



Cavalier King Charles Spaniel Health Breeding Programme

The canine genetics team at the Animal Health Trust (AHT) focuses on helping breeders to eradicate inherited disease in their breeds. We aim to provide the essential information breeders need to avoid the birth of affected puppies and to improve the overall health and welfare of the breed. The team at the AHT has successfully identified several mutations (genetic changes) responsible for canine inherited diseases. We are also working to develop breeding programmes to improve the health of pedigree dogs in a major new initiative funded by the Kennel Club Charitable Trust. This initiative includes the development of a Health Breeding Programme for the Cavalier King Charles Spaniel, aimed at reducing the prevalence of syringomyelia and mitral valve disease in the breed.



In the first phase of the project we have worked with data collected by Dr Clare Rusbridge (Stone Lion Veterinary Centre) to demonstrate that syringomyelia is highly heritable. We are also working to establish the heritability of mitral valve disease using data collected by Mr Simon Swift (University of Liverpool Vet School) and The Cavalier King Charles Spaniel Club. We are developing a genetic evaluation scheme for both these diseases based on the estimation of breeding values.

What are estimated breeding values or EBVs?

Breeding values provide an objective numerical assessment of the genetic status of individual dogs. They are estimated from statistical analysis of pedigrees together with information about the disease status of dogs. Successful estimation of breeding values requires that information is gathered on as many dogs as possible. Once the information is gathered then breeding values can be obtained for all dogs in the population – in the first instance this will be all Kennel Club registered Cavaliers – allowing breeders to make informed decisions when planning matings. EBVs can be calculated for most dogs even if they have not been screened themselves, as long as they are related to enough dogs that have been screened.

Using EBVs will allow breeders to distinguish between high and low risk dogs when selecting parents. The predicted EBV of the puppies is half the EBV of their sire plus half the EBV of their dam. All dogs will have a predicted EBV at birth but the EBV may then be modified by the dog's subsequent clinical record or screening results and by information coming from other relatives.

Once a dog has offspring of its own then the EBV becomes more precise, because we begin to see which half of its sire and dam genes were actually inherited when we see transmission of the genes to its own offspring.

How can you help?

- **Send in your screening results**

If your Cavalier has been MRI scanned (for syringomyelia) and/or screened for mitral valve disease (heart murmur) then we would like to have a copy of the results certificates, together with the Kennel Club registered name and number of the dog or a 5-generation pedigree. EBVs will be calculated using the AHT database which combines syringomyelia and mitral valve disease data. For quality control purposes we cannot include in our database screening information about a dog unless we hold a copy of the results certificate and have owner consent to have it. All results certificates and the actual disease status of individual dogs will remain completely confidential and will not be shared with any other parties outside the AHT.

All copies of screening results certificates and pedigrees should be sent to:

Dr Sarah Blott,
CKCS Health Breeding Programme,
Animal Health Trust,
Lanwades Park, Kentford,
Newmarket,
Suffolk CB8 7UU

Or electronic copies of the documents (e.g. pdf files) can be e-mailed to sarah.blott@ah.org.uk

- **Donate a DNA sample from your dog**

We are also collecting cheek swab samples from Cavaliers for DNA extraction. Research to try to identify the genes responsible for syringomyelia (University of Montreal, Canada) and mitral valve disease (Royal Veterinary and Agricultural University, Denmark) is underway. Once DNA markers have been identified then we will be able to screen the donated samples and determine their disease genotypes. This will aid in the more precise estimation of breeding values.

To request a DNA cheek swab kit please telephone Lisa Jeffery on (01638) 750659 ext 1214 or e-mail her at lisa.jeffery@ah.org.uk