



## 'Give A Dog A Genome' - the Animal Health Trust's Canine Genome Project

The canine genome is a collective term referring to the total genetic material of a dog. This genetic material is stored as DNA in genes found on the 39 pairs of chromosomes in the nucleus of every body cell. Genes are responsible for all growth and development of the dog eg breed variations such as height, hair colour, eye shape etc.

Canine gene sequencing provides the scientist with an insight into the unique breeding history of dogs, with their extraordinary behavioural and physical diversity, and offers an opportunity to study both healthy and sick dogs in a variety of breeds and hopefully isolate the specific gene mutations associated with disease eg cancer, diabetes, epilepsy etc.

This knowledge should eventually lead to huge improvements in the treatment and prevention of common canine diseases.

**The Animal Health Trust's Canine Genome Project** was introduced in early 2016, financially supported by the Kennel Club's Charitable Trust Foundation. The KC's initial donation of £25,000 was sufficient to fund 50% of the cost of sampling one dog from 25 different breeds (the cost of sampling one dog is £2000).

As uptake was huge, the Kennel Club agreed to donate further funding to enable 75 breeds to take part in the initial phase of the project.

Following confirmation of interest, Breed Clubs were then given three months to raise the £1000 required. In April 2016 the Rough Collie Breed Council agreed to set up a 'Just Giving' web page and the £1000 was raised in just two days.

Kate Arrowsmith, our Breed Health Coordinator, was then sent a questionnaire requesting feed-back on up to three health issues found in the breed. It was agreed not to include CEA, MDR1 or DM as these already have established DNA tests. At the end of June Kate therefore submitted details of two other health issues which are known to affect Rough Collies – chronic Hepatic and Pancreatic problems. 'Unexplained liver problems' had for some time been discussed in a dedicated Face-book Group and contained useful information on confirmed cases, so it was felt this should be followed up. Anecdotal evidence, over many years, suggests some Collies also suffer from colitis associated with pancreas malfunction.

Resulting from the breed submissions, the AHT will decide which dogs of each breed they wish to have tested – they will most likely request DNA samples from a healthy older dog and, in the case of Rough Collies, one that suffers from liver or pancreas problems. DNA samples will be taken from several dogs and, to maintain confidentiality, the AHT will make the ultimate decision as to which DNA sample is most appropriate for their requirements.

For further reading on the K9 Genome, see  
[http://www.aht.org.uk/cms-display/genetics\\_gdg.html](http://www.aht.org.uk/cms-display/genetics_gdg.html)