SLO (Symmetrical Lupoid Onychodystrophy). Elsa Sell

Background. We have been gathering clinical history on SLO Beardies for 3 years with surveys completed on 84 Beardies, 17 of whom had a biopsy to help establish the diagnosis. There is health status information on an additional 36 dogs offered by breeders. Effort has been made to contact breeders and to obtain health information on affected dogs' littermates and immediate family members; we thank those breeders who have been cooperative.

Dr. Anita Oberbauer's lab at UCDavis has DNA samples on 267 Beardies, primarily from the work with Addison's disease. There are only 6 DNA samples from SLO dogs with biopsy proven disease. There are 12 DNA samples on SLO dogs whose diagnosis is based on clinical response to treatment but no biopsy. Dr. Oberbauer's lab has followed up as many of the entire group as possible to obtain current health and diagnostic information.

Consultation.
Dr. Jerry Bell was asked to review family pedigrees created from many of the 110 Beardies. His advice is below:

> After reviewing the pedigree material on the SLO Bearded Collies, the BeaCon materials, and background material on SLO in other breeds, it is obvious that SLO does not have a simple Mendelian mode of inheritance. What is known about SLO is that it is one of several established auto-immune/immune-mediated diseases, and has molecular genetic links to DLA haplotypes.
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> Based on the familial/pedigree data you have collected, a molecular genetic investigation should be fruitful. Dr. Oberbauer would be the best researcher to work on this disorder. The folks at UC-Davis have already been working on Addison's disease in the breed; which is also an auto-immune/immune-mediated disease. For these complexly inherited disorders, there is likely both DLA plus other non-DLA liability genes at work in their occurrence.
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> In breeds with multiple auto-immune/immune-mediated diseases, there may be some common genetic influences for the different diseases. UC-Davis has been at the forefront of several of these research efforts in the Nova Scotia Duck Tolling Retriever, Akita, Weimaraner, and others.
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> In order to proceed with further studies in SLO in the Bearded Collie, you will need confirmed pathological diagnoses and stored DNA samples. The background Addison's samples at UC-Davis will be helpful to the effort. I spoke with Dr. Oberbauer, and she is willing to work on SLO in your breed.

Dr. Oberbauer has reviewed some of the family pedigrees, the completeness of family health information for 55 affected dogs, and the number of DNA samples available on SLO dogs (see first paragraph). She suggests doing a statistical analysis for possible modes of inheritance be attempted with the families that have complete health information. The caveat here is that the littermate health information must be accurate; one incorrect diagnosis or classification as healthy causes the statistical results to be negated. In addition she has specific recommendations regarding needed DNA samples; those are incorporated in the following section.

She has pointed out that the number of DNA samples needed depends on how they are to be used – either to study mode of inheritance, or to allow comparison among all dogs to identify gene segments that are associated with SLO or might be protective against developing SLO. Furthermore, evolving technology will influence the number of needed samples and this is an unpredictable.

Needs.

- Beardies with SLO proven by biopsy.
    - Health information on littermates, parents, and other close relatives.
    - DNA samples from these dogs and as many littermates and parents as possible.
- DNA samples from as many others as possible – with SLO and clinical response to treatment regimens or, healthy dogs (since most have developed the disease by age 8 years, samples of healthy dogs over this age would be very helpful).
- Continuing the survey to gather clinical information.
- DNA samples can be obtained from blood and provide both more DNA and a bit better quality of DNA; cheek swab samples will work; both sources of DNA from the same dog are optimal.

Why persist in the effort? Dogs with SLO suffer pain at least acutely at onset of the disease and sometimes chronically, there are repeated vet visits sometimes with specialists, an occasional dog is euthanized when the problem is uncontrollable, and owners suffer emotionally and financially. If you've kept up with previous articles about SLO in this newsletter you will be aware of the data suggesting there may be a genetic link between certain immune genotypes and SLO, as also referenced by Dr. Bell. If not, you will find the links to those newsletter articles on BeaCon's website.

Links for SLO Survey and DNA sampling and the clinical survey are found on BeaCon's home page (www.beaconforhealth.org).