Personalized Medicine Is Not Just for People: Genomics in Companion and Food Animals

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(L-R) Genome Alberta’s ‘Alberta Livestock Genomics Program, Animal Health Trust, Animal Cancer Foundation; Genome 10K Community of Scientists, Cold Spring Harbor Press
Developments in Animal Genetics & Genomics

• **Food Animal Focus** – selective genetics for production, traits, and health (FAO Report, 2007)

• **Personalized Veterinary Medicine**

• **Quest for perfection? Immortality?**
Genetic testing in domestic cats.


- 35+ genes contain 50+ mutations that cause health problems or alterations in cat appearance.
- Available to veterinarians and owners from commercial labs
- Used for veterinary health care, breed management, species identification, and forensic investigations.
Genetic Testing Resources for Clinical Care


Chapter 44
Genetics of Feline Diseases and Traits
Personalized Veterinary Medicine

• "Individualized Medicine/veterinary“ – Few results!
• Mostly opinion pieces…
Veterinary Pharmacogenetics

- Role of the cytochrome P450 enzyme system in veterinary pharmacokinetics: where are we now? Where are we going? Future Med Chem. 2011 May;3(7):855-79.


Test Information & Ordering

The Veterinary Genetics Laboratory (VGL) is internationally recognized for its expertise in parentage verification, genetic disease screening and diagnostic testing. Please select the species below for genetic test information, forms and pricing.

![Species images][1]

VGL offers parentage verification, genetic disease screening and diagnostic testing for several domestic, private and wildlife species. Please contact us for additional information.
PEDIGREE DOGS EXPOSED

A shocking expose of one of the greatest animal welfare scandals of our time.

Two years in the making, Pedigree Dogs Exposed lifts the lid on the extent of health and welfare problems in pedigree dogs, caused by decades of inbreeding and breeding primarily for "beauty" rather than health and function. Supported by strong testimony from top experts, this is a must-see film for anyone concerned with animal welfare.

To order the film, visit the Pedigree Dogs Exposed website or call 1-800-DOG-EXPO.
Dogs Are Shedding... Light on Human Health

BY SARAH RHODES

Domestic dogs (Canis familiaris), which diverged from the gray wolf (Canis lupus) more than 15,000 years ago, have become a scientist’s best friend thanks to the work of NHGRI senior investigator Elaine Ostrander and her colleagues.

At the April 29 Anita Roberts lecture, Ostrander described her work studying genes that control the morphology of some of the approximately 400 dog breeds in the world. Dogs are useful for genetic studies because selective mating has generated a diverse range of breeds that are defined by specific morphological characteristics. Scientists are able to use dogs to study the genetic basis of diseases in other species.

The Purebred Dog as an Ideal Cancer Research Model

In this edition of Genome Barks, Dr. Nick Duesbery, Co-Director of the Van Andel Research Institute’s Center for Comparative Biology and Genetics, discusses the Canine Hereditary Cancer Consortium (CHCC), a national alliance of researchers with a common hope of improving the health and welfare of humans afflicted with rare tumors, and canines affected with the same respective cancer. Dr. Duesbery credits a CHF research grant for helping set the groundwork for what eventually grew into the CHCC. CHCC researchers are unraveling the genetic causes of several cancers, including but not limited to: hemangiosarcoma, osteosarcoma, melanoma, malignant histiocytic sarcoma, and lymphoma.

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Canine Genome Analysis at NHGRI / NIH

Animal Models of Human Diseases - 2

• To understand how complex animal life evolved through changes in DNA and use this knowledge to become better stewards of the planet.
• Assemble a genomic zoo—DNA sequences representing the genomes of 10,000 vertebrate species, approximately one for every vertebrate genus.
  – Add to 120 vertebrate species already in public-sector genome projects.
  – Include living and recently extinct mammals, birds, non-avian reptiles, amphibians, and fishes, many threatened or endangered.
• Genome 10K Community of Scientists represent zoos, museums, research centers, and universities around the world
• Inaugural publication in the Journal of Heredity, November 4, 2009--the second most-downloaded article in JOH's history.
  • i5K initiative to sequence 5,000 insect genomes (March 2011)
QUESTIONS?