



Workshop 3 Summation: Genetic Testing

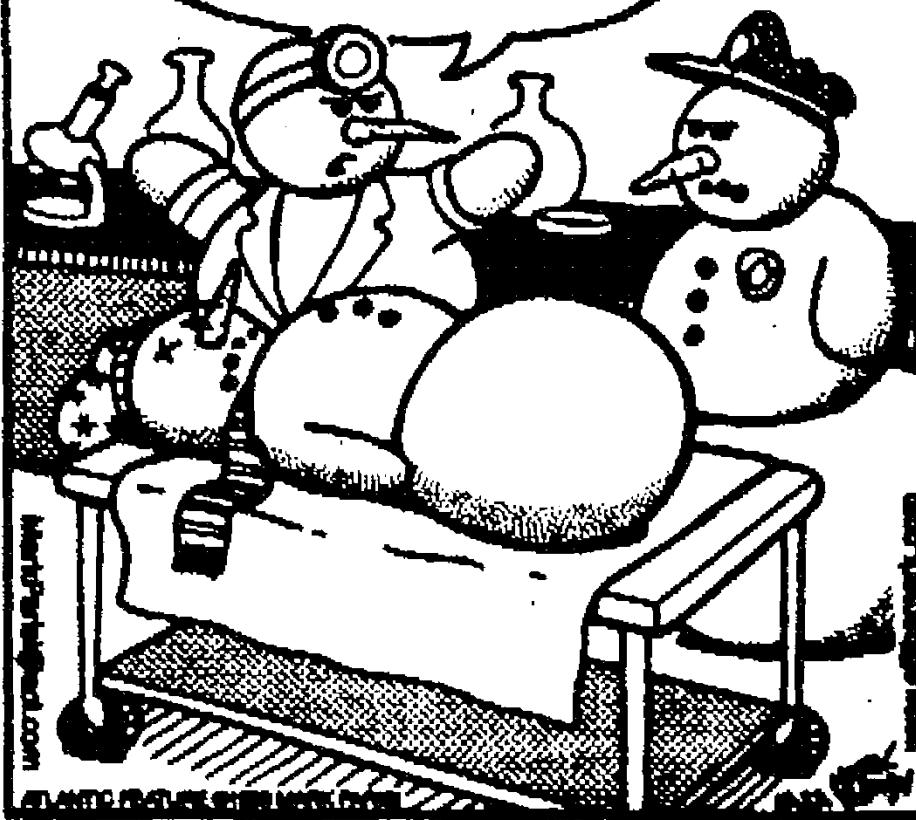


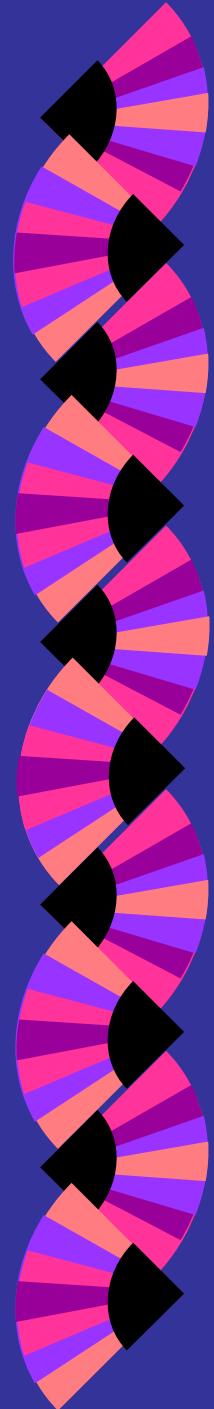
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off the mark By Mark Parisi

OF COURSE THE DNA TESTS WERE
INCONCLUSIVE! WHAT DO YOU WANT
FROM ME? NO TWO DARN SNOWFLAKES
ARE ALIKE!





Topics For Genetic Testing

- DNA biobanking
- Validation
- Laboratories
- Genetic counselling
- Standards for parentage testing



Canine and Feline Hereditary Disease (DNA) Database

<http://research.vet.upenn.edu/DNAGeneticsTestingLaboratorySearch/tabid/7620/Default.aspx>



DNA Biobanks

- Many researchers and organizations have collections of dog DNA with or without disease phenotype information
- The IPFD should create a registry of stored DNA samples with location, numbers, and disease phenotypes which can then be used in a collaborative fashion between researchers
- Release forms for DNA Banks should contain a checkoff that allows for sharing with other researchers/projects



Validation of DNA tests

- Peer-reviewed publication is the standard
 - If a test is not patented, publication allows any commercial lab to start offering the test
 - Loss of research lab testing revenue to cover development costs and refine epidemiological questions
- A system can be developed where test validation can be graded based on whether it has undergone peer review, been submitted, or has not been submitted for peer review
- The IPFD should evaluate some form of test validation



Validation of DNA tests

- Is the test based on a causative or risk-associated mutation?
 - Is the test valid and correlated to the disease in:
 - The same breed in other countries/populations?
 - Other breeds?





Validation of DNA tests

- We could not determine factors which would dictate whether a genetic test should be offered to/utilized by an entire breed
- There are too many variables including
 - Severity of disease
 - Frequency of mutation in the population
 - Population dynamics



Validation of DNA tests

- Identification of the dog being tested
 - Testing labs should identify on the test result certificate whether verification of identity (microchip) was validated by a veterinarian
- If dog identification is not validated, the “clear by parentage” designation should not be offered by registries





Validation of DNA tests

- Parentage testing
 - It would be beneficial to have a DNA fingerprint on tested samples to validate identification and parentage
 - However;
 - Would increase cost of tests
 - DNA identification has not been standardized
 - ISAG is working on standardizing dog DNA Identification



Laboratories

- There should be some minimum standards for laboratory quality control
 - Laboratory standards
 - Ability to run new tests
- The IPFD can work with representatives from testing labs to set standards





Laboratories

- Intellectual property rights
 - If a lab holds patents and licensing rights on a test, they should be honored by other labs, and registries
 - Legal aspects of patents and breeding recommendations will have to evolve with the times





Laboratories

- If multiplexing or whole genome sequencing in a commercial setting identifies mutations not known to occur in the breed, the testing lab should investigate and validate the results (prior to informing the owner?)





Genetic Counseling

- Laboratories have a responsibility to provide information to the owner regarding;
 - The nature of the genetic test
 - What the results mean
 - Basic genetic counseling
 - Resources where they can go for further information
- Breed clubs also have a responsibility to breeders and owners regarding applicability of genetic tests and genetic counseling



Genetic Counseling

- Veterinary education lags behind regarding the understanding of genetic disease testing and genetic counseling
 - WSAVA has a role to recommend more in depth veterinarian education



