and senior officers.

In the final analysis, *The Genetics of the Dog* offers something for everyone who breeds dogs. Dog breeders will find nuggets of truth to help them in their quest to breed better, and especially healthier dogs. Canine genetics researchers will find parts of the book to be excellent reference material. Officers and Directors of kennel clubs will find wisdom to aid them as they set rules and determine policy governing the breeds of purebred dogs.

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